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# **MEDIA CENTER RENOVATIONS AT MAURICE HAWK ELEMENTARY SCHOOL AND VILLAGE ELEMENTARY SCHOOL**

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**WEST WINDSOR-PLAINSBORO REGIONAL SCHOOL DISTRICT**  
WEST WINDSOR TOWNSHIP - MERCER COUNTY - NEW JERSEY



**FVHD Project #5063F2 – Maurice Hawk Elementary School**  
**FVHD Project #5063I4 – Village Elementary School**

**French and Parrello Associates, P.A.**  
**Consulting Engineers**

**May 22, 2023**

## **SPECIFICATIONS**

for

### **MEDIA CENTER RENOVATIONS AT MAURICE HAWK ELEMENTARY SCHOOL AND VILLAGE ELEMENTARY SCHOOL**

for the

### **WEST WINDSOR-PLAINSBORO REGIONAL SCHOOL DISTRICT**

Mercer County, New Jersey

#### **FVHD PROJECT #5063F2 - Maurice Hawk Elementary School**

305 Clarksville Road, Princeton Junction, NJ 08550

#### **FVHD PROJECT #5063i4 - Village Elementary School**

601 New Village Road, West Windsor, NJ 08550

#### **FRAYTAK VEISZ HOPKINS DUTHIE, P.C.**

##### **Architects – Planners**

1515 Lower Ferry Road, Trenton, NJ 08618

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**NOTICE TO BIDDERS**  
**West Windsor-Plainsboro Regional School District**  
**Mercer County, New Jersey**

NOTICE IS HEREBY GIVEN that the West Windsor-Plainsboro Board of Education (“Owner”) will receive bids for **Media Center Renovations at Maurice Hawk Elementary School and Village Elementary School**, together with all work incidental thereto, in accordance with the requirements of the drawings and specifications prepared by Fraytak Veisz Hopkins Duthie, P.C. (FVHD), Architects-Planners, [www.fvhd.com](http://www.fvhd.com), **FVHD Project #5063F2 / 5063I4**.

Bids will be received for: Single Overall Contract (C009 or C008 with C029, C030, C032, C047)

Sealed Bids are due by **Wednesday, June 21, 2023, 2:00 PM** to the West Windsor-Plainsboro Board of Education, 321 Village Road East, West Windsor, NJ 08550, and will be publicly opened and read immediately thereafter. Any Bid received after that time shall be rejected.

Prebid Meeting is scheduled for **Monday, June 5, 2023, 3:30 PM**, at Maurice Hawk Elementary School, 303-305 Clarksville Road, West Windsor, NJ 08550. Attendance at the prebid meeting optional but encouraged.

All attendees must be mindful of any public health emergency policies and protocols pursuant to the School District. Contractors assume all risks associated with their presence on District premise. Construction workers shall follow recommended precautions to protect themselves and other workers, staff, students, etc. at the project site(s).

Bid Documents for the proposed Work are on file at the office of the Architect, Fraytak Veisz Hopkins Duthie, P.C., 1515 Lower Ferry Road, Trenton, NJ 08618, tel. 609.883.7101. To obtain Bid Documents, complete and submit the Bidder Registration form to [info@fvhdpc.com](mailto:info@fvhdpc.com), which can be download from <https://fvhdpc.com/bids/bidlisting>. No fee electronically, \$25.00 DVD, \$150.00 hard copy. Check or money order payable to Fraytak Veisz Hopkins Duthie, P.C. If Contractor requests shipping, a direct shipping account number (FedEx or UPS) and preferred shipping speed must be provided and for paper sets, a separate fee of \$25.00 per set. All fees are non-refundable.

All requests for information (RFI) must be submitted in writing by end of business **June 8, 2023**, and sent by emailing [cwoodward@fvhdpc.com](mailto:cwoodward@fvhdpc.com), or by faxing to 609-883-2694 or via common carrier to the Architect. All correspondence must include the Architect Project Name and Project Number referenced. The Architect is not responsible for misdirected or misrouted correspondence.

Bid Proposal shall be submitted in duplicate (one original and one copy) in a sealed envelope, addressed to the Owner, bearing the name and address of the bidder, and clearly marked “**BID**” with the contract title and/or bid number on the outside of the envelope and must be accompanied by a Certified Check, Cashier's Check or Bid Bond drawn to the order of the Owner in the amount of ten percent (10%) of the amount of the bid, but in no case in excess of \$20,000; and must be delivered to the above place on or before the hour named. The Board of Education and the Architect assume no responsibility for bids mailed or misdirected in delivery.

If the bid exceeds \$20,000 the bidder must be pre-qualified by the New Jersey Division of Property Management and Construction (DPMC), prior to the date that bids are received. Any bid submitted under the terms of New Jersey statutes not including a copy of a valid and active Pre-qualification/Classification Certificate shall be rejected as being non-responsive to bid requirements.

Pursuant to N.J.S.A. 18A:18A-25, each proposal shall be accompanied by a Proposition of Surety from a Surety Company stating it will provide each bidder with separate Performance and Payment

Bonds, each in the amount of 100% of the contract sum. Also, Surety agrees to furnish bidder with a Maintenance Bond in required form. The Proposition of Surety shall be executed by an approved surety company authorized to do business in the State of New Jersey and in accordance with N.J.S.A. 2A:44-143, and 2A:44-144 and with the three highest rating categories of rating companies nationally recognized.

This project is subject to the New Jersey State Prevailing Wage Act, N.J.S.A. 34:11-56.27 et seq. All bidders must comply with N.J.S.A. 10:5-31 et seq., N.J.A.C. 17:27 et seq. and N.J.S.A. 10:2-1. An Initial Project Workforce Report will be required from the successful bidder (Form AA-201).

Pursuant to "The Public Works Contractor Registration Act", N.J.S.A. 34:11-56.48 et seq., bidders and their subcontractors are required to be registered with the New Jersey Department of Labor and Workforce Development and to possess a current certificate by said Department indicating compliance with the Act prior to the time and date that bids are received.

Per N.J.S.A. 52:32-44(b) all contractors and subcontractors must provide a Business Registration Certificate prior to contract award and other document requirements in the bid request.

No bid may be withdrawn for a period of sixty (60) days after the date set for the opening thereof. The right is reserved to reject all bids pursuant to N.J.S.A. 18A:18A-22 and to waive minor informalities in the bidding in accordance with applicable law.

By Order of the West Windsor-Plainsboro Board of Education  
Christopher Russo, EdD, Assistant Superintendent of Finance/Board Secretary

## **BIDDING INFORMATION**

### **SECTION 00100 - INSTRUCTIONS TO BIDDERS**

#### **1.1 INVITATION TO BID**

- A. All Bidders are required to prepare bids in accordance with all plans and specifications (Bid Documents) prepared by Fraytak Veisz Hopkins Duthie, P.C.
- B. **DISCLAIMER:** Bidders should only rely on original digital and paper versions of the bidding contract documents obtained directly from the Architect's office. Fraytak Veisz Hopkins Duthie, PC (FVHD) Architects-Planners is not responsible for any unauthorized copies made of the digital or paper bidding contract documents obtained from sources other than the Architect's office. All information provided by Fraytak Veisz Hopkins Duthie, PC (FVHD) Architects-Planners is intellectual property and is protected under copyright laws. It is not to be used for any purpose other than for the indicated project. Any other use or manipulation of the information is strictly prohibited.
- C. Bids for Contracts, as listed in the Advertisement for Bids or Invitation to Bid as hereinafter described, will be received for the performance of the Project. The bids shall cover all costs of any nature, incident to and growing out of the work. In explanation but not in limitation thereof, these costs shall include the cost of all work, labor, materials, equipment, transportation and cost of all else necessary to perform and complete the Project in the manner and within the time required, all incidental expenses in connection therewith, all costs on account of loss by damage or destruction of the Project caused by the Contractor, or Contractor's Agent, to the extent that the cost of such loss is not recovered from insurance carried by the Owner and the Contractor, and any additional expenses for unforeseen difficulties encountered, for settlement of damages and for replacement of defective work and materials.
- D. Before submitting a Bid, the Bidder shall become familiar with the Drawings, Specifications and other documents that will form the Contract, shall investigate the site of the Project and make such examination thereof as may be necessary to determine the character and amount of work involved. The Bidder shall also determine that they can secure the necessary labor and equipment and that the materials proposed to use will comply with the requirements specified therefore and can be obtained by the bidder in the quantities and at the time required.
1. **Site visit(s) can be arranged only upon request, subject to COVID-19 restrictions. Requests for a site visit(s) shall be made to the Architect ([gduthie@fvhdpc.com](mailto:gduthie@fvhdpc.com) / [sschreyer@fvhdpc.com](mailto:sschreyer@fvhdpc.com) / [info@fvhdpc.com](mailto:info@fvhdpc.com)).**
- E. The Owner reserves the right to accept or reject all bids including Alternate Bids, if any, pursuant to applicable law under any Contract for a period up to sixty (60) days after receipt of bids.



## 1.2 CONSTRUCTION WORKERS PROTECTION DURING COVID-19

- A. Due to COVID-19 and New Jersey Executive Orders, Construction workers shall follow recommended precautions to protect themselves and other workers, staff, students, etc. at the project site(s).
  - 1. Based on Governor Murphy's announcement, masks and facial coverings will no longer be mandated for students, staff or visitors in schools and childcare centers effective March 7, 2022. However, School Districts and childcare facilities can continue to implement universal masking policies after the mandate is lifted in March of 2022.
  - 2. Limit close contact with others by maintaining a distance of at least 6 feet, when possible.
  - 3. Clean and disinfect frequently touched surfaces such as shared tools, machines, vehicles and other equipment, handrails, ladders, doorknobs, and portable toilets.
  - 4. Practice proper hand hygiene.
  - 5. Contractors, Subcontractors and all Workers assume sole responsibility for working at this project under these conditions.
- B. Refer to the follow organizations for additional recommended precautions:
  - 1. Centers for Disease Control and Prevention (CDC).
  - 2. State of New Jersey Department of Health.
  - 3. World Health Organization.

## 1.3 ETHICS IN PURCHASING

- A. School District Responsibility
  - 1. Recommendation of Purchases
    - a. It is the desire of the Board of Education to have all Board employees and officials practice exemplary ethical behavior in the procurement of goods, materials, supplies, and services.
    - b. School district officials and employees who recommend purchases shall not extend any favoritism to any vendor. Each recommended purchase should be based upon quality of the items, service, price, delivery, and other applicable factors in full compliance with N.J.S.A. 18A:18A-26-33 et seq.
    - c. Solicitation/Receipt of Gifts - Prohibited:
      - 1) School district officials and employees are prohibited from soliciting and receiving funds, gifts, materials, goods, services, favors, and any other items of value from vendors doing business with the Board of Education or anyone proposing to do business with the Board of Education.

2. Vendor Responsibility:
  - a. Offer of Gifts, Gratuities – Prohibited
    - 1) Any vendor doing business or proposing to do business with the Board of Education, shall neither pay, offer to pay, either directly or indirectly, any fee, commission, or compensation, nor offer any gift, gratuity, or other thing of value of any kind to any official or employee of the Board of Education or to any member of the official's or employee's immediate family.
  - b. Vendor Influence – Prohibited:
    - 1) No vendor shall cause to influence or attempt to cause to influence, any official or employee of the Board of Education, in any manner which might tend to impair the objectivity or independence of judgment of said official or employee.
3. Vendor Certification:
  - a. Vendors or potential vendors will be asked to certify that no official or employee of the Board of Education or immediate family members are directly or indirectly interested in this request or have any interest in any portions of profits thereof. The vendor participating in this request must be an independent vendor and not an official or employee of the Board of Education.

#### **1.4 OBLIGATION OF BIDDER**

- A. At the time of the opening of bids, each Bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Drawings, Specifications and all other Contract Documents, including all Addenda and Bulletins. The failure or omission of any Bidder to receive or examine any form, instrument or document or to visit the site and acquaint themselves with conditions there existing, shall not relieve Bidder from any obligation with respect to their bid.
  1. Refer to paragraph 1.1, D.1 above for information pertaining to arranging site visit(s), subject to COVID-19 restrictions.
- B. Any and all discrepancies between the drawings and specifications or between trades shall be brought to the attention of the Architect prior to the Contractor's bid submission.

#### **1.5 CHALLENGES TO BID SPECIFICATIONS (N.J.S.A. 18A:18A-15)**

- A. Any prospective bidder who wishes to challenge a bid specification shall file such challenges in writing with the School Business Administrator/Board Secretary no less than three (3) business days prior to the opening of bids. Challenges filed after that date shall be considered void and having no impact on the Board of Education or the award of a contract.

## **1.6 NOTICE OF CLASSIFICATION OF BIDDERS (CONTRACTORS AND SUBCONTRACTORS)**

- A. Pursuant to N.J.S.A. 18A:18A-26.33 et seq., as amended, and N.J.A.C. 17:19-2.1 through N.J.A.C. 17:19-2.7, Bidders on any Contract on public work for a Board of Education in the State of New Jersey in which the entire cost of the Contract exceeds \$20,000.00, must have a classification from the Division of Property Management and Construction (DPMC), as to character and amount of public work on which they may submit bids. Bidder must submit with the Bid, a "Notice of Classification" setting forth the type of work and the amount of work for which the bidder has been qualified, that there has been no material adverse change in their qualification information, the total amount of uncompleted work on contracts at the time and the date of the bid due date. Any bid submitted under the terms of New Jersey Statutes not including a copy of a valid and active Notice of Classification shall be cause for rejection as being nonresponsive to bid requirements. (Forms for this purpose are available from the Director of the Division of Property Management and Construction - DPMC, Trenton, New Jersey 08625.)
1. Each classified bidder's aggregate rating shall be calculated in accordance with formula prescribed by N.J.A.C. 17:19-2.8.
    - a. Calculations shall be based on Bidder's base bid amount at time of bid or total amount of base bid and accepted Alternate Bids at time of Award.
- B. In accordance with N.J.S.A. 34:11-56.48 et seq. and N.J.S.A. 18A:7G-37, each bidder must be properly registered with the New Jersey Department of Labor and Workforce Development at the time of the bid. The Contractor shall enter into subcontracts only with subcontractors who are registered pursuant to N.J.S.A. 34:11-56.48 et seq.
1. No Contractor/Subcontractor will be permitted to bid on or engage in any contract for public work, as defined in the "New Jersey Prevailing Wage Act," N.J.S.A. 34:11-56.26 et seq., unless that Contractor/ Subcontractor is registered with the New Jersey Department of Labor and Workforce Development at the time of the bid.
- C. The Owner may make such additional investigations as it deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that they are properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

## **1.7 TOTAL AMOUNT OF UNCOMPLETED CONTRACTS**

- A. Uncompleted Contracts (For Contracts Exceeding \$20,000) (N.J.A.C. 17:19-2.13(a))
1. The Board requires that each bidder submit with his/her bid, a certified Total Amount of Uncompleted Contracts form as prescribed by the cited regulation.

(Form DPMC 701). Failure to submit this document will lead to having the bid being rejected as non-responsive.

## 1.8 CHANGES TO BID DOCUMENTS, INTERPRETATIONS AND ADDENDA

- A. Changes to the Bid Documents may be required to be issued via Addenda. FVHD will issue notice of the publication of all Addenda to prospective bidders, who have obtained bid documents from FVHD. **All bidders are to check the FVHD website [www.fvhdp.com](http://www.fvhdp.com) and download addenda if any are issued for the project.**
1. All Addenda issued become a part of the Bid Documents and will be part of the Contract Documents as though originally incorporated into the Project Manual.
  2. A notification of Addenda changes to the bid documents will be faxed to all bidders who have received bid documents from FVHD Architects. Bidders will be responsible to download the applicable Addendum(s) from the Architects website at [www.fvhdp.com/bids/bidlisting.aspx](http://www.fvhdp.com/bids/bidlisting.aspx).
  3. Bidders must acknowledge receipt of all Addenda on the Bid Form or the bid may be deemed non-responsive by the Owner's Attorney.
- B. Pre-bid Request for Information: No oral interpretations will be made to any Bidder as to the meaning of the drawings and specifications. **All requests for information (RFI's) must be submitted in writing by June 8, 2023 and sent by faxing to 609-883-2694; by emailing [cwoodward@fvhdpc.com](mailto:cwoodward@fvhdpc.com); or sent via common carrier to the Architect. All correspondence must include the Architect's Project Name and Project Number. The Architect is not responsible for misdirected or misrouted correspondence.**

### **Fraytak Veisz Hopkins Duthie, P.C.**

Architects / Planners

1515 Lower Ferry Rd., Trenton, NJ 08618

Electronic Facsimile (609) 883-2694

**FVHD Project No. 5063F2 / 5063I4**

1. Every interpretation made to a Bidder will be in the form of an Addendum. During the bidding period, the Architect may furnish Addenda for additions to or alterations of the drawings and specifications, which shall be included in the work covered by the Bid Form(s).
2. Addenda, when issued, will be made available no later than seven (7) business days prior to the date for receiving bids, Saturday, Sunday or holidays excepted, to all persons who have obtained Bid Documents from the Architect.
3. Addenda will also be available for examination at the Architect's office.

4. It shall be the responsibility of the Bidder to ascertain that they have received and examined all Addenda and Bulletins issued, prior to submitting their bid. Failure of the Bidder to download and examine all Addenda shall not relieve the Bidder from any of the requirements of the Bid Documents.
5. All addenda will be issued in accordance with N.J.S.A. 18A:18A-21(c).

## **1.9 PREPARATION OF BIDS**

- A. Enclose **two copies (one original and one copy)** of the Bid in a sealed envelope, identified on the outside of the envelope and clearly marked "BID" with the name and address of the bidder, name of the project and contract number in which the bidder is submitting.
- B. Bids shall be submitted on the form of Bid furnished by the Architect, properly filled out and duly executed. Bid forms shall not be altered or added to in any way. Lump Sum Bid or Base Bid prices shall be filled in, in ink or typewritten, in both words and figures. In case of discrepancy, the amount described in words shall govern.
  1. **Bids containing any conditions, omissions, unexplained erasure or alteration, items not called for in the Bid Form, attachment of additive information not required by the Specifications, or irregularities of any kind may be rejected by the Owner.**
  2. **Any changes, white-outs, strike-outs, etc. on the Bid Form must be initialed in ink by the person responsible for signing the Bid Form.**
- C. When the Bid is made by an individual, their post office address shall be stated and they shall sign the Bid. When made by a firm or partnership, its name and post office address shall be stated and the Bid shall be signed by one or more of the partners. When made by a corporation, its name and principal post office address shall be stated, and the Bid shall be signed by an authorized official of the corporation.
- D. Alternate Bids and Unit Prices for the various portions of work or Contract(s) shall be as stated in other Sections of the Specifications.
  1. Attention is called particularly to the requirements for filling in all Alternate Bids called for on the Bid Form, as the Owner reserves the right to award a Contract based upon the possible inclusion of one or more such Alternate Bids.
  2. The amounts of the Alternate Bids shall include any and all modifications to related, adjacent or surrounding work made necessary by use of such Alternate Bids.
  3. The Alternate Bids must be stated as additions to or deductions from the Base Bid, unless otherwise noted.

4. **The term "No Bid" shall not be used with respect to Alternate Bids and Unit Prices requested on the Bid Forms. The Bidder who does not desire to make a change from the Base Bid under a particular Alternate Bid shall so indicate by using the words "No Change." Failure to bid or use of the term "No Bid" on any Alternate shall cause rejection of entire bid.**
5. Bidders must bid on every alternate bid. Additions to, or deductions from, the base bid shall be indicated in the appropriate blanks on the Bid form with additions to or deductions from the base bid filled in as appropriate. If a particular alternate bid does not result in an addition to or deduction from the base bid, the words "No Change" or N/C" shall be written in the blank for "No Change" on the Bid form, and the words "No Change" shall be written in the blank provided for the purpose of stating the numeric amount in words. Failure to bid on every alternate bid shall render the bid nonresponsive and shall cause the bid to be rejected.

#### **1.10 BID GUARANTEE**

- A. The Bid, when submitted, shall be accompanied by a Bid Guarantee in the form of a Certified Check, Cashier's Check or acceptable Bid Bond made payable unconditionally to the Owner, in the sum of ten percent (10%) of the Bid, but in no case in excess of \$20,000.00 and as per Bid Bond Form included:
  1. Bid Bond Form: Bid Bond shall be as per bid form included and shall include an effective and current Power of Attorney authorizing the Attorney-in Fact to bind the surety, on Bid Date and Time, for the full amount of the Bond.
  2. Bid shall be accompanied by a Proposition of Surety in accordance with paragraph 1.11.
- B. Pursuant to N.J.S.A. 18A:18A-36, all Bid Guarantees, except those of the three apparent lowest responsible bidders, will be returned, if requested, after ten (10) days from opening of bids, Sundays and holidays excepted. Within three (3) days after the awarding of the contract and the approval of the Contractor's performance bond and payment bond, the bid security of the remaining unsuccessful bidders will be returned, Sundays and holidays excepted.
- C. The Bid Guarantee shall be forfeited if successful Bidder fails to execute the Agreement between Owner and Contractor identified in paragraph 1.13 hereof and furnish the Performance-Payment Bond within ten (10) days after notification of award of Contract to him/her (Sundays and holidays excepted).
  1. Any failure by the successful bidder to perform its obligations regarding the time, manner, and substance of compliance with Bidding Documents in relation to the Award of a Contract, shall constitute an Event of Default, entitling the Owner to:
    - a. Demand, from said guarantor, immediate payment of the entire Bid Bond amount, as liquidated damages, not as a penalty, for the delay which is

- acknowledged and agreed that the Owner will sustain in connection with said Default; and in addition thereto,
- b. Recovery of any and all other Losses incurred by the Owner, to which the Owner shall, to the fullest extent permitted by Applicable Law, be entitled to recover, including without limitation Special Damages.

## 1.11 CONTRACT BONDS

- A. Prior to start of guarantee period and before the final payment is made, the Contractor shall provide the Owner with a Maintenance Bond in the amount of ten percent (10%) of Final Contract Amount, to insure the replacement or repair of defective materials or workmanship during the two-year guarantee period. Pursuant to N.J.S.A. 18A:18A-25, Bids shall be accompanied by a Proposition of Surety in form as bound in these documents, assuring that satisfactory arrangements have been made between the surety and the Bidder by which surety agrees to furnish within ten (10) days after notification of award, Sundays and holidays excepted, of contract to him/her, furnish and deliver a Performance Bond and Payment Bond; each in the amount of 100% of the amount bid. Also surety agrees to furnish Bidder with a Maintenance Bond in form as bound herein.
  1. The Proposition of Surety shall be executed by an approved surety company authorized to do business in the State of New Jersey and in accordance N.J.S.A. 2A:44-143.
  2. If, at any time after execution and approval of a Contract and Performance-Payment Bond required by Contract Documents, such Bond shall cease to be adequate security for the Owner, the Contractor shall, within five (5) days after notice to do so, furnish a new or additional Bond, in form, sum and signed by such Sureties as shall be satisfactory to the Owner. No further payment shall be deemed due nor shall any further payment be made to the Contractor unless and until such new or additional Bond shall be furnished and approved.
- B. Prior to start of guarantee period and before the final payment is made, the Contractor shall provide the Owner with a Maintenance Bond in the amount of ten percent (10%) of Final Contract Amount, to insure the replacement or repair of defective materials or workmanship during the **two-year** guarantee period.
- C. The cost of all Bonds shall be paid for by the Contractor and shall be included as a part of Contractor's bid price.

## 1.12 POWER OF ATTORNEY

- A. Attorneys-in-fact who sign Bid Bonds, Performance and Payment Bonds, Maintenance Bonds and Proposition of Surety forms must accompany each bond or proposition with a certified and effectively dated copy of their power-of-attorney.

### **1.13 FORM OF AGREEMENT**

- A. The form of agreement shall be AIA Document A101 Standard Form of Agreement between Owner and Contractor, (Stipulated Sum) 2017 Edition, and in accordance with AIA Document A201 General Conditions of the Contract, 2017 Edition as amended, and all other documents referenced herein.

### **1.14 CERTIFICATE OF AUTHORITY**

- A. All bidders are to submit their Sworn Contractor Certification, a current valid "Certificate of Authority" as issued by the New Jersey Department of Treasury. Reference-N.J.S.A. 18A:7G-37.

### **1.15 AWARD OF CONTRACT**

- A. Award, if made, will be to the lowest responsive and responsible bidder for the Single Overall Building Contract selected to include Alternate Bids, if any, which the Owner chooses to accept, that results in the lowest aggregate total sum pursuant to N.J.S.A. 18A:18A-4.
- B. Award made to a Bidder not a resident of the State of New Jersey is conditioned upon Bidder designating a proper agent in the State of New Jersey on whom service can be made in the event of litigation.
- C. If the successful Bidder is a corporation not organized under the laws of New Jersey, the award of Contract and payment of consideration thereunder shall be conditioned upon the Corporation procuring a "certificate" of authority to transact business in the State of New Jersey pursuant to N.J.S.A. 14A:13-3 and complying with the provisions of N.J.S.A.14A:13-4.
- D. NJ Business Registration Certificate:
  - 1. Pursuant to N.J.S.A. 52:32-44, West Windsor-Plainsboro Regional School District ("Contracting Agency") is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.
  - 2. Prior to contract award or authorization, the contractor shall provide the Contracting Agency with its proof of business registration and that of any named subcontractor(s).
  - 3. Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the Contracting Agency prior to the time a contract, purchase order, or other contracting document is awarded or authorized.



4. During the course of contract performance:
  - a. the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
  - b. the contractor shall maintain and submit to the Contracting Agency a list of subcontractors and their addresses that may be updated from time to time.
  - c. the contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at <http://www.state.nj.us/treasury/revenue/busregcert.shtml>.
5. Before final payment is made under the contract, the contractor shall submit to the Contracting Agency a complete and accurate list of all subcontractors used and their addresses.
6. Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contracting agency.
7. Emergency Purchases or Contracts
  - a. For purchases of an emergent nature, the contractor shall provide its Business Registration Certificate within two weeks from the date of purchase or execution of the contract or prior to payment for goods or services, whichever is earlier.
- E. The Owner reserves the right to reject all bids, or to waive minor informalities or non-material exceptions in a bid, pursuant to applicable law.
- F. In accordance with requirements of the N.J.S.A. 18A:18A-36(b), execution of the Contract by all parties will be done within 21 days of the notification of the award date, Sundays and holidays excepted, after making the award.
  1. The Bidder to whom the contract is awarded shall be required to execute said Contract within fourteen (14) calendar days of the notification of the award to him/her, Sundays and holidays excepted, after making the award.
- G. Upon award of the Contract, the Contractor shall execute and return to the Owner the "Contractor Certification and Consent Upon Award of Contract," attached to the Contract as an Exhibit.
- H. The award of the contract is subject to availability and appropriation of sufficient funds.

## **1.16 BID PROTESTS AND CONTRACTOR'S RESPONSIBILITY**

- A. Vendors or contractors may contact the Purchasing Agent in writing, when they feel it necessary to challenge a procurement specification item or to protest an award of contract. All challenges and protests will be reviewed by the Purchasing Agent, the District Administrator of the contract and the Board Attorney. All determinations shall be made in writing to the vendor or contractor. The Purchasing Agent pursuant to N.J.S.A. 18A:18A-2 (b) is the School Business Administrator.
- B. A bid protest filed shall:
  - 1. Include the name, street address, electronic mail address, and telephone and facsimile numbers of the protester;
  - 2. Be signed by the protester or its representative;
  - 3. Identify the bid or solicitation number and date of bid or solicitation;
  - 4. Include a detailed statement of the legal and factual grounds of protest including copies of relevant documents;
  - 5. Set forth all information establishing that the protester is an interested party for the purpose of filing a protest;
  - 6. Set forth all information establishing the timeliness of the protest; and
  - 7. Provide any or all information pertaining to the bid protest.

## **1.17 BIDDING DOCUMENTS**

- A. The Bidding Documents consist of, but are not limited to, the following:
  - 1. Instructions to Bidders in accordance with this Section,
  - 2. General Conditions, AIA Document A232, and as supplemented in the Supplementary General Conditions; Section 00800,
  - 3. Bid Form including attachments as per Bidder's Checklist,
  - 4. Erratum, Addenda, if issued,
  - 5. Specifications: As outlined in the "Index" included in the Project Manual,
  - 6. Drawings: As per List of Drawings indicated on Project Title Sheet and in accordance with Section 00850,
  - 7. Agreement Between Owner & Contractor, AIA Document A101 and as amended by the Project Specifications.
- B. Note: The above list is not intended to establish an order of precedence.

## **1.18 TIME OF COMPLETION AND LIQUIDATED DAMAGES**

- A. Refer to Section 01800, "Time of Completion and Liquidated Damages."

## **1.19 LISTING OF STOCKHOLDERS, PARTNERS OR MEMBERS (N.J.S.A. 52:25-24.2)**

- A. Statement of Ownership

1. No business organization, regardless of form of ownership, shall be awarded any contract for the performance of any work or the furnishing of any goods and services, unless, prior to the receipt of the bid or accompanying the bid of said business organization, bidders shall submit a statement setting forth the names and addresses of all persons and entities that own ten (10%) percent or more of its stock or interest of any type at all levels of ownership.
2. The included Statement of Ownership shall be completed and attached to the bid proposal. This requirement applies to all forms of business organizations, including, but not limited to, corporations and partnerships, publicly-owned corporations, limited partnerships, limited liability corporations, limited liability partnerships, sole proprietorship, and Subchapter S corporations. Failure to submit a disclosure document shall result in rejection of the bid as it cannot be remedied after bids have been opened.
3. Not-for-profit entities should fill in their name, check the not-for-profit box, and certify the form. No other information is required.

## **1.20 NON-COLLUSION AFFIDAVIT**

- A. The bidder shall submit the Non-Collusion Affidavit, on form as bound herein, must be submitted with the bid. Failure to submit this document will lead to having the bid being rejected as non-responsive.

## **1.21 FALSE MATERIAL REPRESENTATION / TRUTH IN CONTRACTING**

- A. A person commits a crime if the person knowingly makes a material representation that is false in connection with the negotiation, award or performance of a government contract. If the contract amount is for \$25,000.00 or above, the offender is guilty of a crime of the second degree. If the contract amount exceeds \$2,500.00, but is less than \$25,000.00, the offender is guilty of a crime of the third degree. If the contract amount is for \$2,500.00 or less, the offender is guilty of a crime of the fourth degree. Bidder should be aware of the following statutes that represent "Truth in Contracting" laws:
  1. N.J.S.A. 2C:21-34, governs false claims and representations by bidders. It is a serious crime for the bidder to knowingly submit a false claim and/or knowingly make material misrepresentation.

2. N.J.S.A. 2C:27-11 provides that a bidder commits a crime if said person, directly or indirectly, confers or agrees to confer any benefit not allowed by law to a public servant.
3. Bidder should consult the statutes such as N.J.S.A. 18A:7G-39 or legal counsel for further information.

## **1.22 EQUIVALENT PRODUCTS**

- A. The use of manufacturers' band names, catalogue numbers and similar proprietary identifying data in the Contract Documents are not intended to eliminate from consideration products that are equivalent in quality, appearance and function to those specified.

## **1.23 CONTRACT**

- A. As indicated in the Advertisement for Bids, it is intended to receive sealed bids and to award and administrate contract for the work required by the Contract Documents as follows:

### **Single Overall Contract**

- B. The Bidder shall be a firm classified by the State of New Jersey - Division of Property Management and Construction for the following classification(s):

#### **Prime General Contractor**

**C008 - General Construction**

**Or**

**C009 - General Construction/Alterations and Additions**

and have subcontractor(s) for the following classification(s) of work:

#### **Subcontractors:**

**C029 - Structural Steel & Ornamental Iron**

**C030 - Plumbing**

**C032 - HVACR**

**C047 - Electrical**

- C. Pursuant to N.J.S.A. 18A:18A-26, the Bidder shall be in possession of the required DPMC Classification for the specified work.

1. In the case of a Combined Single Overall Bid, if the contractor possess the DPMC Classification in one category, but not in all of the required categories, the Contractor must list the Prime Subcontractor(s) bidding the scope of work for the other categories. The Subcontractor(s) must possess the DPMC Classification(s) in that category.

2. Each Bidder for Plumbing and Drainage Work shall include name of Subcontractor for Sprinkler System Work, when the work of the subcontractor exceeds 35% of the contracting unit's estimated amount of the value of the Work, and shall submit evidence that the bidder or their subcontractor is qualified for in accordance with N.J.S.A. 18A:18A-26 for Sprinkler System Work.

**END OF SECTION 00100**

**BID PROPOSAL FORM**

**Media Center Renovations at  
Maurice Hawk Elementary School and Village Elementary School**

**SINGLE OVERALL CONTRACT**

DPMC Classifications: C008 or C009 Prime with C029, C030, C032 & C047

West Windsor-Plainsboro Regional School District  
Board of Education  
321 Village Road East  
West Windsor, NJ 08550

1. The undersigned, having familiarized himself with the local conditions affecting the cost of the work, the drawings, the specifications and other Contract Documents, as in the Advertisement for Bids thereto, for the **Media Center Renovations at Maurice Hawk Elementary School (FVHD-5063F2) and Village Elementary School (FVHD-5063I4)**, together with all work incidental thereto, in accordance with the requirements of the drawings and specifications prepared by Fraytak Veisz Hopkins Duthie, P.C., Architects-Planners, Trenton, New Jersey, hereby proposes to furnish all labor, materials and equipment required for all Work and as follows.

Locations of Operation:

Maurice Hawk Elementary School, 305 Clarksville Road, Princeton Junction, NJ 08550  
Village Elementary School, 601 New Village Road, West Windsor, NJ 08550

**SINGLE OVERALL CONTRACT - BASE BID:** Includes all Work at the above referenced school **(including applicable Allowances - Section 01020)** in accordance with the requirements of Contract Documents, for the sum of:

**TOTAL BASE BID INCLUDING ALLOWANCES** \$ \_\_\_\_\_  
(Numerical)

---

If written amount differs from the numerical figure, only the written amount will be accepted as the correct bid.

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Submitted by: \_\_\_\_\_  
(Firm Name)

2. **ALTERNATE BIDS - SECTION 01030:** Alternate proposal shall be quoted as additions to, deductions from or No Change (NC) to the Base Bid and shall be in accordance with the specifications for Alternate Bid Work. If written amount differs from the numerical figure, only the written amount will be accepted as the correct bid.

**Alternate Bid No. 1: Light Fixtures at Maurice Hawk Elementary School Media Center #H101/ Stack Area #H103 / Reading Nook #H104**

ADD \$ \_\_\_\_\_  
(Numerical)

\_\_\_\_\_  
(Written)

**Alternate Bid No. 2: Light Fixtures at Village Elementary School Media Center #V104**

ADD \$ \_\_\_\_\_  
(Numerical)

\_\_\_\_\_  
(Written)

**Alternate Bid No. 3: Glazed Fire Doors at Maurice Hawk Elementary School Reading Nook #H104**

ADD \$ \_\_\_\_\_  
(Numerical)

\_\_\_\_\_  
(Written)

THE REMAINDER OF THIS PAGE WAS INTENTIONALLY LEFT BLANK

Submitted by: \_\_\_\_\_  
(Firm Name)

3. **UNIT PRICES - PER SECTION 01151: Materials in Place.**

**UNIT PRICES - GENERAL CONSTRUCTION, PLUMBING AND DRAINAGE, HEATING, VENTILATING AND AIR CONDITIONING, AND ELECTRICAL: EARTHWORK Materials in Place.**

Unit Price for bulk rock shall be \$ 300.00 per cu. yd.

Unit Price for trench or pit rock excavation shall be \$ 400.00 per cu. yd.

**UNIT PRICES - GENERAL CONSTRUCTION: Materials in Place.**

Excavation (unsuitable soil) \$ \_\_\_\_\_ per cu. yd.

Compacted fill \$ \_\_\_\_\_ per cu. yd.

Cement Based Self Leveling Underlayment per Section 03452 \$ \_\_\_\_\_ per sq. ft.

Replacement of existing damaged or deteriorated metal decking \$ \_\_\_\_\_ per sq. ft.

Replacement of existing wet or deteriorated roof insulation board \$ \_\_\_\_\_ per sq. ft.

Replacement of existing damaged or deteriorated wood nailers/ blocking or framing, including removal of existing deteriorated wood, furnishing and installing new galvanized anchor bolts, expansion bolts at 4'-0" o.c. or nails through existing construction to remain: \$ 2.90 per board ft.

a. 2x4 for the above work \$ \_\_\_\_\_ per lin. ft.

b. 2x6 for the above work \$ \_\_\_\_\_ per lin. ft.

c. 2x8 for the above work \$ \_\_\_\_\_ per lin. ft.

d. 2x10 for the above work \$ \_\_\_\_\_ per lin. ft.

e. 2x12 for the above work \$ \_\_\_\_\_ per lin. ft.

**UNIT PRICES - PLUMBING, DRAINAGE & FIRE PROTECTION: Materials in Place.**

1/2" Type 'L' copper tubing \$ \_\_\_\_\_ per lin. ft.

1-1/2" cast iron piping \$ \_\_\_\_\_ per lin. ft.

2" cast iron piping \$ \_\_\_\_\_ per lin. ft.

3" cast iron piping \$ \_\_\_\_\_ per lin. ft.

**UNIT PRICES - FIRE PROTECTION: Materials in Place.**

Sprinkler head with associated 1" branch piping (approx. 5'-0" length) \$ \_\_\_\_\_ per unit

**UNIT PRICES - HEATING AND VENTILATING: Materials in Place.**

7/8" Type 'L' copper with brazed joints (refrigerant piping) \$ \_\_\_\_\_ per lin. ft.

1/2" Type 'L' copper with brazed joints (refrigerant piping) \$ \_\_\_\_\_ per lin. ft.

7/8" piping insulation (refrigerant piping) \$ \_\_\_\_\_ per lin. ft.

1/2" piping insulation (refrigerant piping) \$ \_\_\_\_\_ per lin. ft.

3/4" Type 'L' copper with brazed joints (hot water piping) \$ \_\_\_\_\_ per lin. ft.

Submitted by: \_\_\_\_\_ (Firm Name)



3/4" heating hot water piping insulation	\$ _____ per lin. ft.
Condensate pump	\$ _____ per unit
Volume damper, 10x6	\$ _____ per unit
24" X 24" ceiling diffuser	\$ _____ per unit
24" X 24" ceiling register	\$ _____ per unit
24" X 12" ceiling register	\$ _____ per unit
Thermostat	\$ _____ per unit
Ball Valve, under 1"	\$ _____ per unit
Ball Valve, 1"	\$ _____ per unit
Balancing Valve, 1"	\$ _____ per unit
Balancing Valve, 3/4"	\$ _____ per unit

**UNIT PRICES - ELECTRICAL WORK: Materials in Place**

20A-1 Pole branch circuit installation 600V, including MC cable and termination.	\$ _____ per lin. ft.
20A-1 Pole branch circuit installation 600V, including EMT conduit, THHN wire, and termination.	\$ _____ per lin. ft.
Combination Clock/Speaker assembly, including EMT conduit, wiring and termination at head end.	\$ _____ per unit
System Wireless Clock, including 120V receptacle @ clock location, EMT conduit, THHN wire and termination.	\$ _____ per unit
Tele/Data Outlet, including CAT6 cabling, EMT Conduit and termination at MDF or IDF location.	\$ _____ per unit
Ceiling Speaker, including EMT conduit, wiring and termination at head end	\$ _____ per unit
20A General purpose receptacle including back box, plate, conduit and wiring to the nearest device(30')	\$ _____ per unit
20A GFCI receptacle including back box, plate, conduit and wiring to the nearest device(30')	\$ _____ per unit
Digital Wall Dimming switch for lighting control system	\$ _____ per unit
Cost per linear foot of installed 3/4" empty EMT conduit and drag line	\$ _____ per lin. ft.
20A 1 Pole Circuit Breaker Installed in a panel	\$ _____ per unit
20A 2 Pole Circuit Breaker Installed in a panel	\$ _____ per unit
Fire Alarm Ceiling Speaker / Strobe & wiring to Control Panel	\$ _____ per unit
Fire Alarm Detector (heat, smoke, combination, or CO Detector) and wiring to Control Panel	\$ _____ per unit

Submitted by: \_\_\_\_\_  
(Firm Name)

4. Bidder hereby acknowledges receipt of the following Addenda:

No Addenda issued

Addendum No. \_\_, issued \_\_\_\_\_ received \_\_\_\_\_ (initial)

Addendum No. \_\_, issued \_\_\_\_\_ received \_\_\_\_\_ (initial)

Addendum No. \_\_, issued \_\_\_\_\_ received \_\_\_\_\_ (initial)

Addendum No. \_\_, issued \_\_\_\_\_ received \_\_\_\_\_ (initial)

5. In submitting this bid, it is understood that the right is reserved by the Board of Education to accept or to reject any or all bids in accordance with applicable law, and it is agreed that this bid may not be withdrawn for a period of sixty (60) days from the date set of the opening thereof.

6. Bid Security in the sum of \_\_\_\_\_ (\$ \_\_\_\_\_ ) in the form of \_\_\_\_\_ (Certified Check, Cashier's Check, or Bid Bond) is submitted herewith in accordance with the requirements of the specifications.

7. The undersigned is an individual ( )  
a partnership ( )  
a corporation ( ) under the laws of the State of \_\_\_\_\_,  
having principal office in the \_\_\_\_\_ of \_\_\_\_\_,  
County of \_\_\_\_\_, and State of \_\_\_\_\_.

Respectfully Submitted,

\_\_\_\_\_  
(Company Name, if Bidder is a company)

BIDDER'S SIGNATURE

\_\_\_\_\_  
(Company Officer, if Bidder is a Corporation or LLC)

(Seal, if Corporation)

\_\_\_\_\_  
Printed or Typed Name Title of Officer (if the Bidder is a Company)

\_\_\_\_\_  
Address

\_\_\_\_\_  
City, State, Zip Code

\_\_\_\_\_  
Phone & Fax

\_\_\_\_\_  
Dated

\_\_\_\_\_  
Email Address

NOTE: SEE BIDDERS CHECKLIST

Submitted by: \_\_\_\_\_  
(Firm Name)

## BIDDER'S CHECKLIST

The following checklist must be signed and submitted with the bid package to the owner as part of the bid documents. Failure to submit documents marked (\*) mandatory shall be automatic cause for rejection of the bid. Items that are not marked (\*) mandatory are encouraged to submit with bid but must be provided prior to the contract award.

	<u>ITEM</u>	✓
	Reviewed the Contract Documents (Including the Permits Obtained by the Board), Work Site, Locality, and All Local Conditions and Laws and Regulations That in Any Manner May Affect Cost, Progress, Performance or Furnishing of Work	
	Reviewed General Bond Requirements	
	Reviewed Agreement (Owner/contractor)	
(*)	Bidder's Proposal	
(*)	Bid Bond, Certified Check, Cashier's Check or Any Combination Thereof in an Amount of Ten Percent (10%) of the Total Amount of Bid, Not to Exceed \$20,000 (Twenty Thousand Dollars) with Power of Attorney	
(*)	Consent of Surety for 100% of the Contract Amount with Power of Attorney to Provide Performance Bond and Labor and Material Payment Bond	
(*)	Subcontractor Identification Statement	
(*)	Ownership Disclosure Certification	
(*)	Non Collusion Affidavit	
(*)	Certification of No Material Change of Circumstances - All Contractor(s) and Subcontractor(s)	
	Current New Jersey Department of Labor and Workforce Development Public Works Contractors Registration Act Certificate (N.J.S.A. 34:11-56.48) All Contractor(s) and Named Subcontractor(s) Encouraged to Submit with Bid but Required Prior to Contract Award	
	Business Registration Certificate - All Contractor(s) and Subcontractor(s) Encouraged to Submit with Bid but Required Prior to Contract Award	
(*)	Division of Property Management & Construction (DPMC) Form 701 - Total Amount of Uncompleted Contracts, N.J.S.A. 34:11-56.48 et Seq. - All Contractor(s) and Subcontractor(s)	
(*)	Division of Property Management & Construction (DPMC) Current Notice of Classification - All Contractor(s) and Subcontractor(s)	
(*)	Americans with Disability Act 1990	
(*)	Equipment Certification	
(*)	Sworn Contractor Certification; Qualifications and Credentials (Contractor and Subcontractors)	

**BIDDER'S CHECKLIST**

(*)	Exhibit B - Mandatory Equal Employment Opportunity	
	Certification of Prohibited Activities in Russia and/or Belarus (All Contractors and Subcontractors) Encouraged to Submit with Bid but Required Prior to Contract Award	
	Disclosure of Activities in Iran (Contractor and Subcontractors) Encouraged to Submit with Bid but Required Prior to Contract Award	
	Federal and State Non-debarment Certifications - All Contractor(s) and Subcontractor(s) Encouraged to Submit with Bid but Required Prior to Contract Award	
	Certification of non Debarment for Federal Government Projects Shall Be Submitted Prior to Award of Contract - All Contractors Encouraged to Submit with Bid but Required Prior to Contract Award	
	Status of Present Contracts	
	Trade License	
	HVACR Master License (HVACR Contractors)	
	Certification of Insurance Statement	
	Performance Record Certification	
	Compliance with New Jersey Prevailing Wage Act	
	Lowest Responsible Bidder by 10% or More Certification of Prevailing Wage Rates and Acknowledgment of Penalties Form	
	Political Contribution Disclosure Form	
	Contractors shall participate in an "apprenticeship training program" and shall submit evidence of same and/or a description of the contractor's apprenticeship training program prior to the award of the contract.	

By signing below, I acknowledge having read and fully understand all the requirements of each of the documents referenced herein.

\_\_\_\_\_  
BIDDER (Signature)

Dated: \_\_\_\_\_

\_\_\_\_\_  
BIDDER (Print Name)

**BID BOND**

**THE UNDERSIGNED BIDDER** and "**Surety**", a corporation duly authorized to transact business in the State of New Jersey, are held and firmly bound unto \_\_\_\_\_ (the "**OWNER**") for the full and just sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_),  
**(10% of the Bid Price not to exceed \$20,000.00: words)** **(figures)**

The payment of which sum the **BIDDER** has submitted a Bid to perform certain Work described in Bidding Documents entitled:

**TITLE:** \_\_\_\_\_

**CONTRACT NO.:** \_\_\_\_\_

The **Surety** hereby agrees to pay the full face value of this Bond to the **OWNER**, as Liquidated Damages, and not as a penalty, unless this Bond is void.

This Bond shall only be void if the **BIDDER** well, truly and faithfully performs all requirements contained in the Bidding/Contract Documents incident to an Award of the Contract including, but not limited to, proper execution and submission of the Contract Forms and all other required documentation.

On this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_, the **BIDDER** and **Surety** hereby bind themselves herein:

**FOR THE BIDDER:**

**FOR THE SURETY:**

\_\_\_\_\_  
(Name of **BIDDER**)

\_\_\_\_\_  
(Name of **Surety**)

By: \_\_\_\_\_  
(Print Name-**BIDDER's** Authorized Representative)

By: \_\_\_\_\_  
(Print Name of Attorney-in-Fact)

By: \_\_\_\_\_  
(Signature-**BIDDER's** Authorized Representative)

By: \_\_\_\_\_  
(Signature of Attorney-in-Fact)

**IMPORTANT – ATTACH AND SUBMIT WITH THE BID:**

- **A POWER OF ATTORNEY FOR THE ATTORNEY-IN-FACT WHICH IS CURRENTLY DATED AND VALID FOR THE ENTIRE AMOUNT OF THE BOND**

**FORM OF CONSENT OF SURETY**

**PERFORMANCE BOND, PAYMENT BOND and MAINTENANCE BOND**

For and in consideration of the sum of one dollar (\$1.00) lawful money of the United States, the receipt is hereby acknowledged, paid to the undersigned surety, and for other valuable consideration, the undersigned surety, authorized to transact business in the State of \_\_\_\_\_, certifies and agrees that if the Contract entitled: \_\_\_\_\_

CONTRACT \_\_\_\_\_,  
(NUMBER) (TITLE)

is awarded to: \_\_\_\_\_  
(BIDDER'S NAME)

the undersigned hereby warrants that it is in all respects qualified to provide the required Bonds as set forth in the Contract Documents, and that it will provide and execute the **Performance Bond** in the full amount of awarded contract in the event that said contractor is awarded a contract for the above project, the **Payment Bond**, and the **Maintenance Bond** in the form and as otherwise required by the Contract Documents.

\_\_\_\_\_  
(Print Name of Surety)

\_\_\_\_\_  
(Print Name of Attorney-in-Fact)

\_\_\_\_\_  
(Signature of Attorney-in-Fact)

**ATTACH AND SUBMIT WITH THE BID: A POWER OF ATTORNEY FOR THE ATTORNEY -IN-FACT WHICH IS CURRENTLY DATED AND VALID FOR THE TOTAL AMOUNT OF ALL BONDS.**

Consent of Surety must be signed by an authorized agent or representative of a surety company and not by the individual or company representative submitting the bid.

NOTE: IF SUBCONTRACTORS ARE LISTED ON BID FORM, N.J.S.A. 18A:18A-18 REQUIRES THAT EVIDENCE OF PERFORMANCE SECURITY AS TO SUBCONTRACTORS BE SUBMITTED WITH THE BID, EITHER BE THE BIDDER ON ITS OWN BEHALF AND ON BEHALF OF ALL LISTED SUBCONTRACTORS, OR BY EACH SUBCONTRACTOR, OR ANY COMBINATION THEREOF, PROVIDED THAT THE PERFORMANCE SECURITY IN TOTAL EQUALS, BUT DOES NOT EXCEED, THE TOTAL AMOUNT OF THE BID.

**SUBCONTRACTOR IDENTIFICATION STATEMENT**

The following information is to be provided in the case of all subcontractors who will furnish labor of the various trades governed by N.J.S.A. 18A:18A-18 (b) (General Construction, Steel, Plumbing, HVAC, Electric) and all DPMC Specialty Trades, where applicable.

TRADE	Contractor's Name/Address/Telephone	NJ License No.

If work of the types designated by the above referenced law will be performed by the Bidder, the Bidder shall state below and shall enclose copies of licenses covering each trade.

TRADE	N.J. License No.

BIDDER \_\_\_\_\_

**STATEMENT OF OWNERSHIP DISCLOSURE**

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

**This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.**

Name of Organization: \_\_\_\_\_

Organization Address: \_\_\_\_\_

City, State, ZIP: \_\_\_\_\_

**Part I Check the box that represents the type of business organization:**

- Sole Proprietorship
- Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)
- For-Profit Corporation (any type)     Limited Liability Company (LLC)
- Partnership         Limited Partnership         Limited Liability Partnership (LLP)
- Other (be specific): \_\_\_\_\_

**Part II Check the appropriate box**

- The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. **(COMPLETE THE LIST BELOW IN THIS SECTION)**
- OR**
- No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. **(SKIP TO PART IV)**

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Address (for Individuals) or Business Address



**Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II**

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed.**

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s

**Please list** the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above.** The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Address (for Individuals) or Business Address

**Part IV Certification**

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the \_\_\_\_\_ (**Owner**) is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with the **Owner** to notify the **Owner** in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the **Owner** to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

**This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.**

PERFORMANCE RECORD

How many years has your organization been in business as a Contractor under your present business name? \_\_\_\_\_

How many years experience in construction work has your organization had:

(a) As a Prime contractor? \_\_\_\_\_ (b) As a subcontractor? \_\_\_\_\_

What is the construction experience of the principal individuals of your organization?

Individual's Name	Present Position or Office	Years of Constr. Experience	Magnitude and Type of Work	In What Capacity

Have you ever failed to complete any work contracted to you? \_\_\_\_\_

If so, where and why? \_\_\_\_\_

Has any officer or partner of your organization ever failed to complete a construction contract handled in its own name?

If so, state name of individual, name of owner, location and type of project and reason for the failure to complete.

PERFORMANCE RECORD (Continued)

List of all contracts completed by you.

Name of Owner	Name & Location of Project/ Type of Work	Prime or Sub- Contractor	Architect or Engineer in Charge for Owner	Contract Price (Omit Cost)	Date Completed	Was* Time Extension Necessary	Were any Penalties Imposed	Were* Liens Claims or Stop Notice Filed

\*Explain "Yes" answers.

PERFORMANCE RECORD  
CERTIFICATION

Explanation of details in connection with non-completion of contracts, time extensions, penalties imposed, labor troubles experience, liens, termination of contracts, poor performance, debarment, claims and notices filed against contracts.

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The information above is true and complete to the best of my knowledge and belief.

\_\_\_\_\_  
(Name of Organization)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

STATE OF                                    )  
  )ss.  
COUNTY OF                                )

\_\_\_\_\_, being duly sworn to law, deposes and says that it is authorized to make this affidavit for, and on behalf of, the individual, partnership or corporation herein first named as the Bidder, that deponent is familiar with the books of the said Bidder and that the foregoing statement is a true and accurate statement taken from the books of said Bidder of such financial condition as of the date herein first named; that the answers to the foregoing interrogatories are true and correct.

Subscribed and sworn to before me

This \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/  
Specify Other State  
My Commission Expires \_\_\_\_\_, 20 \_\_\_\_.

### **Compliance with New Jersey Prevailing Wage Act (N.J.S.A. 34:11-56.25 et seq.)**

Every contractor and subcontractor performing services in connection with this project, shall pay all workers a wage rate not less than the published prevailing wage rates, for the locality the work is being performed, as designated by the New Jersey Department of Labor and Workforce Development (NJ DLWD).

Wage rates for the county of the location of the Public Agency (Owner), as published by the State Department of Labor and Workforce Development (DLWD), can be viewed at [https://www.nj.gov/labor/wagehour/wagerate/prevailing\\_wage\\_determinations.html](https://www.nj.gov/labor/wagehour/wagerate/prevailing_wage_determinations.html)

The contractor must complete and sign the "Prevailing Wage Certification" form included in the bid package and submit with his bid. This form confirms the contractor's intention to comply with the act. The Owner may terminate the contract if contractor fails to pay workers prevailing wage.

The prevailing wage rates in affect at the time of award, will be included as a part of the construction contract.

## PREVAILING WAGES COMPLIANCE CERTIFICATION

It is the determination that this is a public works project that in total will exceed \$2,000.00 (two thousand dollars), therefore prevailing wages rules and regulations apply as promulgated by the New Jersey Prevailing Wage Act and in conformance with N.J.S.A. 34:11-56:25 et seq.

### Certification

1. I certify that our company understands that this project requires prevailing wages to be paid in full accordance with the law.
2. I further certify that all subcontractors named in this bid understand that this project requires the subcontractor to pay prevailing wages in full accordance with the law.

### Non-compliance Statement

If it is found that any worker, employed by the contractor or any subcontractor covered by said contract, has been paid a rate of wages less than the prevailing wage required to be paid by such contract, the Owner, may begin proceedings to terminate the contractor's or subcontractor's right to proceed with the work, or such part of the work as to which there has been a failure to pay required wages and to prosecute the work to completion or otherwise. The contractor and his sureties shall be liable for any excess costs occasioned thereby to the public body.

### NOTIFICATION OF VIOLATIONS – New Jersey Department of Labor and Workforce Development

Has the bidder or any person having an “interest” with the bidder, been notified by the New Jersey Department of Labor and Workforce Development by notice issued pursuant to N.J.S.A. 34:11-56a et seq that he/she has been in violation for failure to pay prevailing wages as required by the New Jersey Prevailing Wage Act within the last five (5) years?

\*Yes \_\_\_\_\_

No \_\_\_\_\_

\*If yes, please attach a signed document explaining any/or all administrative proceedings with the Department within the last five (5) years. Please include any pending administrative proceedings with the Department if any.

### Submission of Certified Payroll Records

All certified payroll records are to be submitted to the Owner, Business Administrator, who is coordinating the activities for the project:

Name of Company \_\_\_\_\_

Authorized Agent \_\_\_\_\_

Authorized Signature \_\_\_\_\_

**Lowest Responsible Bidder by 10% or More  
Certification of Prevailing Wage Rates and  
Acknowledgement of Penalties Form  
P.L.2021, c.301**

I, \_\_\_\_\_ of the bidding organization/firm of \_\_\_\_\_, located in the Municipality of \_\_\_\_\_, County of \_\_\_\_\_, State of \_\_\_\_\_; and being of full age, do hereby certify and affirm that:

I am a Bidder and/or authorized representative of same submitting a bid for labor/materials/services on the \_\_\_\_\_ [Project]. I hereby certify that, should \_\_\_\_\_ [organization/firm] be deemed the lowest responsible bidder for the Project, and should \_\_\_\_\_ [organization/firm's] bid amount be ten percent (10%) or more lower than the next lowest bid for the contract, that the prevailing wage rates required by the New Jersey Prevailing Wage Act, P.L.1963, c.150 (C.34:11-56.25 et seq.) shall be paid.

Furthermore, I hereby certify and acknowledge, that I understand that if \_\_\_\_\_ [organization/firm] does not provide this Certification prior to the award of contract, the Project Owner shall award the contract to the next lowest responsible and responsive bid, pursuant to P.L.2021, c.301.

Name of Authorized Agent \_\_\_\_\_  
Signature \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

**NON-COLLUSION AFFIDAVIT**

STATE OF NEW JERSEY/ \_\_\_\_\_  
(Specify, if Other)

COUNTY OF \_\_\_\_\_

I, \_\_\_\_\_, of the (City, Town, Borough) of \_\_\_\_\_ State of \_\_\_\_\_, of full age, being duly sworn according to law on my oath depose and say that:

I am \_\_\_\_\_ of the firm of \_\_\_\_\_, the Bidder making the Proposal for the above named Projects, and that I executed the said Proposal with full authority to do so; that said Bidder has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named Project; and that all statements contained in said Proposal and in this affidavit are true and correct, and made with full knowledge, and the State of New Jersey relies upon the truth of the statements contained in this affidavit in awarding the contract for the said Project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by \_\_\_\_\_. (Name of Contractor)

(N.J.S.A. 52:34-15)

By: \_\_\_\_\_  
(Signature of Authorized Representative)

Subscribed and sworn to before me  
this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/

Specify Other State

My Commission Expires \_\_\_\_\_, 20 \_\_\_\_.

**THIS FORM MUST BE COMPLETED, SIGNED, NOTARIZED, AND SUBMITTED WITH BID**



**CERTIFICATION OF NO MATERIAL CHANGE OF CIRCUMSTANCES**

Bidder's Name: \_\_\_\_\_

Address: \_\_\_\_\_

1. A statement as to the financial ability, adequacy of plant equipment, organization and prior experience of the Bidder, as required by N.J.S.A. 18A:18A-28 has been submitted to the Department of Treasury within the last twelve (12) months preceding the date of opening of bids for this contract.
  
2. I certify, as required by N.J.S.A. 18A:18A-32, that there has been no material adverse change in the qualification except:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
(Name and Title of Signer - Please print or type)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

STATUS OF PRESENT CONTRACTS

**PURSUANT TO N.J.A.C. 17:19-2.13, BIDDER DECLARES THE FOLLOWING WITH RESPECT TO ITS UNCOMPLETED CONTRACTS, ON ALL WORK, FROM WHATEVER SOURCE (PUBLIC AND PRIVATE), BOTH IN NEW JERSEY AND FROM OTHER GOVERNMENTAL JURISDICTIONS.**

- Each classified bidder's aggregate rating shall be calculated in accordance with formula prescribed by N.J.A.C. 17:19-2.8.
- Calculations shall be based on Bidder's base bid amount only at time of bid or total amount of base bid and accepted Alternate Bids at time of Award.

Entity	Project Title	Original Contract Amount	Uncompleted Amount As of Bid Opening Date	Name and Telephone Number of Party To Be Contacted From Entity For Verification

Sworn and Subscribed to before me  
 this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

BIDDER

Notary Public \_\_\_\_\_

(Print and Signature)

# C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

## Contractor Instructions

Business entities (contractors) receiving contracts from a public agency that are NOT awarded pursuant to a “fair and open” process (defined at N.J.S.A. 19:44A-20.7) are subject to the provisions of P.L. 2005, c. 271, s.2 (N.J.S.A. 19:44A-20.26). This law provides that 10 days prior to the award of such a contract, the contractor shall disclose contributions to:

- any State, county, or municipal committee of a political party
- any legislative leadership committee\*
- any continuing political committee (a.k.a., political action committee)
- any candidate committee of a candidate for, or holder of, an elective office:
  - of the public entity awarding the contract
  - of that county in which that public entity is located
  - of another public entity within that county
  - or of a legislative district in which that public entity is located or, when the public entity is a county, of any legislative district which includes all or part of the county

The disclosure must list reportable contributions to any of the committees that exceed \$300 per election cycle that were made during the 12 months prior to award of the contract. See N.J.S.A. 19:44A-8 and 19:44A-16 for more details on reportable contributions.

N.J.S.A. 19:44A-20.26 itemizes the parties from whom contributions must be disclosed when a business entity is not a natural person. This includes the following:

- individuals with an “interest” ownership or control of more than 10% of the profits or assets of a business entity or 10% of the stock in the case of a business entity that is a corporation for profit
- all principals, partners, officers, or directors of the business entity or their spouses
- any subsidiaries directly or indirectly controlled by the business entity
- IRS Code Section 527 New Jersey based organizations, directly or indirectly controlled by the business entity and filing as continuing political committees, (PACs).

When the business entity is a natural person, “a contribution by that person’s spouse or child, residing therewith, shall be deemed to be a contribution by the business entity.” [N.J.S.A. 19:44A-20.26(b)] The contributor must be listed on the disclosure.

Any business entity that fails to comply with the disclosure provisions shall be subject to a fine imposed by ELEC in an amount to be determined by the Commission which may be based upon the amount that the business entity failed to report.

The enclosed list of agencies is provided to assist the contractor in identifying those public agencies whose elected official and/or candidate campaign committees are affected by the disclosure requirement. It is the contractor’s responsibility to identify the specific committees to which contributions may have been made and need to be disclosed. The disclosed information may exceed the minimum requirement.

The enclosed form, a content-consistent facsimile, or an electronic data file containing the required details (along with a signed cover sheet) may be used as the contractor’s submission and is disclosable to the public under the Open Public Records Act.

The contractor must also complete the attached Stockholder Disclosure Certification. This will assist the agency in meeting its obligations under the law. **NOTE: This section does not apply to Board of Education contracts.**

\* N.J.S.A. 19:44A-3(s): “The term “legislative leadership committee” means a committee established, authorized to be established, or designated by the President of the Senate, the Minority Leader of the Senate, the Speaker of the General Assembly or the Minority Leader of the General Assembly pursuant to section 16 of P.L.1993, c.65 (C.19:44A-10.1) for the purpose of receiving contributions and making expenditures.”

# C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Required Pursuant To N.J.S.A. 19:44A-20.26

**This form or its permitted facsimile must be submitted to the local unit no later than 10 days prior to the award of the contract.**

## Part I – Vendor Information

Vendor Name:			
Address:			
City:		State:	Zip:

The undersigned being authorized to certify, hereby certifies that the submission provided herein represents compliance with the provisions of N.J.S.A. 19:44A-20.26 and as represented by the Instructions accompanying this form.

\_\_\_\_\_  
Signature Printed Name Title

## Part II – Contribution Disclosure

Disclosure requirement: Pursuant to N.J.S.A. 19:44A-20.26 this disclosure must include all reportable political contributions (more than \$300 per election cycle) over the 12 months prior to submission to the committees of the government entities listed on the form provided by the local unit.

Check here if disclosure is provided in electronic form.

Contributor Name	Recipient Name	Date	Dollar Amount
			\$

Check here if the information is continued on subsequent page(s)

**CERTIFICATION OF PROHIBITED ACTIVITIES IN RUSSIA AND/OR BELARUS  
IN ACCORDANCE WITH FOR P.L. 2022, C.3**

On March 9, 2022, Governor Murphy signed S-1889/A-3090 into law (P.L. 2022, c.3). Pursuant to P.L. 2022, c.3, a State agency or local unit, as applicable, shall require a person seeking to enter into or renew a contract to certify, before the contract is awarded, renewed, amended, or extended, that the person is not identified on a list created by the New Jersey Department of the Treasury as engaging in prohibited activities in Russia or Belarus. The certification required shall be executed on behalf of the applicable person by an authorized officer or representative of the person. If a person is unable to make the certification required because the person or one of the person’s parents, subsidiaries, or affiliates has engaged in prohibited activity in Russia or Belarus, the person shall provide to the State agency or local unit of government concerned, prior to the deadline for delivery of such certification, a detailed and precise description of such activities, such description to be provided under penalty of perjury. The certifications and disclosures provided shall be disclosed to the public.

“Engaged in prohibited activities in Russia or Belarus” means (1) companies in which the Government of Russia or Belarus has any direct equity share; (2) having any business operations commencing after March 9, 2022 that involve contracts with or the provision of goods or services to the Government of Russia or Belarus; (3) being headquartered in Russia or having its principal place of business in Russia or Belarus, or (4) supporting, assisting or facilitating the Government of Russia or Belarus in their campaigns to invade the sovereign country of Ukraine, either through in-kind support or for profit.

Accordingly, please select the appropriate response below.

- I, on behalf of the entity identified below (“Person/Company”), hereby certify that the Person/Company is not identified on a list created by the New Jersey Department of the Treasury as engaging in prohibited activities in Russia or Belarus, meaning (1) companies in which the Government of Russia or Belarus has any direct equity share; (2) having any business operations commencing after March 9, 2022 that involve contracts with or the provision of goods or services to the Government of Russia or Belarus; (3) being headquartered in Russia or having its principal place of business in Russia or Belarus, or (4) supporting, assisting or facilitating the Government of Russia or Belarus in their campaigns to invade the sovereign country of Ukraine, either through in-kind support or for profit.

OR

- I, on behalf of the Person/Company identified below, am unable to certify that the Person/Company is not identified on a list created by the Department of the Treasury as engaging in prohibited activities in Russia or Belarus, meaning (1) companies in which the Government of Russia or Belarus has any direct equity share; (2) having any business operations commencing after March 9, 2022 that involve contracts with or the provision of goods or services to the Government of Russia or Belarus; (3) being headquartered in Russia or having its principal place of business in Russia or Belarus, or (4) supporting, assisting or facilitating the Government of Russia or Belarus in their campaigns to invade the sovereign country of Ukraine, either through in-kind support or for profit. Please identify/explain why you cannot certify on the lines below.

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I, the undersigned, certify that I am authorized to execute this certification on behalf of the Person/Company, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that a State agency or local unit is relying on the information contained herein, and that the Person/Company is under a continuing obligation from the date of this certification through the completion of any contract(s) with a State agency or local unit to notify a State agency or local unit in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I may be subject to criminal prosecution under the law, and it will constitute a material breach of my contract(s) with a State agency or local unit, permitting a State agency or local unit to declare any contract(s) resulting from this certification void and unenforceable.

\_\_\_\_\_  
Signature Authorized Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Name and Title Authorized Representative

\_\_\_\_\_  
Print Name of Person/Company

STATE OF NEW JERSEY -- DIVISION OF PURCHASE AND PROPERTY  
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Quote Number: \_\_\_\_\_

Bidder/Offeror: \_\_\_\_\_

**PART 1: CERTIFICATION**

**BIDDERS MUST COMPLETE PART 1 BY CHECKING EITHER BOX.**

**FAILURE TO CHECK ONE OF THE BOXES WILL RENDER THE PROPOSAL NON-RESPONSIVE.**

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person or entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of Treasury's Chapter 25 list as a person or entity engaging in investment activities in Iran. The Chapter 25 list is found on the Division's website at <http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>. Bidders **must** review this list prior to completing the below certification. **Failure to complete the certification will render a bidder's proposal non-responsive.** If the Director finds a person or entity to be in violation of law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party

**PLEASE CHECK THE APPROPRIATE BOX:**

I certify, pursuant to Public Law 2012, c. 25, that neither the bidder listed above nor any of the bidder's parents, subsidiaries, or affiliates is listed on the N.J. Department of the Treasury's list of entities determined to be engaged in prohibited activities in Iran pursuant to P.L. 2012, c. 25 ("Chapter 25 List"). I further certify that I am the person listed above, or I am an officer or representative of the entity listed above and am authorized to make this certification on its behalf. **I will skip Part 2 and sign and complete the Certification below.**

**OR**

I am unable to certify as above because the bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department's Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below. Failure to provide such will result in the proposal being rendered as non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

**PART 2: PLEASE PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN**

You must provide a detailed, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the boxes below.

**EACH BOX WILL PROMPT YOU TO PROVIDE INFORMATION RELATIVE TO THE ABOVE QUESTIONS. PLEASE PROVIDE THOROUGH ANSWERS TO EACH QUESTION. IF YOU NEED TO MAKE ADDITIONAL ENTRIES, CLICK THE "ADD AN ADDITIONAL ACTIVITIES ENTRY" BUTTON.**

Name _____	Relationship to Bidder/Offeror _____
Description of Activities _____ _____	
Duration of Engagement _____	Anticipated Cessation Date _____
Bidder/Offeror Contact Name _____	Contact Phone Number _____

Delete

**ADD AN ADDITIONAL ACTIVITIES ENTRY**

Certification: I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder; that the State of New Jersey is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print): \_\_\_\_\_ Signature: \_\_\_\_\_

**Do Not Enter PIN as a Signature**

Title: \_\_\_\_\_ Date: \_\_\_\_\_

**AMERICANS WITH DISABILITIES ACT OF 1990**  
**Equal Opportunity for Individuals with Disability**

The contractor and the Board of Education (hereafter "owner") do hereby agree that the provisions of Title 11 of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C. S121 01 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant there unto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event that the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the owner in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages, of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the owner's grievance procedure, the contractor agrees to abide by any decision of the owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the owner, or if the owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim, If any action or administrative proceeding is brought against the owner or any of its agents, servants, and employees, the *owner shall* expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or other process received by the owner or its representatives.

It is expressly agreed and understood that any approval by the owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the owner pursuant to this paragraph.

It is further agreed and understood that the owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor's obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the owner from taking any other actions available to it under any other provisions of the Agreement or otherwise at law.

Name of Company \_\_\_\_\_

Authorized Agent \_\_\_\_\_

Title or Position \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

## **EQUIPMENT CERTIFICATION**

Title of Bid: \_\_\_\_\_

Bid No. \_\_\_\_\_

Bid Date: \_\_\_\_\_  
(Weekday, Month 00, 20\_\_)

In accordance with N.J.S.A. 18A:18A-23, I hereby certify that

A) \_\_\_\_\_ (Name of Company) owns all the necessary equipment as required by the specifications and to complete the specified public work project.

**or**

B) \_\_\_\_\_ (Name of Company) leases or controls all the necessary equipment as required by the specifications and to complete the specified public work project.

**PLEASE NOTE:** If your company is not the actual owner of the equipment, **you shall submit with the bid**

1. A certificate stating the source from which the equipment will be obtained and
2. Obtain and submit with the bid a certificate from the owner and person in control of the equipment, definitely granting to the bidder the control of the equipment required during such time it may be necessary for the completion of that portion of the contract for which said equipment will be necessary.

Name of Company \_\_\_\_\_

Authorized Agent \_\_\_\_\_ Title \_\_\_\_\_

**Authorized Signature** \_\_\_\_\_



## Sworn Contractor Certification; Qualifications and Credentials

Pursuant to N.J.S.A. 18A:7G-37, a pre-qualified contractor seeking to bid school facilities projects, and any subcontractors, that are required to be named under N.J.S.A. 18A:7G-1 et seq. shall, as a condition of bidding, submit this Sworn Contractor Certification regarding qualifications and credentials.

I, \_\_\_\_\_, the principal owner or officer of the Bidder (or, the "Company"), certify that the forging statements are true and the firm has the following qualifications and credentials:

1. A current, valid certificate of registration issued pursuant to "The Public Works Contractor Registration Act," N.J.S.A. 34:11-56:48 et seq., a copy of which is submitted with this bid;
2. If a corporation or LLC formed under the laws of a state other than New Jersey, a current, valid "Certificate of Authority to perform work in New Jersey", a copy of which is submitted with this bid;
3. A current, valid, contractor or trade license required under applicable New Jersey Law for any specialty trade or specialty area in which the firm seeks to perform work, a copy of which is submitted with this bid;

I further certify that, during the term of the school facilities project, the Company will have in place a suitable quality control and quality assurance program and an appropriate safety and health plan.

I further certify that, at the time of bidding, the amount of the bid proposal and value of all of its outstanding incomplete contracts does not exceed the Company's existing aggregate rating limit.

Name of Company \_\_\_\_\_

Name of Owner or Officer \_\_\_\_\_

Signature of Owner or Officer \_\_\_\_\_

Notarized before me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ Year  
Month

\_\_\_\_\_  
NOTARY PUBLIC SIGNATURE

\_\_\_\_\_  
Print Name of Notary Public

My commission expires \_\_\_\_\_, \_\_\_\_\_ Year  
Month Day

-SEAL-

***To be completed, signed, notarized and returned with bid.***

CERTIFICATION OF INSURANCE STATEMENT

The Bidder fully understands the Owner's insurance requirements as stated in the Supplementary Conditions and agrees to provide all insurance required by these documents at award of contract.

---

COMPANY NAME

---

BIDDER (Signature)

---

BIDDER (Print Name)

**Note:** Failure to sign this document may result in the rejection of your Proposal.

CERTIFICATION OF INSURANCE STATEMENT

**EXHIBIT B**  
**MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE**  
**N.J.S.A. 10:5-31 et seq. (P.L.1975, c.127)**  
**N.J.A.C. 17:27-1.1 et seq.**  
**CONSTRUCTION CONTRACTS**

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affection or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program, may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B, and C, as long as the Dept. of LWD, construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C 17:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

- (A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as supplemented and amended from time to time and the American with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

EXHIBIT B (Continued)

- (B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:
- 1) To notify the public agency compliance officer, the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;
  - 2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;
  - 3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;
  - 4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;
  - 5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and nondiscrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;
  - 6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:
    - i. The contractor or subcontractor shall interview the referred minority or women worker.
    - ii. If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Dept. of LWD, Construction EEO Monitoring Program. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.
    - iii. The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.
    - iv. If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program.
  - 7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Dept. of LWD, Construction EEO Monitoring Program upon request.
- (C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which

EXHIBIT B (Continued)

result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ration established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Dept. of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA-201) electronically provided to the public agency by the Dept. of LWD, Construction EEO Monitoring Program, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Dept. of LWD, Construction EEO Monitoring Program, and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

- (D) The contractor and its subcontractors shall furnish such reports or other documents to the Dept. of LWD, Construction EEO Monitoring Program as may be requested by the Dept. of LWD, Construction EEO Monitoring Program from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

(Revised: January, 2016)

Reviewed By: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

## EXHIBIT A

### MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE

N.J.S.A. 10:5-31 et seq. (P.L.1975, c.127) and N.J.A.C. 17:27 et seq.

### GOODS, GENERAL SERVICES, AND PROFESSIONAL SERVICES CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union of the contractor's commitments under this chapter and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

The contractor or subcontractor agrees to make good faith efforts to meet targeted county employment goals established in accordance with N.J.A.C. 17:27-5.2.

The contractor or subcontractor agrees to inform in writing its appropriate recruitment agencies including, but not limited to, employment agencies, placement bureaus, colleges, universities, and labor unions, that it does not discriminate on the basis of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

The contractor or subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job related testing, as established by the statutes and court decisions of the State of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

In conforming with the targeted employment goals, the contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and layoff to ensure that all such actions are taken without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

The contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents:

Letter of Federal Affirmative Action Plan Approval;

Certificate of Employee Information Report; or

Employee Information Report Form AA-302 (electronically provided by the Division and distributed to the public agency through the Division's website at: <http://www.state.nj.us/treasury/contract/compliance>).

The contractor and its subcontractors shall furnish such reports or other documents to the Division of Purchase & Property, CCAU, EEO Monitoring Program as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Purchase & Property, CCAU, EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

## NEW JERSEY ANTI-DISCRIMINATION PROVISIONS

### N.J.S.A. 10:2-1 ET SEQ.

Pursuant to N.J.S.A. 10:2-1, if awarded a contract, the contractor agrees that:

a. In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the work to which the employment relates;

b. No contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;

c. There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of \$50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and

d. This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

No provision in this section shall be construed to prevent a board of education from designating that a contract, subcontract or other means of procurement of goods, services, equipment or construction shall be awarded to a small business enterprise, minority business enterprise or a women's business enterprise pursuant to P.L.1985, c.490 (C.18A:18A-51 et seq.).

**AMERICANS WITH DISABILITIES ACT OF 1990**  
**Equal Opportunity for Individuals with Disability**

The contractor and the owner do hereby agree that the provisions of Title 11 of the Americans with Disabilities Act of 1990 (the "Act") (42 U.S.C. 5121 *OJ* et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant there unto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event that the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the owner in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages, of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the owner's grievance procedure, the contractor agrees to abide by any decision of the owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the owner, or if the owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim, if any action or administrative proceeding is brought against the owner or any of its agents, servants, and employees, the owner shall expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or other process received by the owner or its representatives.

It is expressly agreed and understood that any approval by the owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the owner pursuant to this paragraph.

It is further agreed and understood that the owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor's obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the owner from taking any other actions available to it under any other provisions of the Agreement or otherwise at law.



**FEDERAL AND STATE NON-DEBARMENT CERTIFICATIONS**

I, \_\_\_\_\_ of the city of \_\_\_\_\_, in the County of \_\_\_\_\_ and the State of \_\_\_\_\_, of full age, certify that the entity listed on the form and/or any person or company employed by this entity, are not presently on the following:

- New Jersey Department of Treasury – Consolidated Debarment Report
- New Jersey Department of Labor – Prevailing Wage Debarment List
- Federal Debarred Vendor List – System for Award Management (SAM.gov)

Company Name: \_\_\_\_\_

Authorized Agent: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

SECTION 004541 – CERTIFICATION OF NON-DEPARTMENT FOR  
 FEDERAL GOVERNMENT CONTRACTS  
 N.J.S.A. 52:32-44.1 (P.L. 2019, c.406)

Public Works Contracts

Project No. \_\_\_\_\_ Title of Bid \_\_\_\_\_

This certification shall be completed, certified to, and submitted to the contracting unit **prior to contract award**, except for emergency contracts where submission is required prior to payment.

<b>PART I: VENDOR INFORMATION</b>	
Individual or Organization Name	
Address of Individual or Organization	
DUNS Code (if applicable)	
CAGE Code (if applicable)	
<b>Check the box that represents the type of business organization:</b>	

- Sole Proprietorship (skip Parts III and IV)   
  Non-Profit Corporation (skip Parts III and IV)  
 For-Profit Corporation (any type)   
  Limited Liability Company (LLC)   
  Partnership  
 Limited Partnership   
  Limited Liability Partnership (LLP)  
 Other (be specific): \_\_\_\_\_

<b>PART II – CERTIFICATION OF NON-DEBARMENT: Individual or Organization</b>			
I hereby certify that the <b>individual or organization listed above in Part I</b> is not debarred by the federal government from contracting with a federal agency. I further acknowledge: that I am authorized to execute this certification on behalf of the above- named organization; that the _____ ( <b>“OWNER”</b> ) is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by <b>“OWNER”</b> to notify the <b>“OWNER”</b> in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the <b>“OWNER”</b> , permitting the <b>“OWNER”</b> to declare any contract(s) resulting from this certification void and unenforceable.			
Full Name (Print):		Title:	
Signature:		Date:	

**PART III – CERTIFICATION OF NON-DEBARMENT: Individual or Entity Owning Greater than 50 Percent of Organization**

**Section A (Check the Box that applies)**

<input type="checkbox"/>	Below is the name and address of the stockholder in the corporation who owns more than 50 percent of its voting stock, or of the partner in the partnership who owns more than 50 percent interest therein, or of the member of the limited liability company owning more than 50 percent interest therein, as the case may be.
<b>Name of Individual or Organization</b>	
<b>Home Address (for Individual) or Business Address</b>	
<b>OR</b>	
<input type="checkbox"/>	No one stockholder in the corporation owns more than 50 percent of its voting stock, or no partner in the partnership owns more than 50 percent interest therein, or no member in the limited liability company owns more than 50 percent interest therein, as the case may be.

**Section B (Skip if no Business entity is listed in Section A above)**

<input type="checkbox"/>	Below is the name and address of the stockholder in the corporation who owns more than 50 percent of the voting stock of the organization's parent entity, or of the partner in the partnership who owns more than 50 percent interest in the organization's parent entity, or of the member of the limited liability company owning more than 50 percent interest in organization's parent entity, as the case may be.
<b>Stockholder/Partner/Member Owning Greater Than 50 Percent of Parent Entity</b>	
<b>Home Address (for Individual) or Business Address</b>	
<b>OR</b>	
<input type="checkbox"/>	No one stockholder in the parent entity corporation owns more than 50 percent of its voting stock, no partner in the parent entity partnership owns more than 50 percent interest therein, or no member in the parent entity limited liability company owns more than 50 percent interest therein, as the case may be.

**Section C – Part III Certification**

I hereby certify that no individual or organization that is debarred by the federal government from contracting with a federal agency owns greater than 50 percent of the **Organization listed above in Part I** or, if applicable, owns greater than 50 percent of a parent entity of \_\_\_\_\_ (***name of organization***). I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the (“**OWNER**”) is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award “**OWNER**” to notify the “**OWNER**” in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the “**OWNER**”, permitting the “**OWNER**” to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

**Part IV – CERTIFICATION OF Non-Debarment: Contractor – Controlled Entities**

**Section A**

<input type="checkbox"/>	Below is the name and address of the corporation(s) in which the <b>Organization listed in Part I</b> owns more than 50 percent of voting stock, or of the partnership(s) in which the <b>Organization listed in Part I</b> owns more than 50 percent interest therein, or of the limited liability company or companies in which the <b>Organization listed above in Part I</b> owns more than 50 percent interest therein, as the case may be.
--------------------------	--

Name of Business Entity	Business Address

\*\*Add additional sheets if necessary\*\*

**OR**

<input type="checkbox"/>	The <b>Organization listed above in Part I</b> does not own greater than 50 percent of the voting stock in any corporation and does not own greater than 50 percent interest in any partnership or any limited liability company.
--------------------------	---

<b>Section B (skip if no business entities are listed in Section A of Part IV)</b>	
<input type="checkbox"/>	Below are the names and addresses of any entities in which an entity listed in Part III A owns greater than 50 percent of the voting stock (corporation) or owns greater than 50 percent interest (partnership or limited liability company).
Name of Business Entity Controlled by Entity Listed in Section A of Part IV	Business Address
**Add additional Sheets if necessary**	
<b>OR</b>	
<input type="checkbox"/>	No entity listed in Part III A owns greater than 50 percent of the voting stock in any corporation or owns greater than 50 percent interest in any partnership or limited liability company.

<b>Section C – Part IV Certification of Non-Debarment</b>			
<p>I hereby certify that the <b>Organization listed above in Part I</b> does not own greater than 50 percent of any entity that that is debarred by the federal government from contracting with a federal agency and, if applicable, does not own greater than 50 percent of any entity that in turns owns greater than 50 percent of any entity debarred by the federal government from contracting with a federal agency. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the (“<b>OWNER</b>”) is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by “<b>OWNER</b>” to notify “<b>OWNER</b>” in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the “<b>OWNER</b>”, permitting the “<b>OWNER</b>” to declare any contract(s) resulting from this certification void and unenforceable.</p>			
Full Name (Print):		Title:	
Signature:		Date:	

**Surety Disclosure Statement and Certification**  
N.J.S. A. 2A:44-143

**SAMPLE**

SURETY DISCLOSURE STATEMENT AND CERTIFICATION

....., surety(ies) on the attached bond, hereby certifies(y) the following:

(1) The surety meets the applicable capital and surplus requirements of N.J.S.A.17:17-6 or N.J.S.A. 17:17-7 as of the surety's most current annual filing with the New Jersey Department of Insurance.

(2) The capital (where applicable) and surplus, as determined in accordance with the applicable laws of this State, of the surety(ies) participating in the issuance of the attached bond is (are) in the following amount(s) as of the calendar year ended December 31, ..... (most recent calendar year for which capital and surplus amounts are available), which amounts have been certified as indicated by certified public accountants (indicating separately for each surety that surety's capital and surplus amounts, together with the name and address of the firm of certified public accounts that shall have certified those amounts):

.....  
.....  
.....

(3) (a) With respect to each surety participating in the issuance of the attached bond that has received from the United States Secretary of the Treasury a certificate of authority pursuant to 31 U.S.C. 9305, the underwriting limitation established therein and the date as of which that limitation was effective is as follows (indicating for each such surety that surety's underwriting limitation and the effective date thereof):

.....  
.....  
.....

(b) With respect to each surety participating in the issuance of the attached bond that has not received such a certificate of authority from the United States Secretary of the Treasury, the underwriting limitation of that surety as established pursuant to N.J.S.A. 17:18-9 as of (date on which such limitation was so established) is as follows (indicating for each such surety that surety's underwriting limitation and the date on which that limitation was established):

.....  
.....  
.....

(4) The amount of the bond to which this statement and certification is attached is \$.....

(5) If, by virtue of one or more contracts of reinsurance, the amount of the bond indicated under item (4) above exceeds the total underwriting limitation of all sureties on the bond as set forth in items (3)(a) or (3)(b) above, or both, then for each such contract of reinsurance:

(a) The name and address of each such reinsurer under that contract and the amount of that reinsurer's participation in the contract is as follows:.....

.....

.....

.....; and

(b) Each surety that is party to any such contract of reinsurance certifies that each reinsurer listed under item (5)(a) satisfies the credit for reinsurance requirement established under NJSA 17:51B-1 et seq. and any applicable regulations in effect as of the date on which the bond to which this statement and certification is attached shall have been filed with the appropriate public agency.

### CERTIFICATE

(to be completed by an authorized certifying agent

for each surety on the bond)

I ..... (name of agent), as ..... (title of agent) for ..... (name of surety), a corporation/mutual insurance company/other (indicating type of business organization) (circle one) domiciled in ..... (state of domicile), DO HEREBY CERTIFY that, to the best of my knowledge, the foregoing statements made by me are true, and ACKNOWLEDGE that, if any of those statements are false, this bond is VOIDABLE.

.....

(Signature of certifying agent)

.....

(Printed name of certifying agent)

.....

(Title of certifying agent)

# PERFORMANCE BOND

Bond No. \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned \_\_\_\_\_ as PRINCIPAL and sureties with underwriting office at \_\_\_\_\_ to which all communication in regard to this bond should be addressed, a Corporation organized and existing under the laws of the State of \_\_\_\_\_ and duly authorized to do business in the state of New Jersey, as SURETY, are hereby held and firmly bound unto the \_\_\_\_\_ in the penal sum of \_\_\_\_\_, for payment of which well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

SIGNED and SEALED this \_\_\_\_\_ day of \_\_\_\_\_ two thousand and \_\_\_\_\_.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT, WHEREAS, the above named Principal did on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, entered into a contract with \_\_\_\_\_ identified as \_\_\_\_\_ which said contract, upon execution by the Owner, and the Principal, will be a part of this bond the same as though set forth herein.

Now, if the said Principal shall well and faithfully do and perform each and every, all and singular, the things agreed by it (or them) to be done and performed according to the terms of said contract, and shall pay all lawful claims of beneficiaries as defined by N.J.S.2A:44-143 for labor performed or materials, provisions, provender or other supplies or teams, fuels, oils, implements or machinery furnished, used or consumed in the carrying forward, performing or completing of said contract, we agreeing and assenting that this undertaking shall be for the benefit of any beneficiary as defined in N.J.S.2A:44-143 having a just claim, as well as for the oblige herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said Surety hereby stipulated and agrees that no modifications, omissions or additions in or to the terms of the said contract, or in or to the plans or specifications therefore, shall in anyway affect the obligations of said Surety on its bond.

Recovery of any claimant under the bond shall be subject to the conditions and provisions of this article to the same extent as if such conditions and provisions were fully incorporated in the form set forth above.

## Principal:

By: \_\_\_\_\_  
Print Name:  
Print Title:

Affix  
Corporate  
Seal

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Print or Type Name

## Surety:

By: \_\_\_\_\_  
Print Name:  
Print Title:

Affix  
Corporate  
Seal

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Print or Type Name



**PAYMENT BOND**

Bond No. \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned \_\_\_\_\_ as PRINCIPAL and sureties with underwriting office at \_\_\_\_\_ to which all communication in regard to this bond should be addressed, a Corporation organized and existing under the laws of the State of \_\_\_\_\_ and duly authorized to do business in the state of New Jersey, as SURETY, are hereby held and firmly bound unto the \_\_\_\_\_ in the penal sum of \_\_\_\_\_, for payment of which well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

SIGNED and SEALED this \_\_\_\_\_ day of \_\_\_\_\_ two thousand and \_\_\_\_\_.

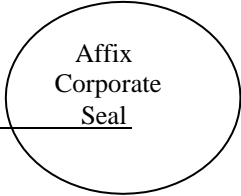
THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT, WHEREAS, the above named Principal did on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, entered into a contract with \_\_\_\_\_ identified as \_\_\_\_\_ which said contract, upon execution by the Owner, and the Principal, will be a part of this bond the same as though set forth herein.

Now, if the said Principal shall pay all lawful claims of beneficiaries as defined by N.J.S.2A:44-143 for labor performed or materials, provisions, provender or other supplies or teams, fuels, oils, implement or machinery furnished, used or consumed in carrying forward, performing or completing of said contract, we agreeing and assenting that this undertaking shall be for the benefit of any beneficiary as defined in N.J.S.2A;44-143 having a just claim, as well as for the party of the first part mentioned in the contract aforesaid; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said Surety hereby stipulated and agrees that no modifications, omissions or additions in or to the terms of the said contract, or in or to the plans or specifications therefore, shall in anyway affect the obligations of said Surety on its bond.

**Principal:**

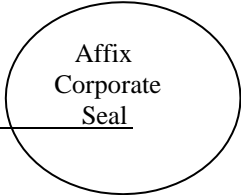
By: \_\_\_\_\_  
Print Name:  
Print Title:



\_\_\_\_\_  
Witness  
\_\_\_\_\_  
Print or Type Name

**Surety:**

By: \_\_\_\_\_  
Print Name:  
Print Title:



\_\_\_\_\_  
Witness  
\_\_\_\_\_  
Print or Type Name

**MAINTENANCE BOND**

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned,

\_\_\_\_\_  
as principal, and \_\_\_\_\_ a Corporation organized and existing under the laws of the state of \_\_\_\_\_, and duly authorized to do business in the State of New Jersey, as Surety, are held and firmly bound unto the \_\_\_\_\_ as Owner, in the penal sum of \_\_\_\_\_

\_\_\_\_\_  
(10% of the Final Contract Amount)

for payment of which, well and truly to be made, we hereby, jointly, and severally, bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, That whereas

the above named principal did on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, enter into a Contract with the Owner for \_\_\_\_\_

\_\_\_\_\_  
(Project Name)

which said Contract is made a part of this bond the same as though set forth herein.

NOW, if the said principal shall remedy without cost to the Owner any defects which may develop during the two (2) year Maintenance Period of the work performed under the said Contract, provided such defects, in the judgment of the Owner are caused by defective or inferior materials or workmanship, then this obligation shall be void, otherwise it shall be and remain in full force and effect. The two (2) year period shall commence on the date established in the Certificate of Substantial Completion.

The said Surety hereby stipulates and agrees that no modifications, deletions or additions in or to the terms of the said Contract or the plans or specifications therefor shall in any way affect its obligations on this bond.

Signed and Sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Principal) (Seal)

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Surety) (Seal)

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Title)

# STATE OF NEW JERSEY

DEPARTMENT OF LABOR & WORKFORCE DEVELOPMENT  
CONSTRUCTION EEO COMPLIANCE MONITORING PROGRAM

Assignment

Code

FORM AA-201

Revised 11/11

## INITIAL PROJECT WORKFORCE REPORT CONSTRUCTION

For instructions on completing the form, go to: [http://www.state.nj.us/treasury/contract\\_compliance/pdf/aa201ins.pdf](http://www.state.nj.us/treasury/contract_compliance/pdf/aa201ins.pdf)

<b>1. FID NUMBER</b>		<b>2. CONTRACTOR ID NUMBER</b>		<b>5. NAME AND ADDRESS OF PUBLIC AGENCY AWARDDING CONTRACT</b>						
				Name:						
<b>3. NAME AND ADDRESS OF PRIME CONTRACTOR</b>				Address:						
(Name)				CONTRACT NUMBER		DATE OF AWARD		DOLLAR AMOUNT OF AWARD		
(Street Address)				<b>6. NAME AND ADDRESS OF PROJECT</b>				<b>7. PROJECT NUMBER</b>		
				Name:						
				Address:						
(City)	(State)	(Zip Code)		COUNTY						
<b>4. IS THIS COMPANY MINORITY OWNED [ ] OR WOMAN OWNED [ ]</b>				<b>8. IS THIS PROJECT COVERED BY A PROJECT LABOR AGREEMENT (PLA)? YES <input type="checkbox"/></b>						
<b>9. TRADE OR CRAFT</b>	PROJECTED TOTAL EMPLOYEES				PROJECTED MINORITY EMPLOYEES				PROJECTED PHASE - IN DATE	PROJECTED COMPLETION DATE
	MALE		FEMALE		MALE		FEMALE			
	J	AP	J	AP	J	AP	J	AP		
1. ASBESTOS WORKER										
2. BRICKLAYER OR MASON										
3. CARPENTER										
<b>4. ELECTRICIAN</b>										
<b>5. GLAZIER</b>										
6. HVAC MECHANIC										
7. IRONWORKER										
8. OPERATING ENGINEER										
9. PAINTER										
<b>10. PLUMBER</b>										
<b>11. ROOFER</b>										
12. SHEET METAL WORKER										
13. SPRINKLER FITTER										
<b>14. STEAMFITTER</b>										
<b>15. SURVEYOR</b>										
<b>16. TILER</b>										
<b>17. TRUCK DRIVER</b>										
<b>18. LABORER</b>										
<b>19. OTHER</b>										
<b>20. OTHER</b>										

I hereby certify that the foregoing statements made by me are true. I am aware that if any of the foregoing statements are willfully false, I am subject to punishment.

(Signature)

10. (Please Print Your Name)

(Title)

(Area Code)

(Telephone Number)

(Ext.)

(Date)

# State Of New Jersey

Department of Labor & Workforce Development  
Construction EEO Compliance Monitoring Program

**MONTHLY PROJECT WORKFORCE REPORT - CONSTRUCTION**

For instructions on completing the form, go to: <a href="http://www.state.nj.us/treasury/contract_compliance/pdf/aa202ins.pdf">http://www.state.nj.us/treasury/contract_compliance/pdf/aa202ins.pdf</a>		<b>3. F ID or SS Number</b>			
1. Name and address of Prime Contractor  (NAME)		<b>2. Contractor ID Number</b>		<b>4. Reporting Period</b>	
(ADDRESS)		<b>5. Public Agency Awarding Contract</b>		<b>Date of Award</b>	
(CITY) (STATE) (ZIP CODE)		<b>6. Name and Location of Project</b>		<b>County</b>	
				<b>7. Project ID Number</b>	

8. CONTRACTOR NAME (LIST PRIME CONTRACTOR WITH SUBS FOLLOWING)	9. PERCENT OF WORK COMPLETED	10. TRADE OR CRAFT	CLASSIFICATION (SEE REVERSE)	11. NUMBER OF EMPLOYEES						12. TOTAL	13. WORK HOURS				14. % OF WORK HRS		15. CUM. WORK HRS			16. CUM. % OF W/H		
				A.	B.	C.	D.	E.	F.	NO. OF	TOTAL	A.	B.	A.	B.	TOTAL	A.	B.	A.	B.		
				TOTAL	BLACK	HISPANIC	AMERICAN INDIAN	ASIAN	FEMALES	MIN. EMP.	WORK HOURS	MIN. W/H	FEMALE W/H	% OF MIN. W/H	% OF FEMALE W/H	WORK HOURS	MIN. HOURS	FEMALE HOURS	% OF MIN. W/H	% OF FEM. W/H		
			J																			
			AP																			
			J																			
			AP																			
			J																			
			AP																			
			J																			
			AP																			

17. COMPLETED BY (PRINT OR TYPE)

(NAME) (SIGNATURE) (TITLE)

(AREA CODE) (TELEPHONE NUMBER) (EXT.) (DATE)



# AIA® Document A132® – 2019

## Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition

**AGREEMENT** made as of the    day of    in the year  
*(In words, indicate day, month, and year.)*

**BETWEEN** the Owner:  
*(Name, legal status, address, and other information)*

West Windsor-Plainsboro Regional School District Board of Education  
321 Village Road East  
West Windsor, NJ 08550

and the Contractor:  
*(Name, legal status, address, and other information)*

for the following Project:  
*(Name, location, and detailed description)*

The Construction Manager:  
*(Name, legal status, address, and other information)*

The Architect:  
*(Name, legal status, address, and other information)*

Fraytak Veisz Hopkins Duthie, P.C.  
1515 Lower Ferry Road  
Trenton, NJ 08618

### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132™–2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser. AIA Document A232™–2019 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

The Owner and Contractor agree as follows.

## TABLE OF ARTICLES

1	THE CONTRACT DOCUMENTS
2	THE WORK OF THIS CONTRACT
3	DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION
4	CONTRACT SUM
5	PAYMENTS
6	DISPUTE RESOLUTION
7	TERMINATION OR SUSPENSION
8	MISCELLANEOUS PROVISIONS
9	ENUMERATION OF CONTRACT DOCUMENTS

### EXHIBIT A INSURANCE AND BONDS

### EXHIBIT B DETERMINATION OF THE COST OF THE WORK

## ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9. In the event of any conflict among the Contract Documents, the Contractor shall notify the Owner and the Architect of same and follow and comply with their interpretation of same.

## ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

## ARTICLE 3 DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

*(Check one of the following boxes.)*

- The date of this Agreement.
- A date set forth in a notice to proceed issued by the Owner.
- Established as follows:  
*(Insert a date or a means to determine the date of commencement of the Work.)*

*(Paragraph deleted)*

### § 3.3 Substantial Completion of the Project or Portions Thereof

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the date of Substantial Completion of the Work of all of the Contractors for the Project will be:

*(Insert the date of Substantial Completion of the Work of all Contractors for the Project.)*

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work of all of the Contractors for the Project are to be completed prior to Substantial Completion of the entire Work of all of the Contractors for the Project, the Contractors shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date
-----------------	-----------------------------

**§ 3.4 When the Work of this Contract, or any Portion Thereof, is Substantially Complete**

§ 3.4.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall substantially complete the entire Work of this Contract:

*(Check one of the following boxes and complete the necessary information.)*

Not later than ( ) calendar days from the Notice to Proceed of the Work.

By the following date:

§ 3.4.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work of this Contract are to be substantially complete prior to when the entire Work of this Contract shall be substantially complete, the Contractor shall substantially complete such portions by the following dates:

Portion of Work	Date to be substantially complete
-----------------	-----------------------------------

§ 3.4.3 If the Contractor fails to substantially complete the Work of this Contract, or portions thereof, as provided in this Section 3.4, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

**ARTICLE 4 CONTRACT SUM**

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor’s performance of the Contract. The Contract Sum shall be one of the following:

*(Check the appropriate box.)*

Stipulated Sum, in accordance with Section 4.2 below

Cost of the Work plus the Contractor’s Fee, in accordance with Section 4.3 below

Cost of the Work plus the Contractor’s Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

*(Based on the selection above, complete Section 4.2, 4.3 or 4.4 below.)*

**§ 4.2 Stipulated Sum**

§ 4.2.1 The Contract Sum shall be (\$ ), subject to additions and deductions as provided in the Contract Documents.

**§ 4.2.2 Alternates**

§ 4.2.2.1 Alternates, if any, included in the Contract Sum: Section 01030 – Alternate Bids

Item	Price
------	-------

§ 4.2.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.

*(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)*

Item	Price	Conditions for Acceptance
------	-------	---------------------------



§ 4.2.3 Allowances, if any, included in the Contract Sum: Section 01020 - Allowances  
(Identify each allowance.)

Item	Price
------	-------

§ 4.2.4 Unit prices, if any: Section 01151 – Unit Prices  
(Identify the item and state the unit price, and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

(Paragraphs deleted)  
(Table deleted)

§ 4.5 Liquidated damages, if any:  
(Insert terms and conditions for liquidated damages, if any, to be assessed in accordance with Section 3.4.)

Liquidated Damages to be assessed is \$1,000 per calendar day of the delay and in accordance with the Specification requirements, Section 01800, entitled "Time of Completion and Liquidated Damages." And as further stated in AIA A232-2019, Article 8-Time: 8.2 Progress and Completion section 8.2.1; Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work (and that, liquidated damages are a reasonable and proper measure, not as a penalty which the Owner will sustain each calendar day by failure of the Contractor to complete work within the stipulated time. Neither weather delays, manpower shortages, nor material delivery delays will be considered grounds for extension of the schedule.)

(Paragraphs deleted)

## ARTICLE 5 PAYMENTS

### § 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Construction Manager by the Contractor, and Certificates for Payment issued by the Construction Manager and Architect, the Owner shall make progress payments on account of the Contract Sum, to the Contractor, as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an AIA forms G702 and G703 Application for Payment and Waiver of Lien are received by the Construction Manager not later than the 25th day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the following month.

§ 5.1.3.1 The Owner will issue timely payments to the contractor(s) in accordance with the requirements of the Prompt Payment Act, N.J.S.A. 2A:30A-1 et seq., as described in Section 00860 and the payment cycle of the Owner. No billings shall be deemed approved and certified by passage of time. For applications not submitted by the application date, and because the Owner's governing body must vote on authorizations for each periodic payment, final payment or retainage

Init.

monies, the amount due may be approved and certified at the next month's scheduled public meeting of the entity's governing body, and paid during the entity's subsequent payment cycle.

**§ 5.1.4 Progress Payments Where the Contract Sum is Based on a Stipulated Sum**

**§ 5.1.4.1** Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

**§ 5.1.4.2** Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

**§ 5.1.4.3** In accordance with AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

**§ 5.1.4.3.1** The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

**§ 5.1.4.3.2** The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232–2019;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232–2019; and
- .5 Retainage withheld pursuant to Section 5.1.7.

*(Paragraphs deleted)*

**§ 5.1.5.6** Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

**§ 5.1.5.7** If final completion of the Work is materially delayed through no fault of the Contractor, then the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A232-2019.

*(Paragraphs deleted)*

**§ 5.1.7 Retainage**

**§ 5.1.7.1** For each progress payment made prior to when the Work of this Contract is substantially complete, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

- .1 Pursuant to N.J.S.A. 18A: 18-40.3, unless indicated otherwise in the Contract Documents, if the Contractor does have a performance bond, 2% of the amount due on each partial payment shall be withheld by the Owner when the outstanding balance of the contract exceeds \$500,000, and 5% of the amount due on each partial payment shall be withheld by the Owner when the outstanding balance of the Contract is \$500,000 or less, until final completion and acceptance of all work covered by the Contract until final completion and acceptance of all work covered by the Contract, including the completion of all corrective or punch list items. Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in Section 7.3 of the General Conditions.

.2 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocable to that portion of the Work in the schedule of values, less retainage of two percent (2%) when the contract balance is over \$500,000 and five percent (5%) when the contract balance is \$500,000 or less. .3 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of two percent (2% when the Contract balance is over \$500,000 and five percent (5% when the contract balance is \$500,000 or less.

*(Paragraphs deleted)*

## § 5.2 Final Payment

### § 5.2.1 Final Payment Where the Contract Sum is Based on a Stipulated Sum

§ 5.2.1.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232-2019, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect.

§ 5.2.1.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment.

Subject to be received in time to be placed on the Board's regularly scheduled Board of Education meetings.

*(Paragraphs deleted)*

§ 5.3 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

*(Insert rate of interest agreed upon, if any.)*

0 % zero

## ARTICLE 6 DISPUTE RESOLUTION

### § 6.1 Initial Decision Maker

(If there are any claims or disputes,) the Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232-2019, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker. Notwithstanding the foregoing and anything construed to the contrary, the foregoing shall only be applicable in the event that: (i) the Contractor has produced an updated Schedule prior to the alleged material delay; (ii) there are no components of the Project for which the Contractor has delayed; and (iii) the alleged materially delayed component of the Project affects the critical path and no other Work can continue to keep the Project on Schedule.

*(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

### § 6.2 Binding Dispute Resolution

For any, the method of binding dispute resolution shall be as follows:

*(Check the appropriate box.)*

Arbitration pursuant to Article 15 of AIA Document A232-2019.

Litigation in a court of competent jurisdiction.

Other: *(Specify)*

Init.

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

## **ARTICLE 7 TERMINATION OR SUSPENSION**

### **§ 7.1 Where the Contract Sum is a Stipulated Sum**

**§ 7.1.1** The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2019.

*(Paragraphs deleted)*

**§ 7.1.2** The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2019.

*(Paragraphs deleted)*

## **ARTICLE 8 MISCELLANEOUS PROVISIONS**

**§ 8.1** Where reference is made in this Agreement to a provision of AIA Document A232–2019 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

**§ 8.1.1** A condition of this Agreement is that the Contractor will comply with all applicable governmental laws and regulations including, but without limitation, those set forth in Section 00860 of the Specifications entitled Laws Governing Public Work, which are hereby incorporated by reference as if set forth herein at length.

### **§ 8.2**

*(Paragraphs deleted)*

Neither the Owner’s nor the Contractor’s representative shall be changed without ten (10) days written notice to the other party.

*(Paragraphs deleted)*

### **§ 8.5 Insurance and Bonds**

**§ 8.5.1** The Contractor shall purchase and maintain insurance as set forth in AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

**§ 8.5.2** The Contractor shall provide bonds as set forth in AIA Document A132™–2019, Exhibit A, and elsewhere in the Contract Documents.

*(Paragraphs deleted)*

### **§ 8.7 Relationship of the Parties**

:

*(Paragraphs deleted)*

## **ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS**

**§ 9.1** This Agreement is comprised of the following documents:

- .1 AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition
- .2 AIA Document A132™–2019, Exhibit A, Insurance and Bonds Exhibit
- .3 AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition

*(Paragraphs deleted)*

and its revisions.

.5 Drawings

Number	Title	Date
--------	-------	------

.6 Specifications

Section	Title	Date	Pages
Part 1	Contract Conditions and General Requirements		In full

.7 Addenda, if any:

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:

*(Paragraphs deleted)*

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
Part 1	Contract Conditions and General Requirements		In full

*(Paragraphs deleted)*

.9 Other documents, if any, listed below:

*(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A232–2019 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor’s bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)*

Proposal, dated  
Exhibit B

This Agreement is entered into as of the day and year first written above.

\_\_\_\_\_  
OWNER (Signature)

\_\_\_\_\_  
CONTRACTOR (Signature)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Printed name and title)



# AIA® Document A132® – 2019 Exhibit A

## Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the day of in the year  
(In words, indicate day, month, and year.)

for the following **PROJECT**:  
(Name and location or address)

**THE OWNER:**  
(Name, legal status, and address)

West Windsor Plainsboro Board of Education  
321 Village Road, West Windsor, NJ 08550

**THE CONTRACTOR:**  
(Name, legal status, and address)

### TABLE OF ARTICLES

- A.1 GENERAL
- A.2 OWNER'S INSURANCE
- A.3 CONTRACTOR'S INSURANCE AND BONDS
- A.4 SPECIAL TERMS AND CONDITIONS

### ARTICLE A.1 GENERAL

The Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A232™–2019, General Conditions of the Contract for Construction.

*(Paragraphs deleted)*

*(Table deleted)*

*(Paragraphs deleted)*

*(Table deleted)*

*(Paragraphs deleted)*

### ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

#### § A.3.1 General

**§ A.3.1.1 Certificates of Insurance.** The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final

### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A232™–2019, General Conditions of the Contract for Construction. Article 11 of A232™–2019 contains additional insurance provisions

Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies. The coverage maintained by the Contractor shall be written by a company or companies rated "A-/VII" or better by Best Insurance Guide with a financial size rating of Class IX or larger, licensed to do business in the state of New Jersey.

**§ A.3.1.2 Deductibles and Self-Insured Retentions.** The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor. Such deductibles or self-insured retentions shall be subject to the Owner's approval. The Contractor shall be responsible for all loss not covered because of such deductibles or retentions.

**§ A.3.1.3 Additional Insured Obligations.** To the fullest extent permitted by law, the Contractor (and all Subcontractors) shall cause the commercial general liability coverage to include (1) the Owner, the Architect and the Architect's consultants, and the Construction Manager and the Construction Manager's consultants, as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, and the Construction Manager and the Construction Manager's consultants, CG 20 32 07 04. The Products and Completed Operations insurance shall be maintained for two (2) years after final payment or the then current applicable statute of repose. A "per project endorsement" shall be included, so that the general aggregate limit applies solely to the project that is the subject of this contract.

**§ A.3.1.4** If the Contractor fails to maintain any insurance required hereunder, then, in addition to all other remedies given to the Owner in case of the breach of any conditions or covenants of this Contract, the Owner may (but shall not be obligated to) secure or pay the premium for any such policy or policies and charge the Contractor therefor the cost of such premiums plus fifteen percent (15%) as an administrative fee to the Owner.

**§ A.3.1.5** All insurance shall contain a waiver of subrogation against the Board.

### **§ A.3.2 Contractor's Required Insurance Coverage**

**§ A.3.2.1** The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

*(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)*

### **§ A.3.2.2 Commercial General Liability**

**§ A.3.2.2.1** Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than two million ( \$ 2,000,000.00 ) each occurrence, two million ( \$ 2,000,000.00 ) general aggregate, and two million ( \$ 2,000,000.00 ) aggregate for products-completed operations hazard (and independent contractor liability), providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

**§ A.3.2.2.2** The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

Init.

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
- .3 Claims for bodily injury other than to employees of the insured.
- .4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
- .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
- .6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
- .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
- .8 Claims related to roofing, if the Work involves roofing.
- .9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
- .10 Claims related to earth subsidence or movement, where the Work involves such hazards.
- .11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

**§ A.3.2.3** Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than one million (\$ 1,000,000.00 ) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

**§ A.3.2.4** The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers. If the Contractor fails to maintain any insurance required hereunder, then, in addition to all other remedies given to the Owner in case of the breach of any conditions or covenants of this Contract, the Owner may (but shall not be obligated to) secure or pay the premium for any such policy or policies and charge the Contractor therefor the cost of such premiums plus fifteen percent (15%) as an administrative fee to the Owner.

**§ A.3.2.5** Workers' Compensation applicable to the laws of the State of New Jersey and other State or Federal jurisdiction required to protect the employees of the Contractor and any Subcontractor who will be engaged in the performance of this Contract. The certificate must so indicate that no proprietor, partner, executive officer or member is excluded.

**§ A.3.2.6** Employers' Liability with policy limits not less than one million dollars (\$1,000,000.00) bodily injury, each occurrence, one million dollars (\$1,000,000.00) disease, each employer, and one million dollars (\$1,000,000.00) disease, aggregate limit. Including the employer's liability insurance under the umbrella insurance can satisfy the limit requirement.

**§ A.3.2.7** Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

**§ A.3.2.8** If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

**§ A.3.2.9** If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.



§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

§ A.3.2.13 Excess Liability, umbrella insurance form, applying excess of primary to the commercial general liability, commercial automobile liability and employer's liability insurance shall be provided with minimum limits in an amount such that the commercial general liability insurance and excess/umbrella is equal to (\$2,000,000.00) per occurrence, (\$2,000,000.00) general aggregate and (\$2,000,000.00) for products/completed operations.

§ A.3.2.14 The General Liability Insurance General Aggregate and Umbrella Excess Liability limits shall apply and be written exclusively, in total, to this Project only. A per project endorsement for all coverage's and limits must be included in each policy.

§ A.3.2.14.1 Bodily injury and property damage insurance policies shall be so written as to provide coverage for special hazards where such hazards will be incidental to subcontractors' work.

### § A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

*(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)*

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.

*(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)*

[ ] § A.3.3.2.1 If there is only one Contractor performing the Work on the Project, property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:

*(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)*

[ ] § A.3.3.2.2 Railroad Protective Liability Insurance, with policy limits of not less than (\$ ) per claim

Init.

and (\$ ) in the aggregate, for Work within fifty (50) feet of railroad property.

[ ] **§ A.3.3.2.3 Asbestos Abatement Liability Insurance**, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.

[ ] **§ A.3.3.2.4** Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.

[ ] **§ A.3.3.2.5** Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

[ ] **§ A.3.3.2.6 Other Insurance**  
*(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)*

**Coverage**

**Limits**

**§ A.3.4 Performance Bond and Payment Bond**

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:

*(Specify type and penal sum of bonds.)*

Type	Penal Sum (\$0.00)
Payment Bond	Amount Equal to the Contract Sum
Performance Bond	Amount Equal to the Contract Sum
Maintenance Bond	Two (2) Years

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

**ARTICLE A.4 SPECIAL TERMS AND CONDITIONS**

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

**PART 1**

**CONTRACT CONDITIONS AND GENERAL REQUIREMENTS**

**SECTION 00700 - GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION,  
Construction Manager as Adviser Edition, AIA DOCUMENT A232 - 2009**



# AIA<sup>®</sup> Document A232<sup>™</sup> – 2019

## **General Conditions of the Contract for Construction, Construction Manager as Adviser Edition**

**for the following PROJECT:**

*(Name, and location or address)*

**THE CONSTRUCTION MANAGER:**

*(Name, legal status, and address)*

**THE OWNER:**

*(Name, legal status, and address)*

West Windsor-Plainsboro Regional School District Board of Education  
321 Village Road, West Windsor, NJ 08550

**THE ARCHITECT:**

*(Name, legal status, and address)*

Fraytak Veisz Hopkins Duthie, P.C.  
1515 Lower Ferry Road, Trenton, NJ 08618

**ADDITIONS AND DELETIONS:**

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A132<sup>™</sup>–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132<sup>™</sup>–2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132<sup>™</sup>–2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

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1	GENERAL PROVISIONS
2	OWNER
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4	ARCHITECT AND CONSTRUCTION MANAGER
5	SUBCONTRACTORS
6	CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7	CHANGES IN THE WORK
8	TIME
9	PAYMENTS AND COMPLETION
10	PROTECTION OF PERSONS AND PROPERTY
11	INSURANCE AND BONDS
12	UNCOVERING AND CORRECTION OF WORK
13	MISCELLANEOUS PROVISIONS
14	TERMINATION OR SUSPENSION OF THE CONTRACT
15	CLAIMS AND DISPUTES

## ARTICLE 1 GENERAL PROVISIONS

### § 1.1 Basic Definitions

**§ 1.1.1 The Contract Documents.** The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of addenda relating to bidding or proposal requirements.

**§ 1.1.2 The Contract.** The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

**§ 1.1.3 The Work.** The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

**§ 1.1.4 The Project.** The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Contractors, and by the Owner's own forces and Separate Contractors.

**§ 1.1.5 Contractors.** Contractors are persons or entities, other than the Contractor or Separate Contractors, who perform Work under contracts with the Owner that are administered by the Architect and Construction Manager.

**§ 1.1.6 Separate Contractors.** Separate Contractors are persons or entities who perform construction under separate contracts with the Owner not administered by the Architect and Construction Manager.

**§ 1.1.7 The Drawings.** The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

**§ 1.1.7.1 Construction Drawings prepared by the Architect** are intended to show the scope of work, including but not limited to general arrangement of stairs, equipment, ducts, piping and other elements of the structure, and approximate locations and sizes of equipment. This does not relieve the Contractor from providing all connections and accessories necessary to make structural, mechanical and electrical work complete, ready to operate, in compliance with all applicable codes, laws and other regulations, and acceptable to the Architect. As such, they are not to service as Shop Drawings.

**§ 1.1.7.2 Locations and arrangements of items** are designed by dimensions at less than full scale, unless otherwise noted. Such reductions of scale may vary and will be noted.

**§ 1.1.7.3 Designs, information, reports and other materials and/or data** may be performed and/or provided for the project by other than the Architect. Such designs, information, reports and other materials and/or data may include, without limitations, designs, information, reports and other materials and/or data performed and/or provided by the Contractor(s) or by sub-contractors and/or other consultants retained by the Contractor(s) and/or the Owner. Such

designs, information, reports and other materials and/or data may include without limitations the locations, quantities, sizes, conditions and scope of specific items of the construction Work required to be provided for the Project. The Contractor shall immediately notify the Construction Manager and Architect in writing upon its discovery or knowledge or any errors, omissions or defects in any designs, information, reports and other materials and/or data prepared or provided by the Contractor or on the Contractor's behalf which are provided to the Architect for the Architect's preparation of its design documentation of the Project. The Contractor shall also be required to immediately notify the Architect in writing in the event that it discovers or becomes aware of any errors, omissions or defects in any designs, information, reports or other materials or data that are provided to the Architect by others for the preparation of the Architect's design documentation. The Contractor shall also be required to immediately notify the Construction Manager and Architect in writing if it discovers or becomes aware of any discrepancies between any design documentation prepared by the Architect and any designs, information, reports or other materials and/or data provided to the Architect by the Contractor(s), the Owner, subcontractors or sub-consultants retained by the Contractor(s) or Owner, or by others. In such even, the Contractor shall promptly submit a written request for resolution of such discrepancy to the Architect and Owner.

**§ 1.1.8 The Specifications.** The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

**§ 1.1.9 Instruments of Service.** Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

**§ 1.1.10 Initial Decision Maker.** The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

## **§ 1.2 Correlation and Intent of the Contract Documents**

**§ 1.2.1** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

**§ 1.2.1.1** The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

**§ 1.2.2** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**§ 1.2.3** Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

## **§ 1.3 Capitalization**

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

## **§ 1.4 Interpretation**

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.



## § 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.5.3 The Contractor will be furnished free of charge two (2) sets of signed and sealed drawings and specifications. If more documents are required by the Contractor(s), the additional documents may be obtained at the Architect's cost.

## § 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

## § 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

## § 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Digital Data Exhibit, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

## ARTICLE 2 OWNER

### § 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

### § 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work, and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such

evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

**§ 2.2.2** Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

**§ 2.2.3** After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

**§ 2.2.4** Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

### **§ 2.3 Information and Services Required of the Owner**

**§ 2.3.1** Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. Unless otherwise provided under the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit.

**§ 2.3.2** The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

**§ 2.3.3** The Owner shall retain a construction manager adviser lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

**§ 2.3.4** If the employment of the Construction Manager or Architect terminates, the Owner shall employ a successor construction manager or architect to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

**§ 2.3.5** The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

**§ 2.3.6** The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

**§ 2.3.7** Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3.8 The Owner shall forward all communications to the Contractor through the Construction Manager. Other communication shall be made as set forth in Section 4.2.6.

#### § 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

#### § 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to review by the Construction Manager and prior approval of the Architect, and the Construction Manager or Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

### ARTICLE 3 CONTRACTOR

#### § 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative. The Contractor shall be responsible for all measurements that may be required for execution of the work to the exact position and elevation as prescribed in the specifications, shown on the drawings and or as the same may be modified at the direction of the Architect to meet changed conditions or as a result of modification of the Contract.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

#### § 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents. § 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.5, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

*(Paragraph deleted)*

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

### § 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner, the Construction Manager, and the Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. The Construction Manager shall review the proposed alternative for sequencing, constructability, and coordination impacts on the other Contractors. Unless the Architect or the Construction Manager objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.1.1 Contractor shall afford other Contractors retained by the Owner and all subcontractor's opportunity for introduction and storage of their materials and execution of their work, connect and coordinate his work with theirs and cooperate with the Architect and with other Contractors so that work shall be done at proper time, in a manner not to delay others or increase costs.

§ 3.3.1.2 During the progress of the work, Contractor and subcontractors shall build in all material and apparatus furnished and set b other Contractors and subcontractors. Contractors and Subcontractors shall familiarize themselves with the work of every Contractor and subcontractor whose work affects or ties in with his own and shall be responsible for the finishes results.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

### § 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the



consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

**§ 3.4.3** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them. The Owner shall notify Contractor of any on-site issues and may request removal of personnel in the event of conduct which is not deemed in good order.

### **§ 3.5 Warranty**

**§ 3.5.1** The Contractor warrants to the Owner, Construction Manager, and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Construction Manager or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

**§ 3.5.2** All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

### **§ 3.6 Taxes**

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

**§ 3.6.1** All Contractors, subcontractors, suppliers, etc. are required to pay all applicable taxes as required by law, outside of those taxes for which the Owner is exempt.

### **§ 3.7 Permits, Fees, Notices, and Compliance with Laws**

**§ 3.7.1** Unless otherwise provided in the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit. The Contractor shall secure and pay for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

**§ 3.7.2** The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work. The Contractor shall arrange for any inspections by governmental authorities needed to obtain any necessary occupancy permits.

**§ 3.7.3** If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

**§ 3.7.4 Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect and Construction Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, Construction Manager, and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

### § 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents:

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

### § 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect, through the Construction Manager, of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor, stating whether the Owner, the Construction Manager, or the Architect (1) has reasonable objection to the proposed superintendent or (2) require additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner, Construction Manager, or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.9.4 The Contractor's superintendent shall be present at the job site at all times that work is being performed, including work performed during overtime.

§ 3.9.5 The Contractor shall immediately remove from the Project, whenever requested by the Owner of Construction Manager, any employee, Project Manager or Superintendent who is considered by the Owner or Construction Manager to be incompetent or disposed to be disorderly, or who, for any reason, is not satisfactory to the Owner and the Project, and that person shall not again be employed on the Project without the consent of the Owner or Construction Manager.

§ 3.9.6 The Owner reserves the right to require the Contractor to replace any employee, Project Manager and/or Superintendent at no additional cost.

### § 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information, and the Construction Manager's use in developing the Project schedule, a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the Notice to Proceed of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Contractors, or the construction or operations of the Owner's own forces or Separate Contractors.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Construction Manager's and Architect's approval. The Architect and Construction Manager's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Construction Manager and Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall participate with other Contractors, the Construction Manager, and the Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager, and Architect, and incorporated into the approved Project schedule.

### § 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in paper copy, available to the Construction Manager, Architect, and Owner, and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

### § 3.12 Shop Drawings, Product Data, and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.10 through 4.2.12.

Informational submittals upon which the Construction Manager and Architect are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Construction Manager, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract

Documents, in accordance with the Project submittal schedule approved by the Construction Manager and Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Contractors, Separate Contractors, or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples, and similar submittals with related documents submitted by other Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner, Construction Manager, and Architect, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been reviewed and approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Construction Manager and Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Construction Manager and Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner, the Architect, and the Construction Manager shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Construction Manager shall review submittals for sequencing, constructability, and coordination impacts on other Contractors.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Construction Manager and Architect at the time and in the form specified by the Architect.



### § 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

§ 3.13.3 The Contractor shall be responsible for obtaining proper parking permits (if required) for all vehicles which will be parked on or off site. All costs for parking permits and for fines due to improperly parked vehicles are the responsibility of the Contractor.

§ 3.13.4 The Owner reserves the right to grant or to deny permission for the erection of signs or advertisements of any kind, including Project Sign, on the building, site enclosure or premises. The Contractor shall not display or permit to be displayed any sign, trademark, poster or other advertising devices on or about the building, site enclosure or premises, except as may be required for proper conduct of the work, as a directory of Contractors engaged in the work, for emergency, or as may be specified.

§ 3.13.5 All Contractors shall confirm their use of the premises for all purposes, to the areas occupied by the construction and related storage areas.

§ 3.13.6 The contractor shall send proper notices, make all necessary arrangements and perform all other services required in order to protect and maintain all marked, identified or known public utilities such as fire lines and plugs, electric, gas, water lines, sewer pipes, mechanical systems and all other items of this nature, and assume all responsibility and pay all costs for which the Owner may be liable if said services are interrupted by actions of the Contractor or subcontractors. Contractor acknowledges that all public utilities or other infrastructure may not be identified or marked, and that Contractor has taken all reasonable precautions to identify all known and unknown utilities or other infrastructure.

### § 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner, Separate Contractors, or of other Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner, Separate Contractors, or by other Contractors except with written consent of the Construction Manager, Owner, and such other Contractors or Separate Contractors. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Separate Contractors, other Contractors, or the Owner, its consent to cutting or otherwise altering the Work.

§ 3.14.3 All work that may be cut, damaged, disturbed or otherwise interfered with during the progress of the work of the various trades shall be fully, properly and carefully patched, repaired and made good in a first-class manner satisfactory to the Architect by the Contractor whose work has been cut or damaged and requires repair.

### § 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor.

### § 3.16 Access to Work

The Contractor shall provide the Owner, Construction Manager, and Architect with access to the Work in preparation and progress wherever located.

### § 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager, and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner, Architect, or Construction Manager. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect through the Construction Manager.

### § 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Construction Manager, Architect, Construction Manager's and Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), arising in or in any manner growing out of the work performed, or to be performed under this Contract, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

§ 3.18.3 The Contractor(s) indemnity obligations under this Section 3.18 shall also specifically include, without limitation, all fines, penalties, damages, liability, costs, expenses (including, without limitation, reasonable attorneys' fees) and punitive damages (if any) arising out of, or in connection with, and (i) violation of or failure to comply with any law, statute, ordinance, rules, regulations, code or requirement of a public authority that bears upon the performance of the Work by the Contractor, a subcontractor or any person or entity for whom either is responsible, (ii) means, methods procedures, techniques or sequences of execution or performance of the Work, and (iii) failure to secure any pay for permits, fees, approvals, licenses and inspections as required under the Contract Documents, or any violation of any permit or other approval of a public authority applicable to the Work by the Contractor, a subcontractor or any person or entity for whom either is responsible.

§ 3.18.4 The obligations of the Contractor under this Section 3.18 shall not extend to the liability of the Construction Manager, Architect, their consultants and agents and employees of any of them arising out of (i) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications, or (ii) the giving of or the failure to give directions or instruction by the Construction Manager, Architect, their consultants and agents and employees of any of them, provided such giving or failure to give is the primary cause of the injury or damage.

## ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER

### § 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 The Construction Manager is the person or entity retained by the Owner pursuant to Section 2.3.3 and identified as such in the Agreement.

§ 4.1.3 Duties, responsibilities, and limitations of authority of the Construction Manager and Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Construction Manager, Architect, and Contractor. Consent shall not be unreasonably withheld.

#### § 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Architect will keep the Owner and the Construction Manager reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner and Construction Manager known deviations from the Contract Documents and defects and deficiencies observed in the Work.

§ 4.2.3 The Construction Manager shall provide one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner and Architect reasonably informed of the progress of the Work, and will promptly report to the Owner and Architect known deviations from the Contract Documents and the most recent Project schedule, and defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Contractors in accordance with the latest approved Project schedule.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of, or be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 **Communications.** The Owner shall communicate with the Contractor and the Construction Manager's consultants through the Construction Manager about matters arising out of or relating to the Contract Documents. The Owner and Construction Manager shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Construction Manager otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with other Contractors shall be through the Construction Manager. Communications by and with the Owner's own forces and Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents, and will notify each other about the rejection. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, upon written authorization of the Owner, whether or not the Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility

of the Architect or the Construction Manager to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 Utilizing the submittal schedule provided by the Contractor, the Construction Manager shall prepare, and revise as necessary, a Project submittal schedule incorporating information from other Contractors, the Owner, Owner's consultants, Owner's Separate Contractors and vendors, governmental agencies, and participants in the Project under the management of the Construction Manager. The Project submittal schedule and any revisions shall be submitted to the Architect for approval.

§ 4.2.10 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data, and Samples. Where there are other Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from the Contractor and other Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.11 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.12 Review of the Contractor's submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Construction Manager and Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.13 The Construction Manager will prepare Change Orders and Construction Change Directives in accordance with N.J.A.C. 6A:23-A-21.1 and N.J.A.C. 6A:26-4.9.

§ 4.2.14 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7, and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.15 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples, and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.16 The Construction Manager will assist the Architect in conducting inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.



§ 4.2.17 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Construction Manager of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.18 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of the Construction Manager, Owner, or Contractor through the Construction Manager. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.19 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions so rendered in good faith.

§ 4.2.20 The Architect's decisions on matters relating to aesthetic effect will be final with the intent expressed in the Contract Documents.

§ 4.2.21 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing, through the Construction Manager, to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## ARTICLE 5 SUBCONTRACTORS

### § 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Contractors or Separate Contractors or the subcontractors of other Contractors or Separate Contractors.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### § 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, not later than thirty (30) calendar days after the date of the Notice to Proceed, shall notify the Construction Manager, for review by the Owner, Construction Manager and Architect, of the persons or entities proposed for each principal portion of the Work exceeding 35 percent in value who were not named in the bid, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor whether the Owner, the Construction Manager or the Architect (1) has reasonable objection to any such proposed person or entity or, (2) requires additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor pursuant to section 5.2.1 above, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

### § 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, that the Contractor, by these Contract Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

### § 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.

## ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

### § 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces or Separate Contractors, the Owner shall provide for coordination of such forces and Separate Contractors with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

## § 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner's own forces, Separate Contractors, Construction Manager and other Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces, Separate Contractors or other Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other Contractors that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Construction Manager and the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's or other Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractors or other Contractors that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a Separate Contractors or to other Contractors, because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces, Separate Contractors, or other Contractors.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction, or to property of the Owner, Separate Contractors, or other Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner, Separate Contractors, and other Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

## § 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, other Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Construction Manager, with notice to the Architect, will allocate the cost among those responsible.

## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents. The provisions set forth at N.J.S.A. 40A:11-16.7 regarding changed conditions shall apply to the Project. The following provisions are not intended to modify those set forth at N.J.S.A. 40A:1-16.7 and to the extent inconsistencies exist, the provisions of the statute shall control.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor. A Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor. Change Orders shall be approved and processed in accordance with the provisions of N.J.S.A. 40A:11-23.1a if applicable, as well as all other laws and regulations if and where applicable.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

## § 7.2 Change Orders

A Change Order is a written instrument prepared by the Construction Manager and signed by the Owner, Construction Manager, Architect, and Contractor, stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

## § 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Construction Manager and Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.



§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

#### § 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Construction Manager and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Construction Manager that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

### ARTICLE 8 TIME

#### § 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The Notice to Proceed of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

#### § 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

#### § 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner, Architect, Construction Manager, or an employee of any of them, or of the Owner's own forces, Separate Contractors, or other Contractors; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts and the Architect, based on the recommendation of the Construction Manager, determines justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

### § 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Construction Manager, before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Construction Manager and the Architect. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Construction Manager shall forward to the Architect the Contractor's schedule of values. Any changes to the schedule of values shall be submitted to the Construction Manager and supported by such data to substantiate its accuracy as the Construction Manager and the Architect may require, and unless objected to by the Construction Manager or the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

### § 9.3 Applications for Payment

§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner, Construction Manager or Architect require, such as copies of requisitions, and releases of waivers of lien from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager and Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials and equipment relating to the Work.

## § 9.4 Certificates for Payment

§ 9.4.1 Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Certificate for Payment, in the full amount of the Application for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

§ 9.4.2 Where there is more than one Contractor performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives all of the Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Contractor's application with information from similar applications for progress payments from the other Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Architect.

§ 9.4.2.1 Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Project Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Project Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward the Architect's notice of withholding certification to the Contractors.

§ 9.4.3 The Construction Manager's certification of an Application for Payment or, in the case of more than one Contractor, a Project Application and Certificate for Payment, shall be based upon the Construction Manager's evaluation of the Work and the data in the Application or Applications for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

§ 9.4.4 The Architect's issuance of a Certificate for Payment or, in the case of more than one Contractor, Project Application and Certificate for Payment, shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and data in the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

§ 9.4.5 The representations made pursuant to Sections 9.4.3 and 9.4.4 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Construction Manager or Architect.

§ 9.4.6 The issuance of a Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

## § 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.3 and 9.4.4 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.2. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor or other Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager, and both will reflect such payment on the next Certificate for Payment.

## § 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Construction Manager and Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than ten days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Construction Manager will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Architect on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner, Construction Manager nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.



§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

#### § 9.7 Prompt Payment Act

The Contractor hereby acknowledges that the Board of Education must approve all applications for payment, and does so at regularly scheduled public meetings. In accordance with N.J.S.A. 2A:30A-2(a) (the "Prompt Payment Act"), no billings shall be deemed automatically approved or certified solely due to the passage of time. If received by the Owner/Owner's Representative/Architect at least seven calendar days prior to a regular meeting of the Board of Education, payment applications shall be paid in the immediately following payment cycle. Payments received less than seven calendar days prior to a regularly scheduled meeting will not be deemed approved or certified until the subsequent regularly scheduled meeting.

#### § 9.7.1 Mandatory Interest Payments

N.J.S.A. 2A:30A-2(c) provides for mandatory interest payments for late payments made to contractors and subcontractors.

#### § 9.7.2 time for Certifying and Making Payments

The Prompt Payment Act provides that where an Owner is a public entity that requires the entity's governing body to vote on authorizations for each periodic payment, an exception to the Prompt Payment Act must be defined in the bid specifications and contract documents. Accordingly, because the Owner is a public entity that requires its governing body to authorize periodic payments, no periodic applications for payment will be deemed approved or certified solely due to the passage of time.

#### § 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the list, the Architect, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended

use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

**§ 9.8.4** When the Architect, assisted by the Construction Manager, determines that the Work of all of the Contractors, or designated portion thereof, is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute, a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

**§ 9.8.5** The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

### **§ 9.9 Partial Occupancy or Use**

**§ 9.9.1** The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect after consultation with the Construction Manager.

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

**§ 9.9.3** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

### **§ 9.10 Final Completion and Final Payment**

**§ 9.10.1** Upon completion of the Work, the Contractor shall forward to the Construction Manager a notice that the Work is ready for final inspection and acceptance, and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager shall perform an inspection to confirm the completion of Work of the Contractor. The Construction Manager shall make recommendations to the Architect when the Work of all of the Contractors is ready for final inspection, and shall then forward the Contractors' notices and Application for Payment or Project Application for Payment, to the Architect, who will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's and Architect's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and

other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

**§ 9.10.3** If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

**§ 9.10.4** The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

**§ 9.10.5** Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## **ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

### **§ 10.1 Safety Precautions and Programs**

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

### **§ 10.2 Safety of Persons and Property**

**§ 10.2.1** The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor;
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction; and
- .4 construction or operations by the Owner, Separate Contractors, or other Contractors.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

#### § 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

#### § 10.3 Hazardous Materials

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner, Construction Manager and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the



Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Architect, their consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

#### § 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

### ARTICLE 11 INSURANCE AND BONDS

#### § 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Construction Manager and Construction Manager's consultants, and the Architect and Architect's consultants, shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 **Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within five (5) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide written notice directly to the Owner, and separately to the Construction Manager, of such impending or actual cancellation or expiration, or is first aware that the cancellation or expiration is threatened or otherwise may occur, whichever comes first. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The

furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

## **§ 11.2 Owner's Insurance**

**§ 11.2.1** The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

**§ 11.2.2 Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform both the Contractor and the Construction Manager, separately and in writing, prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

**§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within five (5) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide written notice directly to the Contractor, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

*(Paragraphs deleted)*

## **§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance**

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss.

## **§ 11.5 Adjustment and Settlement of Insured Loss**

**§ 11.5.1** A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Construction Manager, Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Construction Manager, Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

**§ 11.5.2** Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the

proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

## **ARTICLE 12 UNCOVERING AND CORRECTION OF WORK**

### **§ 12.1 Uncovering of Work**

**§ 12.1.1** If a portion of the Work is covered contrary to the Construction Manager's or Architect's or Authority having jurisdiction's request to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their observation, inspection, testing or approval and be replaced at the Contractor's expense without change in the Contract Time.

**§ 12.1.2** If a portion of the Work has been covered that the Construction Manager or Architect has not specifically requested to examine prior to its being covered, the Construction Manager or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

### **§ 12.2 Correction of Work**

#### **§ 12.2.1 Before Substantial Completion**

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion, and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

#### **§ 12.2.2 After Substantial Completion**

**§ 12.2.2.1** In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the two-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner, Construction Manager or Architect, the Owner may correct it in accordance with Section 2.5.

**§ 12.2.2.2** The two-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

**§ 12.2.2.3** The two-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

**§ 12.2.3** The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

**§ 12.2.4** The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner, Separate Contractors, or other Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

**§ 12.2.5** Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the

Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

**§ 12.2.6** If, in the opinion of the Architect and the Construction Manager, the Contractor delays Final Completion of the Work beyond a reasonable time after the Date of Substantial Completion of the Project to such extent that the period between the Date of Substantial Completion of the Project and the end of the guarantee period becomes less than eleven (11) months, the start of the guarantee period shall be the date of the Final Project Certificate of Payment in lieu of the Date of Substantial Completion of the Project.

### **§ 12.3 Acceptance of Nonconforming Work**

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## **ARTICLE 13 MISCELLANEOUS PROVISIONS**

### **§ 13.1 Governing Law**

The Contract shall be governed by the law of the place where the Project is located excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

### **§ 13.2 Successors and Assigns**

**§ 13.2.1** The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

**§ 13.2.2** The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

### **§ 13.3 Rights and Remedies**

**§ 13.3.1** Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

**§ 13.3.2** No action or failure to act by the Owner, Construction Manager, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

### **§ 13.4 Tests and Inspections**

**§ 13.4.1** Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

**§ 13.4.2** If the Construction Manager, Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Construction Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and inspections



are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.

§ 13.4.5 If the Construction Manager or Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

### § 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

## ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

### § 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Construction Manager has not certified or the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees, or any other persons performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

**§ 14.2 Termination by the Owner for Cause**

**§ 14.2.1** The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

**§ 14.2.2** When any of the reasons described in Section 14.2.1 exist, after consultation with the Construction Manager, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

**§ 14.2.3** When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

**§ 14.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.

**§ 14.3 Suspension by the Owner for Convenience**

**§ 14.3.1** The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

**§ 14.3.2** The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of this Contract.

**§ 14.4 Termination by the Owner for Convenience**

**§ 14.4.1** The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

**§ 14.4.2** Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

**§ 14.4.3** In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

## ARTICLE 15 CLAIMS AND DISPUTES

### § 15.1 Claims

**§ 15.1.1 Definition.** A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

### § 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

### § 15.1.3 Notice of Claims

**§ 15.1.3.1** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

**§ 15.1.3.2** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

### § 15.1.4 Continuing Contract Performance

**§ 15.1.4.1** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

**§ 15.1.4.2** The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

**§ 15.1.5 Claims for Additional Cost.** If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

### § 15.1.6 Claims for Additional Time

**§ 15.1.6.1** If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

**§ 15.1.6.2** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

**§ 15.1.7 Waiver of Claims for Consequential Damages.** The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

## § 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties, the Construction Manager, and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days of receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.



### § 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

### § 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

### § 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.



## SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

### PART 1 - GENERAL

#### 1.1 GENERAL

- A. The following supplements modify, change, delete from or add to the "General Conditions of the Contract for Construction, Construction Manager as Adviser Edition", AIA Document A232 - 2019 and the Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition, AIA Document A132 - 2019. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these supplements, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.
- B. Refer to other Sections in Division 1 "General Requirements" for additional modifications, deletions and additions to the "General Conditions of the Contract for Construction."

#### 1.2 ARTICLE 2 OWNER

- A. PARAGRAPH 2.2 - INFORMATION AND SERVICES REQUIRED OF THE OWNER:

Insert the following Paragraph:

2.2.1 The Architect will furnish the successful contractor, the following number of sets of drawings and specifications, signed and sealed for purposes of obtaining NJ Uniform Construction Plan Review by the Municipal Construction Official having jurisdiction over the project to obtain Construction Permits.

**Single Overall Contract                      3 Sets**

- B. Additional copies can be provided upon request in writing to the Architect at the Architect's reproduction costs.

#### 1.3 SUBMITTALS

- A. Supplement Paragraph 3.12 "Shop Drawings, Product Data and Samples", as follows:

3.12.10 Contractor shall provide separate submittals for each Product with reference to Architect's Project Number. Contractor shall, within ten (10) working days from the issue date of the Notice of Award, forward to the Architect a written submittal log including all of the following information:

- .1 A list of all required submission items grouped by technical section division number as set forth in the specifications,

- .2 If in variance with the Milestone Dates Specified in Section 1:01800, the dates upon which each submission will be made by the contractor and the date by which the contractor expects same to be returned to him/her by the Architect, allowing a reasonable time for review,
- .3 Critical items and long lead items shall be so noted on the log,
- .4 A sequence of submissions reasonably based upon the expected progress of the Project.
- .5 Submittals will be mandatory and shall meet time requirements established in other sections of the Contract Documents.
- .6 The Contractor shall complete the entire submission process as soon as possible but in no event later than the time set forth in Section 1:01800 after the Notice of Award. Exceptions may be made if so noted on the submission log, with good reason, and subject to the Architect's approval.
- .7 Omission of any required submittal item from the log does not relieve the Contractor of his/her obligation to make timely submissions of same. The Contractor shall keep their his/her submission log up to date at all times. He/She will provide an updated copy to the Architect, at any time, upon request.

3.12.11 All project submittals are to be complete and provide all information required by the Contract Documents including, but not limited to, model numbers, applicable technical requirements, selected features, color, finish, and other options. Improperly prepared submittals sent to the Architect will be returned without action. The Contractor is responsible to field verify all dimension and conditions effecting the preparation of submittals and the Work.

3.12.12 Submittals provided by the Contractor on behalf of subcontractors and suppliers must be reviewed for completeness and approved by the Contractor prior to submitting same to the Architect. The Contractor will be solely responsible for improperly prepared submittals.

3.12.13 Submittals are to be provided to the Architect consistent with the sequence of the proposed Work.

3.12.14 All fabricated work shall require shop drawings.

3.12.15 Submittal Procedures: The Contractor's failure to follow proper procedures for submittals constitutes grounds for withholding of payments until such time as the Contractor is in compliance. Proper submittal procedures include all of those set forth elsewhere in this specification including the following:

- .1 Failure to adhere to deadlines for completion of submittals and record/resubmittals.
- .2 Failure to provide submittals in good order as required by the Contract Documents.
- .3 Failure to provide submittals in relationship to the progress of the work.
- .4 Performance of work or part of the work, without complete approved submittals.

3.12.16 Architect / Engineer's actions for submittals shall be as follows:

- .1 Submittals returned to the Contractor marked "Approved" allow the Contractor to proceed with the work.
- .2 Submittals returned to the Contractor "Approved As Noted; "Resubmit For Record:"
  - .1 The Contractor may proceed with work, however noted items by the Architect / Engineer (or any affected portion of the submittal), must be corrected and resubmitted to the Architect's office within ten (10) working days of Contractor's receipt of the original submittal. Final acceptance of all work is subject to the Contractor's compliance with requirements of the Contract Documents.
- .3 Submittals returned marked "Returned for Corrections" require the Contractor to resubmit corrected or alternate data in accordance with the corrections indicated.
  - .1 The originals of the reproducible transparencies marked "Returned for Corrections" shall be corrected until approval is obtained. The Contractor shall provide such number of prints of transparencies marked "Approved" as required for the expeditious execution of the work.
- .4 Submittals returned marked "No Action Taken:"
  - .1 The Contractor may not proceed with the work. The Architect / Engineer will not review submittals so marked until the Contractor has properly completed the submittal or corrected the reasons stated thereon.
  - .2 Reasons for "No Action Taken" on a submittal include, but are not limited to the Contractor's failure to:
    - .1 Submit an approved sub-contractor or supplier.
    - .2 Indicate job specific product data such as catalog number, size, type or material on each submittal.
    - .3 Submit complete data, test reports or similar information, as required by the Contract Documents.
    - .4 Obtain prior approval for substitution.
    - .5 Submit documents in a legible or orderly fashion.

- .6 Adhere to any submittal requirements set forth in the Contract Documents.
  - .7 Submit only submittals which are called for in the Contract Documents, other submittals will not be reviewed by the Architect / Engineer.
- .5 Shop drawing submittals and color selection approvals by the Architect:
- .1 The Contractor shall submit all shop drawing submittals within the specified time stipulated in contract documents.
  - .2 The Architect / Engineer shall release / return to the Contractor the approved color selections to coincide with the approved Milestone Schedule / Project Phasing if more than one construction phase is identified in Section 01800.
- .6 Long Lead Items:
- .1 In addition to and concurrent with the submission of the "Schedule of Values", Contractor shall submit a list of all materials, equipment or components which are anticipated to require more than four weeks delivery, together with scheduled ordering and delivery time table.
  - .2 This will be discussed and reviewed regularly at the job meetings.
  - .3 Upon request by the Architect / Engineer, the Contractor shall be prepared to produce evidence of having placed orders for specific materials, equipment and components.
- .7 The Contractor will not be entitled to receive payment or Work performed by the Contractor for which submittals were required to be submitted for review and approval by the Architect. All Work installed in variance with the Contract Documents will be rejected.

#### 3.12.17 Request for Substitutions:

- .1 Pursuant to N.J.S.A. 18A:18A-15(d), requests for substitutions, for a requested approved equal product, will be reviewed for compliance with the specifications based upon the data provided by the Contractor after the award of the project. Approval or rejection will be based on samples, technical data and other items submitted and will be reviewed once and only once for each such request
- .2 Submission of request for substitution shall constitute a representation by the Contractor that he/she:
  - .1 Has investigated the proposed product and determined that it is equal to or better than the specified product.
  - .2 Will provide the same variety for the proposed product as for the specified product.
  - .3 Will coordinate the installation and make other changes which may be required for the work to be complete in all respects, including:
    - .1 Re-design.
    - .2 Additional components and capacity required by other work affected by the change.

- .3 Waives all claims for additional costs and time extensions which subsequently may become apparent and which are caused by the change.
- .3 Substitutions will not be considered when acceptance would require substantial revision of the contract documents.
- .4 Substitutions will not be considered when they are indicated or implied on shop drawings or product data submittals without separate written request.
- .5 Substitution requests will not be considered when submitted directly by subcontractor or supplier.
- .6 When the proposed substitution is not accepted, Contractor(s) must provide the product (or one of the products, as the case may be) specified.
- .7 The Contractor will be notified in writing within a reasonable time, verbal acceptance will not be valid.
- .8 Acceptable substitutions will be added to the contract documents by appropriate modifications.
- .9 Requests for substitution will be reviewed by the Architect upon receipt of all the information requested in the following paragraph. Failure to provide the required information shall be cause for rejection of substitution request.
- .10 Submittal for Substitutions:
  - .1 The Contractor shall begin the submission process as soon as possible after the Notice to Proceed, but in no event later than fifteen (15) working days after Notice to Proceed.
  - .2 The Contractor shall sequence and time his/her submissions in a reasonable and orderly fashion. He/She will allow for sufficient time for the Architect's review as well as the transmission of same amongst all project participants.
  - .3 In the case of color selections, the Contractor is responsible for the completion of all required and related submissions, including samples, prior to the Owner's selection of colors. Exceptions can be made for certain long lead items so identified on the submittal log.
  - .4 The Contractor shall complete the entire submission process as soon as possible but in no event later than thirty (30) calendar days after Notice to Proceed.
    - .1 Exceptions may be made if so noted on the submission log, with good reason, and subject to the Architect's / Engineer's approval.
    - .2 Upon receipt by the Architect, he/she will review same and advise the Contractor if the log is acceptable.
    - .3 At no time will the Contractor unduly burden the Architect / Engineer with excessive or unreasonable submittals made at one time.

- .4 An advertent omission of any required submittal item from the log does not relieve the Contractor of his/her obligation to make timely submissions of same. The Contractor shall keep his/her submission log up to date at all times. He/She will provide an updated copy to the Architect, at any time, upon request.
- .5 Submit three (3) copies of requests for substitutions, fully identified for product, material or method being replaced by substitution, including related specification section and drawing number(s), and fully documented to show compliance with requirements for substitutions. Submit the following:
  - .1 Complete product data, drawings, and descriptions of materials and methods where applicable. Provide manufacturer's name and address, trade name, and model number of product (if applicable), and name of fabricator or supplier (if applicable).
  - .2 Samples where applicable or requested.
  - .3 Detailed comparison of significant qualities (size, weight, durability, performance and similar characteristics, and including visual effect where applicable) for proposed substitution in comparison with original requirements.
  - .4 List, with addresses, of three (3) projects where proposed substitution has been used previously and successfully in a similar application.
  - .5 Coordination information indicating every required change in every other element of the work which is affected by substitution, extended to include work by Owner and separate contractors.
  - .6 A complete statement of effect substitution will have upon schedule of the work, including its effect (if any) on Contract Time (in comparison with compliance with requirements without approval of proposed substitution).
  - .7 Cost information, including a proposal of net change in Contract Sum (if any).
  - .8 Certification by Contractor to the effect that, in his/her opinion and after his/her thorough evaluation, proposed substitution will result in total work which is equal to or better than the work originally required by contract documents, in every respect of significance except as specifically stated in certification; and that it will perform adequately in application indicated, regardless of equality and exceptions thereto.
  - .9 Include in certification, Contractor's waiver of rights to additional payment and time which may subsequently be necessitated, by failure of substitution to perform adequately and for required work to make corrections thereof.

#### 3.12.18 Approval of Substitutions:

- .1 Requests for substitutions, for a requested approved equal product, will be reviewed for compliance with the specifications based upon the data provided by the Contractor after the award of the project. Approval or rejection will be based on samples, technical data and other items submitted and will be reviewed once and only once for each such request.



- .2 Change Order Form: Submit requests for substitution(s) which propose a change in either the Contract Sum or Contract Time by procedures required for change order proposals.

#### **1.4 ARTICLE 9 PAYMENTS AND COMPLETION**

- A. Supplement Paragraph 9.2 "SCHEDULE OF VALUES" as follows:

9.2.2 Immediately after Award of Contract, the Contractor shall prepare and submit a Schedule of Values, breaking down all Work by type and Trade. Each scheduled value line item shall be for material and labor for each entity of Work.

9.2.3 Project soft costs including, but not limited to, bond, insurance, mobilization, supervision, submittals, punch-list, training, as-built drawings and close-out documents, shall be indicated in separate line items.

9.2.4. Project Allowances: Include all project allowance(s) at the end of the schedule of values to allow subsequent draw-down when authorized in writing by the Architect.

9.2.5 Unless printed invoices are provided by the Contractor from Insurance and Bonding Companies for which payment is being requested, a maximum of one and one half (1-1/2%) of the total cost of the awarded Contract Amount will be allowed.

- B. Supplement Paragraph 9.6 "PROGRESS PAYMENTS", as follows:

9.6.9 Unless indicated otherwise in the contract documents, pursuant to N.J.S.A.18A:18-40.3, If the contractor does have a performance bond, 2% of the amount due on each partial payment shall be withheld by the board of education when the outstanding balance of the contract exceeds \$500,000, and 5% of the amount due on each partial payment shall be withheld by the board of education when the outstanding balance of the contract is \$500,000 or less, until final completion and acceptance of all work covered by the Contract, including the completion of all corrective or punch list items.

9.6.10 Final payment will be made provided the work has been completed, the contract fully performed and a final certificate for payment has been issued by the Architect.

9.6.11 As required by N.J.S.A. 2A:30A-1 et seq., this is to inform you that as a governmental entity, the School District may require longer to make payment than 30 calendar days after receipt of your billing. Payment will be made within 30 days of receipt of the application for payment unless a vote of authorization by the Board is required. As provided by law, payments that require a vote of authorization may be certified at the next scheduled public meeting and paid during the next subsequent payment cycle.

9.6.12 The Architect shall review applications and certifications for payment submitted by the Contractor which have been signed and certified as required by the Contract Documents. By submitting an application and certification for payment, the Contractor is representing that it has verified that all Work for which payment is being requested, has been completed in accordance with all the requirements of the Contract Documents.

9.6.13 The Architect's approval of the Contractor's certification for payment shall constitute a representation to the Owner, based on the Architect's evaluation of the Contractor's Work and on the data comprising the Contractor's Application for Payment, that, to the best of the Architect's knowledge, information and belief, and, based on periodic on-site observations, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The Architect is not responsible to provide continuous observation of the Work.

## **1.5 ARTICLE 11 INSURANCE AND BONDS**

A. Supplement Paragraph 11.1 "Contractor's Insurance and Bonds", as follows:

11.1.5 Contractor's liability insurance must be maintained until the final Certificate of Payment is issued pursuant to Paragraph 9.10.1 and Completed Operations Insurance is in effect.

11.1.6 Insurance specified to be provided by the Contractor under Paragraph 11.1 shall be on an occurrence basis, as follows and as noted in AIA A132 - 2017, Exhibit A:

- .1 The Contractor shall take out and maintain during the life of this Contract commercial general liability insurance, covering any and all bodily injury, including accidental death, as well as claims for property damage arising out of or in connection with the Work performed hereunder, whether such Work be performed by the Contractor or by any subcontractor or by anyone directly or indirectly employed by either of them.
  - .1 The policy shall name the Owner, the Architect, and their consultants and agents and employees as additional insureds.
- .2 The Contractor shall take out and maintain comprehensive automobile liability insurance, including coverage for all owned, non-owned and hired vehicles, covering bodily injury and property damage.
  - .1 The policy shall name the Owner, the Architect, and their consultants and agents and employees as additional insureds.
- .3 Contractual liability insurance as applicable to the Contractor's obligations under Paragraph 3.18 of the AIA General Conditions.
- .4 Completed Operations Insurance written to the limits specified for liability insurance specified AIA A132 - 2017, Exhibit A, Article A.3 - Contractor's Insurance and Bonds. Coverage shall be maintained for five (5) years from the

date of the start of Beneficial Occupancy until after final payment or the then current applicable statute of repose.

- .5 Certificates of insurance must be submitted on the ACORD Form, Certificate of Insurance.
- .6 The Contractor shall either:
  - .1 require each of his/her subcontractors to procure and to maintain during the life of their subcontracts, Subcontractor's Public Liability and Property Damage, of the type and in the same amounts as specified in the preceding paragraph; **or**
  - .2 insure the activities of their subcontractors under their respective policies.

B. Paragraph 11.3 WAIVERS OF SUBROGATION

Delete Paragraph 11.3.2 in its entirety.

**END OF SECTION 00800**

## **SECTION 00850 - CONTRACT DRAWINGS**

### 1.1 Overall Project

- A. Drawing T001, "Title Sheet".

### 1.2 Maurice Hawk Elementary School

- A. All Drawings listed on drawing No. G001-MH, "Title Sheet, General Information and Drawing Index," dated May 22, 2023, unless otherwise revised or amended (via Addenda, Bulletin, etc.), shall form a part of the Contract Documents.

### 1.3 Village Elementary School

- A. All Drawings listed on drawing No. G001-V, "Title Sheet, General Information and Drawing Index," dated May 22, 2023, unless otherwise revised or amended (via Addenda, Bulletin, etc.), shall form a part of the Contract Documents.

**END OF SECTION 00850**

## **SECTION 00860 - LAWS GOVERNING PUBLIC WORK**

### **PART 1 - GENERAL**

#### **1.1 GENERAL REQUIREMENTS**

- A. The paragraphs below supplement the General Conditions. Attention is called, but not limited, to the following Laws Governing Public Work.

#### **1.2 STATE SALES AND USE TAX EXEMPTION**

- A. Supplement paragraph 3.6 "Taxes" as follows:

3.6.1 As a New Jersey governmental entity, the Board of Education is exempt from the requirements under New Jersey state sales and use tax (N.J.S.A. 54:32B-1 et seq.), and does not pay any sales or use taxes. Bidders should note that they are expected to comply with the provisions of said statute and the rules and regulations promulgated thereto to qualify them for examinations and reference to any and all labor, services, materials and supplies furnished to the Board of Education. Contractors may not use the Board's tax identification number to purchase supplies, materials, service or equipment, for this project.

.1 A contractor may qualify for a New Jersey Sales Tax Exemption on the purchase of materials, supplies and services when these purchases are used exclusively to fulfill the terms and conditions of the contract with the Board of Education. All contractors are referred to New Jersey Division of Taxation-Tax Bulletin S&U-3 and in particular, Contractor's Exempt Purchase Certificate (Form ST-13). Again, contractors are not permitted to use the Board's tax identification number to purchase supplies, materials, services of equipment.

#### **1.3 MUNICIPAL REQUIREMENTS**

- A. Supplement paragraph 3.7 "Permits, Fees, Notices and Compliance with Laws" as follows:

3.7.1.1 N.J.S.A. 52:27D-130, provides that local Municipal Construction Enforcing Agency issue required construction permit, perform required inspections during construction, and issue required certificate of occupancy upon completion of Project.

3.7.1.2 N.J.S.A. 52:27D-126C, "No county, municipality, or any agency or instrumentality thereof shall be required to pay any municipal fee or charge in order to secure a construction permit for the erection or alteration of any public building or part thereof from the municipality wherein the building may be located. No erection or alteration of any public building or part thereof by a county, municipality, school board, or any agency or instrumentality thereof shall be subject to any fee, including any surcharge or training fee, imposed by any department or agency of State government pursuant to any law, or rule or regulation, except that nothing contained

in this section shall be interpreted as preventing the imposition of a fee upon a board of education by either the Department of Education for plan review or by a municipality for the review of plans submitted to it pursuant to the provisions of section 12 of P.L.1975, c.217 (C.52:27D-130).

3.7.1.3 N.J.S.A. 40:55D-8(d), A municipality shall exempt a board of education from the payment of any fee related to land use, and site development.

3.7.1.4 N.J.S.A. § 52:27d-126e (amended effective July 21, 2017) - Waiving of Construction Permit, Enforcing Agency Fees for Certain Construction Projects To Benefit Disabled Persons.

1. a. Notwithstanding the provisions of the "State Uniform Construction Code Act," P.L. 1975, c.217 (C.52:27D-1 19 et seq.), or any rules, regulations or standards adopted pursuant thereto, to the contrary, the governing body of any municipality which has appointed an enforcing agency pursuant to the provisions of section 8 of P.L.1975, c.217 (C.52:27D-126) may, by ordinance, provide that no person shall be charged a construction permit surcharge fee or enforcing agency fee for any construction, reconstruction, alteration or improvement designed and undertaken solely to promote accessibility by disabled persons to an existing public or private structure or any of the facilities contained therein.

The ordinance may further provide that a disabled person, or a parent or sibling of a disabled person, shall not be required to pay any municipal fee or charge in order to secure a construction permit for any construction, reconstruction, alteration or improvement which promotes accessibility to his own living unit.

For the purposes of this subsection, "disabled person" means a person who has the total and permanent inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment, including blindness, and shall include, but not be limited to, any resident of this State who is disabled pursuant to the federal Social Security Act (42 U.S.C.416), or the federal Railroad Retirement Act of 1974 (45 U.S.C.231 et seq.), or is rated as having a 60% disability or higher pursuant to any federal law administered by the United States Veterans' Act. For purposes of this paragraph "blindness" means central visual acuity of 20/200 or less in the better eye with the use of a correcting lens. An eye which is accompanied by a limitation in the fields of vision such that the widest diameter of the visual field subtends an angle no greater than 20 degrees shall be considered as having a central visual acuity of 20/200 or less.

b. (1) Notwithstanding the provisions of the "State Uniform Construction Code Act," P.L. 1975, c.217 (C.52:27D-119 et seq.) or any rules, regulations or standards adopted pursuant thereto to the contrary, the governing body of any municipality which has appointed an enforcing agency pursuant to the provisions of section 8 of P.L. 1975, c.217 (C.52:27D-126) shall not charge a person who has a service-connected disability declared by the United States Department of

Veterans Affairs, or its successor, to be a total or 100% permanent disability that would entitle them to a property tax exemption under section 1 of P.L.1948, c.259 (C.54:4-3.30) or a spouse, parent sibling, or guardian of the disabled veteran, a construction permit surcharge fee or enforcing agency fee for any construction, reconstruction, alteration, or improvement designed and undertaken solely to promote accessibility by the disabled veteran to his own living unit.

(2) A municipality that has granted an exemption from a construction permit surcharge fee or enforcing agency fee pursuant to paragraph (1) of this subsection may apply to the Department of Community Affairs, in accordance with rules and regulations promulgated by the Commissioner of Community Affairs for this purpose, for reimbursement of those exempt fees.

- B. Utility Connection Fees: Contractors shall pay utility connection fees and shall be reimbursed by Owner upon presentation of receipt for same.
- C. Certificates of Occupancy: Contractors shall be responsible for obtaining all Certificates of Occupancy.

#### **1.4 TIME INCLUDING COMPLETION**

- A. Supplement Article 8 "Time" as follows:

8.1.7 The term "completed" in N.J.S.A. 18A:18A-19 shall mean substantial completion as defined in this Article 8.

8.1.8 The term "Working Days" as used to compute the time of completion shall mean Mondays through Fridays, exclusive of the twelve major yearly holidays, as listed on the official State of New Jersey website, <https://www.state.nj.us/nj/about/facts/holidays/>

- B. Supplement Article 8.3 "Delays and Extension of Time" as follows:

8.3.4 The Contractor agrees that the Owner can deduct from the Contract Price, any wages paid by the Owner to any Inspector or Inspectors necessarily employed by the Owner for any number of days in excess of the number of days allowed in the specifications for completion of the work.

#### **1.5 NONDISCRIMINATION AND MISCELLANEOUS LABOR PROVISIONS**

- A. Attention is called to the following which supplement paragraph 13.1 "Antidiscrimination Provisions" as follows:

13.1.3 N.J.S.A. 10:2-1, Antidiscrimination provisions. Every contract for or on behalf of the State or any county or municipality or other political subdivision of the State, or any agency of or authority created by any of the foregoing, for the construction,

alteration or repair of any public building or public work or for the acquisition of materials, equipment, supplies or services shall contain provisions by which the contractor agrees that:

- a. In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the work to which the employment relates;
- b. No contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;
- c. There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of \$50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and
- d. This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

No provision in this section shall be construed to prevent a board of education from designating that a contract, subcontract or other means of procurement of goods, services, equipment or construction shall be awarded to a small business enterprise, minority business enterprise or a women's business enterprise pursuant to N.J.S.A. 18A:18A-51 et seq.

During the performance of this contract, the contractor agrees to Mandatory Equal Employment Opportunity Language, as shown Exhibit B.

13.1.3 N.J.S.A. 34:11-56.25 et seq., in accordance with which the Contractor(s) and subcontractor(s) are required to do the following:

- .1 Pay to all workers engaged in the performance of services directly upon the work not less than the prevailing rate of wages. In the event that it is found that any worker employed by the Contractor(s) or any subcontractor(s) has been paid a rate of wage less than the prevailing wage required to be paid by such contract, the Owner may terminate the contractor's right to proceed with the work or such part of the work as to which there has been a failure to pay required wages and



to prosecute the work to completion or otherwise.

- .1 Prime Contractor(s) shall post the New Jersey Department of Labor and Workforce Development - Prevailing Wage Rate Determination in accordance with N.J.S.A. 34:11-56.25 et seq., which establish and enforce a prevailing wage level for workers engaged in the project, based on the effective date where the contract(s) is/are to be awarded. This document is to be posted in a prominent and easily accessible place at the site of the work and at such a place or places as are used to pay workers their wages. The prevailing wage rates shall be incorporated into the bid specification manual as a reference and part of the contract. A copy of the project's prevailing wage rates, as applicable to this Project, are on file at the Architect's office.
- .2 Before final payment, furnish Owner with an Affidavit stating that all workers have been paid in accordance with the New Jersey Prevailing Wage Act.
- .3 Keep an accurate record showing the name, craft or trade and actual hourly rate of wages paid to each workman employed by him/her in connection with his/her work. Preserve records for 2 years from date of payment.
- .4 Upon request, the Contractor(s) and each Subcontractor shall file written statements certifying to the amounts then due and owing to any and all workers for wages due on account of the work. The statement shall set forth the names of the persons whose wages are unpaid and the amount due to each. These statements shall be verified by the oaths of the Contractor(s) or subcontractor(s), as the case may be.

## **1.6 AMERICANS WITH DISABILITIES ACT; FACILITIES FOR PERSONS WITH DISABILITIES**

- A. The contractor must comply with all provisions of Title II of the Americans with Disabilities Act (ADA), P.L. 101-336, in accordance with 42 U.S.C. S121.01 et seq. The Board of Education further recognizes that all specifications for the construction, remodeling or renovation of any public building shall provide facilities for persons with disabilities. Reference: N.J.S.A. 18A:18A-17.
- B. It is further recommended that bidders are required to read the Americans with Disabilities language form that is included in these specifications. The form shall be signed to show agreement with the provisions of Title II of the Act and the provisions are to be made a part of the contract. The signed form shall be submitted with the bid proposal. The contractor is obligated to comply with the Act and to hold the owner harmless.

## **1.7 AMERICAN GOODS AND PRODUCTS**

- A. Supplement Paragraph 13.1 "Governing Law" as follows:

13.1.5 N.J.S.A. 18A:18A-20 et seq., American goods and products to be used where possible. Each board of education shall provide as a condition of the Contract that only manufactured and farm products of the United States, where ever available, be used in the work.

## **1.8 PAYMENTS TO LISTED SUBCONTRACTORS UNDER SINGLE OVERALL CONTRACT**

A. Supplement Paragraph 13.1 "Governing Law" as follows:

13.1.6 N.J.S.A. 18A:18A-18, providing that under a single overall contract, all payment required to be made for work and materials supplied by the various subcontractors shall, upon certification by the Prime Contractor of the amount due to the subcontractor(s), be paid directly to the subcontractor(s).

## **1.9 POLITICAL CONTRIBUTION DISCLOSURE FORM**

A. In accordance with N.J.S.A. 19:44A-20.26 "pay to play," Contracts exceeding \$17,500.00 are not to be entered into with business entities unless certain disclosures are made about political contributions.

1. In accordance with N.J.S.A. 19:44A-20.26 Contractor shall be required to disclose political contributions made, if any, ten (10) days before entering into Contract in accordance with C.271 form. All bidders must complete this form and submit with Bid Proposal Forms.

B. In accordance with N.J.A.C. 6A:23A-6.3, No district board of education shall vote upon or award any contract in the amount of \$17,500 or greater to any business entity that has made a contribution reportable by the recipient under N.J.S.A. 19:44A-1 et seq., to a member of the district board of education during the preceding one-year period.

1. Contributions reportable by the recipient under N.J.S.A. 19:44A-1 et seq., to any member of the district board of education from any business entity doing business with the school district shall be prohibited during the term of a contract.

2. The disclosure requirement set forth in N.J.S.A. 19:44A-20.26 also shall apply when the contract is required by law to be publicly advertised for bids.

## **1.10 DISCLOSURE OF CONTRIBUTIONS TO NEW JERSEY ELECTION LAW ENFORCEMENT COMMISSION (ELEC)**

A. N.J.S.A. 19:44A-20.27 establishes a new disclosure requirement for business entities. It requires that, when a business entity has received in any calendar year \$50,000 or more in public contracts with public entities, it must file an annual report with the Election Law Enforcement Commission (ELEC). The report shall disclose any contribution of money or any other thing of value, including an in-kind contribution, or pledge to make a contribution of any kind:

1. To a candidate for or the holder of any public office having ultimate responsibility for the awarding of public contracts, or,
  2. To a political party committee, legislative leadership committee, political committee or continuing political committee.
- B. The report will include all reportable contributions made by the business entity during the 12 months prior to the reporting deadline. ELEC will be promulgating a form and procedures for filing commencing in January 2007. ELEC can also impose fines for failure to comply with this requirement.
- C. While the local unit has no role in this process, it is recommended that all bid or proposal specifications and contracts should include language notifying business entities of their potential obligation under the law. Such language could read as follows:
1. Starting in January 2007, all business entities are advised of their responsibility to file an annual disclosure statement of political contributions with the New Jersey Election Law Enforcement Commission (ELEC) pursuant to N.J.S.A. 19:44A-20.27 if they receive contracts in excess of \$50,000 from public entities in a calendar year. Business entities are responsible for determining if filing is necessary. Additional information on this requirement is available from ELEC at 888-313-3532 or at [www.elec.state.nj.us](http://www.elec.state.nj.us)."

#### **1.11 PROMPT PAYMENT ACT**

- A. The Owner will issue timely payments to Contractors in accordance with the requirements of the Prompt Payment Act, N.J.S.A. 2A:30A-1, et seq. The bidders are hereby notified that the Owner as a public entity requires all payments to be approved at scheduled public board meetings. The vote on authorization for payments will be made at the first public meeting of the Board following the Board's receipt of the architect's authorization for payment and paid during the subsequent payment cycle.

#### **1.12 NEW JERSEY DEPARTMENT OF TREASURY**

- A. Disclosure of Investment Activities in Iran
1. Pursuant to Public Law 2012, c.25 (N.J.S.A.52:32-55, et. seq.), any person or entity ("bidder") that submits a bid or proposal or otherwise enters into or renews a contract with a board of education is required to disclose if it is engaged in investment activities in Iran. In order to comply with the provisions of P.L. 2012, c. 25, all bidders are required to complete a certification that attests that neither the bidder, nor any of its parents, subsidiaries and/or affiliates is listed on the list developed by the New Jersey Department of Treasury's List of Persons or Entities Engaging in Prohibited Investment Activities in Iran, pursuant to section 3 of P.L.2012, c. 25 (N.J.S.A. 52:32-57). The Department of Treasury List is available at <http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>.

A copy of the list is attached for informational purposes. All bidders are advised to refer to the most current version of the list to ensure compliance with P.L. 2012, c. 25.

2. If the bidder is unable to certify compliance with the law, the bidder shall provide a detailed and precise description of such investment activities as described in N.J.S.A. 52:32-56(f).
  3. If the board determines that a person or entity submits a false certification concerning its engagement in investment activities in Iran under N.J.S.A. 52:32-58, the board shall report to the New Jersey Attorney General the name of that person or entity. The Attorney General shall determine whether to bring a civil action against the person or entity to collect the penalty prescribed in N.J.S.A. 52:32-59.
- B. N.J.S.A. 18A:18A-49.4 Civil action brought on behalf of Board of Education.
1. 8.a. A Board of Education as defined in and subject to the provisions of the "Public School Contracts Law, N.J.S.A. 18A:18A-1 et seq., shall implement and comply with the provisions of P.L.2012, c.25 (C.52:32-55 et al.), except that the Board shall rely on the list developed by the State Department of the Treasury pursuant to N.J.S.A. 52:32-57.
  2. 8.b. If the Board determines that a person or entity has submitted a false certification concerning its engagement in investment activities in Iran under N.J.S.A. 52:32-58, the Board shall report to the New Jersey Attorney General the name of that person or entity, and the Attorney General shall determine whether to bring a civil action against the person to collect the penalty prescribed in N.J.S.A. 52:32-59. The Board may also report to the Board's attorney the name of that person, together with its information as to false certification, and the Board's attorney may determine to bring such civil action against the person to collect such penalty.
- C. N.J.S. 18A:18A-49.5 Board of Education, Compliance; Report of False Certification.
1. 3.a. A board of education as defined in and subject to the provisions of the "Public School Contracts Law," P.L.1977, c.114 (N.J.S. 18A:18A-1 et seq.), shall implement and comply with the provisions of P.L.2022, c.3 (C. 52:32-60.1 et al.), except that the board shall rely on the list developed by the Department of the Treasury pursuant to subsection b. of section 1 of P.L.2022, c.3 (C. 52:32-60.1).
    - b. If the board determines that a person or entity has submitted a false certification concerning its engagement in prohibited activities in Russia or Belarus pursuant to section 1 of P.L.2022, c.3 (C. 52:32-60.1), the board shall report to the New Jersey Attorney General the name of that person, and the Attorney General shall determine whether to bring a civil action against the person to collect the penalty prescribed in subsection c. of section 1 of P.L.2022, c.3 (C. 52:32-60.1).

c. The board may also report to the board's attorney the name of that person, together with its information as to the false certification, and the board's attorney may determine to bring such civil action against the person to collect such penalty.

### **1.13 EQUAL EMPLOYMENT OPPORTUNITIES AND AFFIRMATIVE ACTION**

A. Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 et seq.

1. Each contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents:

- a. "A photocopy of a valid letter that the contractor is operating under an existing Federally approved or sanctioned affirmative action program; or
- b. "A photocopy of a Certificate of Employee Information Report approval, issued in accordance with N.J.A.C. 17:27-4"; or
- c. "A photocopy of an Employee Information Report (Form AA302) provided by the Division and distributed to the public agency to be completed by the contractor.

B. Initial Project Workforce Report - Construction (AA201)

1. In accordance with the requirements of the New Jersey Department of Labor & Workforce Development Construction EEO Compliance Monitoring Unit, the Initial Project Workforce Report-Construction(AA201)document, must be submitted to the Public Agency that awards the contract and the Department of Labor & Workforce Development Construction EEO Compliance Monitoring Program after notification of award, but prior to signing the contract.

[https://www.nj.gov/treasury/contract\\_compliance/documents/pdf/guidelines/pa.pdf](https://www.nj.gov/treasury/contract_compliance/documents/pdf/guidelines/pa.pdf)

### **1.14 OFFICE OF THE STATE COMPTROLLER**

A. N.J.A.C. 17:44-2.2: Authority to Audit or Review Contract Records

1. Relevant records of private vendors or other persons entering into contracts with covered entities are subject to audit or review by the Office of the State Comptroller (OSC) pursuant to N.J.S.A. 52:15C-14(d).

- a. (The contract partner) shall maintain all documentation related to products, transactions or services under this contract for a period of **five (5) years** from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.

B. Contractor/Vendor Requirements-Office of the New Jersey State Comptroller

1. Contractors/vendors doing business with the board of education are reminded of the following legal requirements pertaining to the Office of the New Jersey

State Comptroller:

- a. Access to Relevant Documents and Information - N.J.S.A. 52:15C-14 (d)
  - 1) Private vendors or other persons contracting with or receiving funds from a unit in the Executive branch of State government, including an entity exercising executive branch authority, independent State authority, public institution of higher education, or unit of local government or board of education shall upon request by the State Comptroller provide the State Comptroller with prompt access to all relevant documents and information as a condition of the contract and receipt of public monies. The State Comptroller shall not disclose any document or information to which access is provided that is confidential or proprietary. If the State Comptroller finds that any person receiving funds from a unit in the Executive branch of State government, including an entity exercising executive branch authority, independent State authority, public institution of higher education, or unit of local government or board of education refuses to provide information upon the request of the State Comptroller, or otherwise impedes or fails to cooperate with any audit or performance review, the State Comptroller may recommend to the contracting unit that the person be subject to termination of their contract, or temporarily or permanently debarred from contracting with the contracting unit.
- b. Maintenance of Contract Records - N.J.A.C. 17:44-2.2
  - 1) Relevant records of private vendors or other persons entering into contracts with covered entities are subject to audit or review by OSC pursuant to N.J.S.A. 52:15C-14(d).
  - 2) The contractor/vendor to whom a contract has been awarded, shall maintain all documentation related to products, transactions or services under this contract for a period of five years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.

### **1.15 ANTI-BULLYING BILL OF RIGHTS ACT (P.L. 2010.C.122)**

A. N.J.S.A. 18A:37-16 provides:

1. A member of a board of education, school employee, student or volunteer shall not engage in reprisal, retaliation or false accusation against a victim, witness or one with reliable information about an act of harassment, intimidation or bullying.
2. A member of a board of education, school employee, contracted service provider, student or volunteer who has witnessed, or has reliable information that a student has been subject to, harassment, intimidation or bullying shall report the incident to the appropriate school official designated by the school district's policy, or to any school administrator or safe schools resource officer, who shall immediately initiate the school district's procedures concerning school bullying.
3. A member of a board of education or a school employee who promptly reports an incident of harassment, intimidation or bullying, to the appropriate school

official designated by the school district's policy, or to any school administrator or safe schools resource officer, and who makes this report in compliance with the procedures in the district's policy, is immune from a cause of action for damages arising from any failure to remedy the reported incident.

4. A school administrator who receives a report of harassment, intimidation, or bullying from a district employee, and fails to initiate or conduct an investigation, or who should have known of an incident of harassment, intimidation, or bullying and fails to take sufficient action to minimize or eliminate the harassment, intimidation, or bullying, may be subject to disciplinary action.

## **1.16 CONTROLLING SILICA EXPOSURES IN CONSTRUCTION**

- A. Occupational Safety and Health Administration (OSHA) - U.S. Department of Labor: OSHA 29 CFR 1926.1153, 2017.
  1. The above referenced guidance advisory document is not a standard or regulation, and it creates no new legal obligations. The document is advisory in nature, informational in content, and is intended to assist employers in providing a safe and healthful workplace. The Occupational Safety and Health Act requires employers to comply with safety and health standards promulgated by OSHA or by a state with an OSHA approved state plan. In addition, pursuant to Section 5(a)(1), the General Duty Clause of the Act, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. Employers can be cited for violating the General Duty Clause if there is a recognized hazard and they do not take reasonable steps to prevent or abate the hazard. However, failure to implement any specific recommendations contained within this document is not, in itself, a violation of the General Duty Clause. Citations can only be based on standards, regulations, and the General Duty Clause.
    - a. This guidance document addresses the control of employee exposures to respirable dust containing crystalline silica, which is known to cause silicosis, a serious lung disease, as well as increase the risk of lung cancer and other systemic diseases.
    - b. This document provides information on the effectiveness of various engineering control approaches for several kinds of construction operations and equipment, and contains recommendations for work practices and respiratory protection, as appropriate.
    - c. OSHA encourages employers to conduct periodic exposure monitoring to confirm that engineering and work practice controls are effective and that appropriate respiratory protection is being used where necessary.
  2. The above referenced advisory document can be found at:  
[https://www.osha.gov/dsg/topics/silicacrystalline/construction\\_info\\_silica.html](https://www.osha.gov/dsg/topics/silicacrystalline/construction_info_silica.html)

## 1.17 CERTIFICATION OF NON-DEBARMENT FOR FEDERAL GOVERNMENT CONTRACTS

1. Pursuant to N.J.S.A. 52:32-44.1, any natural person, company, firm, association, corporation, or other entity prohibited, or "debarred," from contracting with the federal government agencies, shall also be prohibited from contracting for public work in the state of New Jersey. This prohibition also extends to any affiliate organization(s) held by or subject to the control of an entity of that prohibited person or entity.
2. Prior to awarding a contract for public work, a local units must obtain written certification from the contracting person or entity through the form (Certification of Non-Debarment for Federal Government Contracts, N.J.S.A. 52:32-44.1 (P.L. 2019, c406), attesting to their non-debarment from contracting with federal government agencies.

## 1.18 CONTRACTOR EMPLOYEES PROCEDURE FOR CRIMINAL HISTORY RECORD CHECKS

1. The Office of Student Protection (OSP) suggests the following recommendation when educational facilities submit contractor employees (i.e., masons, building and roofing companies) for short-term and long-term projects. The school official, acting as a liaison to the construction contractor, must share with other school district administrators the names of the company's employees who will be submitting to a criminal record check. This process will assure that employees of the contractor who have not obtained their approval for employment and are disqualified or ineligible for school employment will be identified as a contractor service provider employee and not continue to be employed at school facilities and have direct contact with the student population.
2. To ensure compliance with the requirements of N.J.S.A. 18A:6-7.2, the Chief School Administrator shall direct the school official acting as a liaison to the construction company to obtain a list of individuals who will be employed by the contractor for the school facility project that will be undergoing a criminal history record check. The liaison shall then provide a copy of this list to the Superintendent's Office and Human Resource Director, as these offices will receive any adverse action correspondence from the OSP related to the criminal history record check process.
3. Upon receipt of disqualification or ineligibility correspondence, the Superintendent's Office or Human Resource personnel shall review the contracted company list in order to determine if the subject of that letter is either a school employee or an employee of any contract service provider and take the appropriate action.
4. As with any school employee, **no employee of a contract service provider** shall commence work at a school facility without having first obtained an approval for employment from the Office of Student Protection.



5. Approvals for employment for these type contracted employees shall be maintained with the liaison and copies forwarded to the Superintendent's Office.

### **1.19 LABOR-REGISTERED APPRENTICESHIP PROGRAM**

1. As of May 1, 2019, P.L. 2019, c.21 requires contractors that directly employ craftworkers to participate in a United States Department of Labor-registered apprenticeship program as a condition of initial or renewed PWCR registration. Contracting units are not responsible for verifying contractor participation in a registered apprenticeship program.
2. A contractor working on a Public Works Project who directly employs craft workers, must certify to the NJDOL that they participate in a registered Apprenticeship Program for each craft they employ as defined in N.J.S.A. 34:11-56 and CFR , et al.
3. Registered apprenticeship program" means an apprenticeship program which is registered with and approved by the USDOL, which provides each trainee with combined classroom and on-the-job training in an occupation recognized as an apprenticeable occupation, and which meets the program standards of enrollment and graduation under 29 C.F.R. §29.6.

### **1.20 NEW JERSEY PREVAILING WAGE ACT - BILL A4869**

1. An Act concerning certain contracts for public work and amending and supplementing P.L.1963, c.150.

Be It Enacted by the Senate and General Assembly of the State of New Jersey:

- a. C.34:11-56.27a Lowest bidder of public work contract, proof of prevailing wage rates payment; rules, regulations.

- 1) a. If a person makes the lowest bid for a contract with a public body for public work subject to the provisions of the "New Jersey Prevailing Wage Act," P.L.1963, c.150 (C.34:11-56.25 et seq.) and that bid is ten percent or more lower than the next lowest bid for the contract, the person making the lowest bid shall certify to the public body that the prevailing wage rates required by that act shall be paid. If the bidder does not provide the certification prior to award of the contract, the public body shall award the contract to the next lowest responsible and responsive bidder. This certification shall be required only when a public body is engaging in competitive bidding for public work.

- b. The Commissioner of Labor and Workforce Development, in consultation with the Division of Local Government Services in the Department of Community Affairs, shall promulgate rules and regulations

concerning the standardization of the certification necessary to effectuate the provisions of this section.

2) Section 3 of P.L.1963, c.150 (C.34:11-56.27) is amended to read as follows:

C.34:11-56.27 Prevailing wage rate required in contract.

3) a. Every contract in excess of the prevailing wage contract threshold amount for any public work to which any public body is a party or for public work to be done on property or premises owned by a public body or leased or to be leased by a public body shall contain a provision stating the prevailing wage rate which can be paid (as shall be designated by the commissioner) to the workers employed in the performance of the contract and the contract shall contain a stipulation that such workers shall be paid not less than such prevailing wage rate. Such contract shall also contain a provision that in the event it is found that any worker, employed by the contractor or any subcontractor covered by said contract, has been paid a rate of wages less than the prevailing wage required to be paid by such contract, the public body, the lessee to whom the public body is leasing a property or premises or the lessor from whom the public body is leasing or will be leasing a property or premises may terminate the contractor's or subcontractor's right to proceed with the work, or such part of the work as to which there has been a failure to pay required wages and to prosecute the work to completion or otherwise. The contractor and his sureties shall be liable for any excess costs occasioned thereby to the public body, any lessee to whom the public body is leasing a property or premises or any lessor from whom the public body is leasing or will be leasing a property or premises.

b. The Commissioner of Labor and Workforce Development, in consultation with the Division of Local Government Services, shall promulgate rules and regulations concerning the standardization of the contractual language necessary to effectuate the provisions of this section.

4) This act shall take effect 180 days from the date of enactment, except that the Commissioner of Labor and Workforce Development make take any anticipatory action in advance thereof as may be necessary for the implementation of this act.

Approved November 8, 2021.

**END OF SECTION 00860**

## **SECTION 00870 - MISCELLANEOUS REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 JOB SITE MEETINGS**

- A. Regularly scheduled job meetings shall be held at a location and time convenient to the Owner's representatives, the Architect and the Contractor. The Prime Contractor shall attend such meetings, or be represented by a person in authority who can speak for and/or make decisions for the Contractor.
- B. Attendance by the Prime Contractor is mandatory, whether the meetings are weekly, bi-weekly or at whatever interval is determined by the Architect.
  - 1. Unless given prior approval by the Architect, the Prime Contractor will be fined \$250.00 for each regularly scheduled meeting for which he/she is not presented by a person in authority who can speak for and/or make decisions for the Contractor. Fine amounts shall be withheld and deducted from the Contract Sum.

#### **1.2 STRUCTURAL SAFETY STANDARDS AND CODES**

- A. The standards, codes and design data referred to in the New Jersey "State Uniform Construction Code", apply to the work of the Contract, where applicable.
- B. Contractor(s) shall comply with all applicable requirements of the Uniform Fire Safety Act, N.J.S.A. 2:27D-192 et seq. (P.L. 1983, c. 383).

#### **1.3 OWNER'S RIGHT TO OCCUPY**

- A. The Owner reserves the right to occupy any portion of the Project which is ready for occupancy prior to completion and acceptance of the Project, after Local Municipal Construction Enforcing Agency approval.
- B. The occupancy of any portion of the Project does not constitute an acceptance of any work nor does it waive the Owner's right to liquidated damages or constitute an acceptance of any work as the Project will be accepted as a whole and not in units. Prior to such occupancy, however, the Architect, a representative of the Owner, and the Contractor shall fully inspect the portions of the Project to be occupied, preparing a complete list of omissions of materials, faulty workmanship, or any items to be repaired, torn out or replaced. The Owner will assume responsibility for damage to premises so occupied of any items not on this list when such damage is due to greater than normal wear and tear, but does not assume responsibility for improper or defective workmanship or materials.

## 1.4 OWNER'S GENERAL REQUIREMENTS

- A. The Owner requires that the Prime Contractor demonstrate a safety and health program/plan, which includes, but is not limited to first aid, fire protection, housekeeping, illumination, sanitation, personal protective equipment, medical, exit, emergency action plans and all other issues required by government agencies having jurisdiction over the work of this project.
- B. The following Owner's General Requirements shall be enforced during construction and until final completion of the work and shall apply to prime contractors, sub-contractors, delivery persons and all other personnel on the project site:
  - 1. No deliveries of construction materials or equipment is to take place during the arrival and departure of students from their respective schools. Verify and coordinate arrival and departure time with the Principals. All deliveries must be made to the project site, no deliveries will be accepted by the owner. All construction materials and equipment shall be stored behind the construction fence or in other areas as designated by the construction manager.
  - 2. The existing building is to be kept secure at all times. Propping of doors is not permitted for any length of time without supervision by designated owner personnel. No persons may admit another person through a door. All persons entering the building must do so at the designated security entrance only.
  - 3. No smoking is allowed anywhere on school property.
  - 4. All workers must wear shirts at all time.
  - 5. Use of profanity will not be tolerated.
  - 6. The Prime Contractor shall provide identification cards for his/her Subcontractors, employees, etc. The Construction Manager shall be provided with a list of personnel on the project site.
  - 7. The Contractor shall comply with the requirements of all local ordinances including for noise.
  - 8. The Contractor and his/her Subcontractors shall not interact with students, teachers or staff, other than those identified by the Owner as a representative of the Owner.
  - 9. The Owner, Architect or Construction Manager may require the removal of any Contractor personnel who violates any work rule. This removal may be temporary or permanent subject solely to the discretion of the Owner, Architect or Construction Manager.

## **1.5 ENVIRONMENTAL PROTECTION**

- A. Conform to New Jersey Department of Environmental Protection Regulations N.J.A.C. 7:27, sub-chapters 5 and 7 and all other applicable standards.
- B. Conform to New Jersey Statute N.J.S.A. 26:2C-9.2 which requires that no person shall construct, install, alter or operate any equipment capable of causing the emission of air contaminants into the open air or control apparatus which prevents or controls the emission of air contaminants until an application has been filed with and approved by the Department of Environmental Protection.

## **1.6 CERTIFIED PAYROLLS**

- A. The Prime Contractor shall furnish to the Owner certified payroll records each payroll period within ten (10) working days of the payment of wages, indicating name, craft, social security number and actual hourly rate of wages paid to each worker employed on the project. A certified payroll record is defined as "a payroll record which is attested to by the employer, or a corporate officer of such company, or an authorized agent of the employer."

## **1.7 OPERATION AND MAINTENANCE**

- A. The Prime Contractor shall furnish to the Owner all required operation and maintenance manuals for all included materials and equipment as well as assistance and training to the Owner's personnel for contract's special systems and equipment in accordance with Contract Documents.
  - 1. Contractor shall submit electronic version of the MEP/FP O&M Manuals for review by the MEP/FP Consultant. Paper copies should not be submitted as part of the MEP/FP review process.

## **1.8 BUSINESS REGISTRATIONS FOR CONTRACTORS, SUBCONTRACTORS AND SUPPLIERS**

- A. The Prime Contractor and all Subcontractors that knowingly provide goods or perform services for a Contractor fulfilling this contract must comply with all requirements under N.J.S.A. 52:32-44.

A contractor shall provide the contracting agency with the business registration of the contractor and that of any named subcontractor prior to the time a contract, purchase order, or other contracting document is awarded or authorized. At the sole option of the contracting agency, the requirement that a contractor provide proof of business registration may be fulfilled by the contractor providing the contracting agency sufficient information for the contracting agency to verify proof of registration of the contractor, or named subcontractors, through a computerized system maintained by the State.

c. A subcontractor named in a bid or other proposal made by a contractor to a contracting agency shall provide a copy of its business registration to any contractor who shall provide it to the contracting agency pursuant to the provisions of subsection b. of this section. No contract with a subcontractor shall be entered into by any contractor under any contract with a contracting agency unless the subcontractor first provides the contractor with proof of a valid business registration. For bids and requests for proposals, the contracting agency must retain the proof of business registration in the file where documents relating to the contract are maintained. For all other contracts, proofs of business registration shall be maintained in an alphabetical file.

d. The contractor shall maintain and submit to the contracting agency a list of subcontractors and their addresses that may be updated from time to time during the course of the contract performance. A complete and accurate list shall be submitted before final payment is made for goods provided or services rendered or for construction of a construction project under the contract. A contracting agency shall not be responsible for a contractor's failure to comply with this subsection.

e. The Department of the Treasury shall provide each contracting agency with appropriate language reflecting the obligations of contractors and subcontractors under this section that the contracting agency shall include in any contract document, bid specification, requests for proposals, or other documents notifying potential contractors of contract opportunities with a contracting agency.

f. Nothing in this section shall in any way alter the provisions or change the responsibilities or obligations of casino industry licensees as set forth in section 92 of N.J.S.A. 5:12-92 (P.L. 1977, c.110).

g. (1) A contractor or a contractor with a subcontractor that has entered into a contract with a contracting agency, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury the use tax due pursuant to the "Sales and Use Tax Act," N.J.S.A. 54:32B-1 et seq. (P.L. 1966, c.30), on all their taxable sales of tangible personal property delivered into this State.

(2) A contracting agency entering into a contract with a contractor, or a contractor with a subcontractor, shall include in its contract with that contractor, or a contractor with a subcontractor, for the term of the contract, a requirement that the contractor or subcontractor and each of their affiliates shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury the use tax due pursuant to the "Sales and Use Tax Act," N.J.S.A. 54:32B-1 et seq. (P.L. 1966, c.30), on all their sales of tangible personal property delivered into this State.

(3) For the purposes of this subsection, "affiliate" means any entity that (1) directly, indirectly, or constructively controls another entity, (2) is directly, indirectly, or constructively controlled by another entity, or (3) is subject to the control of a common entity. For purposes of this subsection an entity controls another entity if it owns, directly or individually, more than 50% of the ownership interest in that entity.

h. The State Treasurer may adopt regulations pursuant to the "Administrative Procedure Act", N.J.S.A. 52:14B-1 et seq. (P.L. 1968, c.410), as are necessary to administer the provisions of this act.

i. If a contractor fails to provide proof of business registration upon request by the contracting agency for a contract that does not require bidding or a request for

proposals, and the contracting agency determines that the purpose of that contract is of a proprietary nature with a contractor that does not have a business presence in New Jersey, the contracting agency shall provide the Division of Revenue, within 10 days of executing the contract, a copy of the contract, evidence of the contractor's taxpayer identification number, and a signed certification attesting to the proprietary nature of the contract and representing that the contracting agency made a diligent effort to obtain proof of a business registration from the contractor.

j. When a contracting agency enters into a contract with a contractor under a contract issued by the State of New Jersey Cooperative Purchasing Program, or any other authorized cooperative purchasing system, the contracting agency awarding the initial contract shall receive and file the proof of business registration. Contract documents issued under a cooperative purchasing agreement shall identify the contract and the contracting agency awarding the contract.

k. In situations of an emergent nature, a contracting agency may enter into a contract with a business organization, provided that the contractor agrees to provide a business registration within two weeks of the execution of the contract. The contracting agency shall not pay the business organization for goods or services provided until such time as the organization provides proof of business registration as set forth in this section. Failure to pay the business organization until proof of business registration is received shall not be grounds for the agency being liable for payment. N.J.S.A. 52:32-44

- B. The Prime Contractor, Subcontractor(s) or a supplier who fails to provide proof of business registration or provides false business registration information shall be liable to a penalty of \$25 for each day of violation, not to exceed \$50,000 for each business registration copy not properly provided or maintained under a contract with a contracting agency. Information on the law and its requirements are available by calling (609) 292-9292.

**END OF SECTION 00870**

## **SECTION 01010 - SUMMARY OF WORK**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The work of this Section applies to all Construction Contract Documents including drawings, Division 1 - Miscellaneous Requirements Sections, and Specifications Sections included in Part-2 through Part-6.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Project description.
  - 2. Contract scope description.
  - 3. Contractor's use of the premises.
  - 4. Preconstruction meeting.
  - 5. Security procedures.

#### **1.3 PROJECT DESCRIPTION**

- A. The project consists of the Media Center Renovations at Maurice Hawk Elementary School and Village Elementary School for the West Windsor-Plainsboro Regional School District, Board of Education, Mercer County, New Jersey.
- B. Contract Documents prepared by Fraytak Veisz Hopkins Duthie, P.C. Architects / Planners, (Project Number: FVHD-5063F2 / 5063I4) and their Consulting Mechanical/Electrical Engineer: French & Parrello Associates, P.A., Wall, New Jersey.

#### **1.4 CONTRACT SCOPE DESCRIPTION**

- A. The work consists of but is not limited to the following:
  - 1. Selective demolition at the Media Centers, provide and install the new layout including but not limited to: carpet tile, new walls, painting, hollow metal door frames, attack resistant wood doors, solid core wood door, borrow lite, suspended acoustic tile ceiling, lighting, room signage, casework, solid surface countertops, fire extinguisher(s), library circulation desk, exhibition boards, dry marker boards, manual roller shades, and all other indicated work.
  - 2. Fire Protection:
    - a. Relocate existing sprinkler heads as required to accommodate new lighting and mechanical ceiling layout.
  - 3. Plumbing:
    - a. Provide new sinks and associated hot, cold water, vent, and sanitary piping.



4. Mechanical:
    - a. Remove existing diffusers/registers located in media center and associated branch ductwork.
    - b. Provide new diffusers/registers and associated branch ductwork and provide new volume damper.
  5. Electrical:
    - a. Removal of existing switches, lighting fixtures and power receptacles.
    - b. Provide new switches, lighting fixtures and power receptacles.
    - c. Provide additional circuits as required to existing panel(s).
    - d. Provide new telephone/data outlets.
  6. All indicated casework and equipment.
  7. All other indicated work.
- B. Alternate Bids:
1. Alternate Bid No. 1 - Light Fixtures at Maurice Hawk Elementary School Media Center #H101 / Stack Area #H103 / Reading Nook #H104
  2. Alternate Bid No. 2: Light Fixtures at Village Media Center #V104
  3. Alternate Bid No. 3 - Glazed Fire Doors at Maurice Hawk Elementary School Reading Nook #H104
- C. Single Overall Contract: This contract includes:
1. All work in accordance with drawings, Parts 2, 3, 4, 5 and 6 Specification Sections and in accordance with Contract Documents.
  2. General Construction Work includes:
    - a. Work that is primarily architectural in nature plus work traditionally recognized as general construction in accordance with drawings and as listed as a part of Part 2 specification sections, unless otherwise indicated below:
      - 1) Also includes both administrative and coordination responsibilities.
        - a) General Construction Contractor is responsible for all coordination between his/her work and work of all Prime Subcontractors.
      - 2) All initial excavation inside the building, and the preparation of the subbase under the concrete slab.
      - 3) All concrete work in accordance with Part 2 specification sections.
      - 4) Provide and install the metal fabrications in accordance with Division 2 Sections.
      - 5) Furnishing stainless steel sinks, fixtures, accessories, and all items supplied by the casework and equipment Subcontractor in accordance with drawings and specification sections in Division 11, for installation by the Plumbing Work Subcontractor.

- 6) Furnishing all electrical devices and items supplied by the casework and equipment subcontractor in accordance with drawings and specification sections in Division 11 for installation by the Electrical Work Subcontractor.
3. Plumbing, Drainage and Sprinkler System Work includes:
    - a. Piping servicing domestic water piping, drainage, sprinkler systems and connection of equipment tied into the existing plumbing system, including all work in accordance with drawings and Part-4 specification sections.
      - 1) Work shall include demolition and removals, as indicated or required, to allow for new construction.
      - 2) Work shall include reinstallation, cutting, patching, finishing and repair work associated with Plumbing, Drainage and Sprinkler system work, as indicated or required, including cutting, alterations, replacement work, where indicated or required.
    - b. Subsequent excavation, backfill and compaction of trenches after the work of the General Construction Work, as required by the installation of plumbing utilities inside the building. Work shall be performed in accordance with requirements of Part-2 Specification sections.
  4. Heating, Ventilating, Air Conditioning and Refrigeration Work includes:
    - a. Heating, ventilating, and air conditioning systems as well as the temperature control systems and including all work in accordance with drawings and Part-5 specification sections.
      - 1) Work shall include demolition and removals, as indicated or required, to allow for new construction.
      - 2) Work shall include reinstallation, cutting, patching, finishing and repair work associated with HVACR work, as indicated or required.
  5. Electrical Work includes:
    - a. The work necessary for electrical power distribution, lighting, and the connections to equipment tied into such systems, including all work in accordance with drawings and Part-6 specification sections.
      - 1) **Work shall include power distribution and wiring for all indicated electrically operated equipment and fixtures, (in Parts 2, 4, 5 and 6), whether shown or not on drawings.**
      - 2) Work shall include demolition and removals, as indicated or required, to allow for new construction.
      - 3) Work shall include reinstallation, cutting, patching, finishing and repair work associate with Electrical work, as indicated or required.

## **1.5 WORK BY OTHERS**

### **A. OWNER-FURNISHED PRODUCTS**

1. Where indicated or shown that Owner will furnish products the work of the Contract shall include providing support systems to receive Owner's equipment, items and assemblies.
2. Owner will arrange and pay for delivery of Owner-furnished items according to Contractor's Construction Schedule.
3. After delivery, Owner will inspect delivered items for damage. Contractor shall be present for and assist in Owner's inspection.
4. If Owner-furnished items are damaged, defective, or missing, Owner will arrange for replacement.
5. Owner will arrange for manufacturer's field services and for delivery of manufacturer's warranties to Contractor.
6. Owner will furnish Contractor the earliest possible delivery date for Owner-furnished products. Using Owner-furnished earliest possible delivery dates, Contractor shall designate delivery dates of Owner-furnished items in Contractor's Construction Schedule.
7. Contractor is responsible for receiving, unloading, and handling Owner-furnished items at Project site.
8. Contractor is responsible for protecting Owner-furnished items from damage during storage and handling, including damage from exposure to the elements.
9. If Owner-furnished items are damaged as a result of Contractor's operations, Contractor shall repair or replace them.

### **1.6 CONTRACTOR'S USE OF THE PREMISES**

- A. The space available to the Contractor for the performance of the work, either exclusively or in conjunction with others performing other construction as part of the project, is shown on the drawings.
  1. Other areas are off limits to all construction personnel.
- B. The following building facilities may not be used by construction personnel:
  1. Toilet facilities.
  2. Food service facilities, including dining areas.
  3. Elevator.

- C. The Owner will partially occupy the building(s) during the construction period.
  - 1. The Owner will endeavor to cooperate with the Contractor's operations when the Contractor has notified the Owner in advance of need for changes in operations in order to accommodate construction operations.
  - 2. Conduct the work so as to cause the least interference with the Owner's operations.
- D. Coordinate with Local Authorities as to which routes are capable of handling heavy truck traffic.
- E. Signs: Provide signs adequate to direct visitors.
  - 1. Do not install, or allow to be installed, signs other than specified sign(s) and signs identifying the principal entities involved in the project.
- F. All deliveries by the Contractor(s) shall be coordinated with the Owner's Representative / Construction Manager, prior to the delivery date.
- G. Due to COVID-19 and New Jersey Executive Orders, Contractors are required to practice social distancing and hand washing at all times indoors/outdoors. Follow all client guidelines which may exceed the State of NJ's requirements.

#### **1.7 PRECONSTRUCTION MEETING**

- A. A preconstruction meeting will be held at a time and place designated by the Architect/ Construction Manager for the purpose of identifying responsibilities of the Owner's / Architect's / Construction Manager's personnel and explanation of administrative procedures.
- B. The Contractor shall also use this meeting for the following minimum agenda:
  - 1. Construction schedule.
  - 2. Use of areas of the site.
  - 3. Delivery and storage.
  - 4. Safety.
  - 5. Security.
  - 6. Cleaning up.
  - 7. Subcontractor procedures relating to:
    - a. Submittals.
    - b. Change orders.
    - c. Applications for payment.
    - d. Record documents.

C. Attendees shall include:

1. The Owner / Owner's Representative.
2. The Architect, and any Consultants.
3. Construction Manager.
4. The Prime Contractor and his / her superintendent.
5. Major subcontractors, suppliers, and fabricators.
6. Others interested in the work.

**1.8 SECURITY PROCEDURES**

- A. Limit access to the site and building(s) to persons involved in the work.
- B. Provide secure storage for materials for which the Owner has made payment and which are stored on site.
- C. Secure completed work as required to prevent loss.
- D. The Contractor, and their employees, will be required to be registered with the Owner's Representative / School's Main Office / Construction Manager Office.
  1. The Contractor's personnel and Subcontractors will be required to wear identification badges at all times on the site.

**END OF SECTION 01010**

## SECTION 01020 - ALLOWANCES

### PART 1 - GENERAL

#### 1.1 DESCRIPTION OF REQUIREMENTS

- A. Definitions and Explanations: Certain requirements of the work related to each allowance are shown and specified in the contract documents. The allowance has been established in lieu of additional requirements for that work, and further requirements thereof (if any) will be issued by change order.
- B. The types of allowances scheduled herein for the work include the following:
1. Lump sum allowances.
- C. Selection and Purchase: At the earliest feasible date after the award of the Contract, advise the Architect of the scheduled date when the final selection and purchase of each product or system described by each Allowance must be accomplished in order to avoid delays in the performance of the work. Obtain and submit proposals for the work of each Allowance, as required by the Architect for use in making the final selections; include whatever recommendations for selection may be relevant to the proper performance of the work. Purchase products and systems as specifically selected (in writing) by the Architect.
1. Submit proposals and recommendations, for the purchase of the products or systems of Allowances, in the form specified for change orders.
- D. Change Order Data: Where applicable, include in each change order proposal both the quantity of the products being purchased and the unit cost, along with the total amount of the purchase to be made. Where requested, furnish survey-of-requirements data to substantiate the quantity. Indicate applicable taxes, delivery charges, and amounts of applicable trade discounts.
- E. Lump-Sum Allowances: The amounts herein specified are the net amounts available for purchase of the materials specified, including taxes (if any), and each change order amount shall be based thereon. **All other costs associated with the performance of the work under the Allowance, including but not limited to insurance, storage, handling, overhead, profit, etc., are not a part of the allowance, and shall be included in the lump sum bid / or base bid Contract amount.**
1. In the event the actual purchase amount of materials, plus taxes (if any) exceeds the specified allowance, the Owner will pay the excess; should the actual purchase amount, plus taxes (if any) be less than the specified Allowance, the Contractor shall credit the Owner with the difference.
  2. The actual purchase amount, plus taxes (if any) shall be substantiated by certified bills of sale to be submitted with the change order.

- F. Change Order Mark-Up: Except as otherwise indicated, comply with the provisions of the General Conditions and the Supplementary General Conditions.
- G. Excess Materials: Submit invoices or delivery slips to indicate the actual quantities of materials delivered to the site for use in fulfillment of each allowance. Where economically feasible, and so requested by the Architect, return unused materials to the manufacturer/supplier for credit to the Owner, after the installation has been completed and accepted. Where not economically feasible to return for credit, and so requested by the Architect, prepare unused materials for the Owner's storage, and delivery to the Owner's storage space as directed. Otherwise, disposal of excess materials is the Contractor's responsibility.

## **1.2 SCHEDULE OF ALLOWANCES**

- A. General: The following allowance amounts are included in the Contract Sum, for the corresponding units of work as described.
  - 1. General Construction Work
    - a. A sum of **\$50,000.00** for work not specifically shown on the drawings, the work shall be performed as directed in the field.

**END OF SECTION 01020**

## SECTION 01030 - ALTERNATE BIDS

### PART 1 - GENERAL

#### 1.1 PROCEDURE FOR ALTERNATE BIDS

- A. Each Bidder shall submit on the Proposal Form, all Alternate Bids applicable to the work under his/her bid. Alternate Bids shall state the difference in price as "additions to" or "deductions from" the Base Bid, unless otherwise noted, for the substitution, omission, or addition of the following materials, items or construction from that shown and specified.
- B. The Alternate Bids, when accepted, become part of the Contract.
- C. Each Bidder shall carefully check the Drawings and Specifications to determine the extent of each Alternate Bid required.
- D. Alternate Bids shall include all overhead and profit applicable thereto.
- E. Alternate Bids shall reflect the increase or decrease in cost of all work of every name and nature which may be affected thereby and no subsequent claims for extras by reason of the Contractor's failure to observe this requirement will be considered.
- F. The description herein for each Alternate Bid is recognized to be incomplete and abbreviated, but implies that each change must be complete for the scope of work affected. Refer to applicable specification sections and to applicable drawings, for specific requirements of the work, regardless of whether references are so noted in description of each Alternate Bid. Coordinate related work and modify surrounding work as required to properly integrate with the work of each Alternate Bid. It is recognized that descriptions of Alternate Bids are primarily scope definitions, and do not necessarily detail full range of materials and processes needed to complete the work as required.
- G. Except as otherwise described or approved, materials and workmanship of the Alternate Bids shall conform to the requirements specified under the various sections of the Specifications for similar items of work.
- H. Where methods of construction, materials, finishes or details of installation required by the various Alternate Bids differ from the requirements shown on the drawings or specified for corresponding items, the alternate construction, materials, etc. will be subject to approval by the Architect.
- I. The Contractor shall submit shop drawings and samples for the work under each accepted Alternate Bid for approval in conformance with requirements specified for submittals in both Part 1, AIA Document A201 and Section 00800 - Supplementary General Conditions.



- J. The following Alternate Bids shall apply to single overall bids, and must be included in the Bidder's Proposal(s).

**1.2 ALTERNATE BIDS - GENERAL CONSTRUCTION WORK**

- A. **Alternate Bid No. 1: Light Fixtures at Maurice Hawk Elementary School Media Center #H101 / Stack Area #H103 / Reading Nook #H104**

State the amount to be added to the base bid to provide and install the alternate light fixtures in the Maurice Hawk Elementary School Media Center #H101 / Stack Area #H103 / Reading Nook #H104, and all associated work, as shown on various drawings and as indicated in various specification sections.

- B. **Alternate Bid No. 2: Light Fixtures at Village Elementary School Media Center #V104**

State the amount to be added to the base bid to provide and install the alternate light fixtures in the Village Elementary School Media Center #V104 and all associated work, as shown on various drawings and as indicated in various specification sections.

- C. **Alternate Bid No. 3: Glazed Fire Doors at Maurice Hawk Elementary School Reading Nook #H104**

State the amount to be added to the base bid to provide and install glazed fire doors at Maurice Hawk Elementary School Reading Nook #H104, in lieu of doors indicated on Base Bid, with all associated work, as shown on various drawings and as indicated in various specification sections.

**END OF SECTION 01030**

## **SECTION 01040 - COORDINATION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The work of this Section applies to all Construction Contract Documents including drawings, Division 1 - Miscellaneous Requirements Sections, and Specifications Sections included in Part-2 through Part-6.

#### **1.2 REQUIREMENTS INCLUDED**

- A. Coordination of submittals.
- B. Coordination meetings.
- C. Coordination drawings.
- D. Coordination of project closeout.
- E. Administrative/supervisory personnel.
- F. Coordination of trades.
- G. Coordination of space.
- H. Coordination of field measurements and field conditions.

#### **1.3 GENERAL REQUIREMENTS**

- A. The Contractor shall coordinate his/her activities with the activities of other Subcontractors and work performed by others.
- B. If necessary, inform each party involved, in writing, of procedures required for coordination; include requirements for giving notice, submitting reports, and attending meetings.
  - 1. Inform the Architect when coordination of his/her work is required.

#### **1.4 COORDINATION OF SUBMITTALS**

- A. Coordinate and correlate the submittals on each work item and on interrelated work items to ensure their timeliness, completeness, consistency, compatibility and compliance with the Contract Documents.
- B. Prepare and submit special coordination drawings where close and careful coordination of information is required for proper fabrication or installation of

materials, products or equipment by separate entities. Coordination drawings may also be required where limited space availability necessitates close and careful coordination for efficient and proper installation of different components.

1. Show interrelationships of components shown on separate shop drawings.
  2. Indicate required installation sequences.
  3. (See also the requirements for the general coordination drawings under paragraph 1.7 below).
- C. Coordinate any request for substitution to ensure compatibility of its space requirements, its operating characteristics and elements and its effects on other work. Prior to proposing a substitution for any item, verify that its size, configuration, supports and connections will coordinate with all other work and that it will fit within the allotted space while allowing for proper operating, maintenance and circulation space.
- D. Comply with requirements for requests for submittal of substitution indicated in AIA A201 and Section 00800.

## **1.5 COORDINATION MEETINGS**

- A. The General Construction Work Contractor shall hold additional coordination meetings and conferences with Subcontractors and others involved in the Work as needed to ensure coordination of work.
1. Notify the Architect and Construction Manager of such coordination meetings.
- B. Regular project site meetings shall be in accordance with Sections 00870 and 01200.

## **1.6 COORDINATION OF TRADES**

- A. Coordinate construction activities included under various sections of these Specifications to ensure efficient and orderly installation of each part of the Work and to prevent interferences among parts of the Work. Coordinate work items and construction operations included under different sections of the Specifications that are dependent upon one another for proper installation, connection and operation.
1. Where installation of one part of the Work is interrelated with installation of other components, schedule construction activities in the sequence required to obtain the best results.
  2. Where availability of space is limited, coordinate installation of different components to prevent interferences and to ensure proper accessibility for required maintenance, service and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Where necessary, prepare memoranda outlining special procedures required for coordination. Include such items as required notices, reports and attendance at meetings. Distribute these coordination memoranda to all parties involved in the work being coordinated.
1. Prepare similar memoranda for the Owner and other Contractor(s) where coordination with construction or operations by them is required.
  2. Provide copies of such coordination memoranda to the Architect.
- C. Coordinate the scheduling and timing of required administrative activities with other construction activities to avoid conflicts and ensure orderly progress of the Work. Administrative activities include:
1. Preparation and updating of schedules.
  2. Preparation and processing of submittals.
  3. Preparation and processing of requests for information.
  4. Project meetings.
  5. Testing and inspection activities.
  6. Project close-out activities.

## **1.7 COORDINATION DRAWINGS**

- A. General Requirements: Prepare coordination drawings where limited space available may cause conflicts in the locations of installed products, and where required to coordinate installation of products.
1. In preparing the coordination drawings, large scale details as well as cross and longitudinal sections shall be developed as required to fully delineate all conditions. Particular attention shall be given to the locations, size and clearance dimensions of equipment items, shafts and similar features.
  2. In preparing the coordination drawings, minor changes in duct, pipe or conduit routing that do not affect the intended functions may be made as required to avoid space conflicts, when mutually agreed, but items may not be resized or exposed items relocated or other features affecting the function or aesthetic effect of the building changed without the Architect's prior review and acceptance. It should be assumed that no changes shall be made in any wall or chase locations, ceiling heights, door swings or locations, or window or other openings. If conflicts or interferences cannot be satisfactorily resolved, then the Architect shall be notified and their determinations obtained. Any conflicts or design deviations shall be specifically identified on drawings submitted to them.

3. The coordination drawings shall be submitted, in all cases, in ample time to avoid construction delay. The coordination drawings submitted may lack complete data in certain instances pending receipt of shop drawings, but sufficient space shall be allotted for the items missing, as evidenced by the sign-off of the party responsible for the missing items. When the missing information is available, it shall be promptly incorporated in the composite drawings.
  4. Cost and time impacts of relocating any duct, pipe, conduit, or other material that has been installed without proper coordination between all trades involved will be charged to the responsible party. If any improperly coordinated work or work installed that is not in conformance with the approved coordination composites necessitates additional work, the cost and time impacts of all such additional work shall likewise be the responsibility of the affective party. The Architect shall be the sole judge in determining all responsibilities.
  5. All changes in the scope of work due to revisions formally issued and approved shall be shown on the composite drawings.
  6. All work on the coordination drawings shall be performed by a competent draftsmen and shall be clear and fully legible. The Architect shall be the judge of the legibility of the composite drawings.
  7. In particular, prepare the following coordination drawings:
    - a. Drawings showing all piping, duct, cabletrays, electrical ductbanks, and similar items, but not electrical conduit less than 4 inches in diameter.
    - b. Complete architectural, mechanical and electrical reflected ceiling layouts, (including ductwork, conduits, piping, lighting, etc.).
    - c. Special coordination drawings are to be provided for the following:
      - 1) Where space is limited, show plan and cross-section dimensions of space available, including structural obstructions and ceilings as applicable.
- B. The Prime Contractor shall prepare the coordination drawings required for his/her work.
- C. Layout Drawings: As soon as practical, but in no case starting later than thirty (30) days after the General Contractor has received the notice to proceed, the HVACR Work Subcontractor shall prepare layout drawings of all duct work and piping at not less than 3/8" scale.
1. These drawings shall show registers, grilles, diffusers and similar features, as well as locations of all units, valves, dampers and other items requiring access for service and maintenance.
  2. The drawings shall also show roof, floor and wall openings, reflected ceiling layouts, structural beams, framing and miscellaneous structural steel supports,

ceiling heights, walls, floor to floor dimensions, structural columns, doors and other major architectural and structural features as shown on the architectural and structural drawings and as per approved shop drawings.

F. Composite Drawings:

1. The HVACR Work Subcontractor shall, as scheduled by the General Contractor, produce a mylar, two (2) prints and one (1) sepia of each layout drawing as described.
2. The sepia will be retained for his/her records while the mylar and two (2) prints will be formally transmitted to the Plumbing Subcontractor, with copies of the transmittal to the Architect.
3. These drawings must be hand delivered or sent via a reliable mailing service that provides receipts and guarantees 24-48 hour delivery.
  - a. Common carrier mailing will not be acceptable.
4. The Plumbing Work Subcontractor, upon receipt of these mylars, will transfer the work from his/her shop drawings to the mylars, at the same time indicating where conflicts exist between his/her work and the work already shown on the mylars.
  - a. The Plumbing Work Subcontractor will utilize a green colored pencil for the layout of his/her work.
  - b. After completion, the Plumbing Subcontractor will forward the mylars and two (2) prints to the Electrical Subcontractor while retaining a sepia for his/her records.
  - c. The same mailing procedures will pertain.
5. The Electrical Work Subcontractor will duplicate the procedure outlined above, utilizing orange colored pencil for his/her layout.
  - a. After completion the Electrical Subcontractor will forward the drawings as specified above to the Fire Protection Work Subcontractor, (Plumbing Work Subcontractor), if applicable, who will layout his/her work with a red pencil and, after completion, forward the drawings to the General Contractor, retaining a sepia for his/her records.
6. The Prime General Contractor shall then have the HVACR's instrumentation (ATC) Work Subcontractor review the completed composite drawings and attest to his/her concurrence that his/her work can be installed without conflict.
7. The General Construction Work Contractor will schedule coordination meetings on the job site to review the coordination drawings.
  - a. These meetings will be attended by a representative from each of the Subcontractors or Prime Contractors involved in the coordination process.
  - b. At these meetings, these Subcontractors or Prime Contractors will indicate

- where conflicts exist and resolve the conflicts through mutual agreement.
- c. Should an impasse occur, the Architect will determine the resolution.
8. When all conflicts are resolved, the Subcontractors Contractors will indicate their agreement by signing these final composite drawings.
  9. The drawings shall be signed-off by each of the involved Subcontractors, indicating their awareness of and agreement with the indicated routings and layouts and their interrelationship with the adjoining or contiguous work. The General Contractor shall then sign these final composite drawings.
  10. The final composite drawings shall be completed and signed-off by all parties no later than ninety (90) calendar days after the General Construction Work Contractor has received the Notice to Proceed.
    - a. After the final composite drawings have been agreed upon and signed by the Subcontractors or Prime Contractors and by the General Construction Work Contractor, the General Construction Work Contractor shall provide and distribute prints to each of the (Sub)Contractors, and four (4) sets of prints to the Architect for reference and record purposes.
    - b. The record copies of the signed-off final composite drawings shall be retained by the General Construction Work Contractor and each Subcontractor or Prime Contractors as working reference documents.
    - c. All shop drawings, prior to their submittal to the Architect / Construction Manager, shall be compared with these composite drawings and developed accordingly.
      - 1) Any revisions to the composite drawings which may become necessary during the progress of the work shall be noted by the General Construction Work Contractor and by each affected (Sub)Contractor and shall be neatly and accurately recorded on their record copies.
  11. The General Construction Work Contractor and each Subcontractor shall be responsible for the up-to-date maintenance of his/her record copies of the composite drawings and for having one up-to-date copy available at the site.
  12. The composite drawings, incorporating any subsequent changes thereto, shall be utilized by the General Construction Work Contractor or each Subcontractor in the development of his/her record drawings.
  13. Following sign-off of the final composite drawings, no deviations will be permitted without prior review and acceptance by the Architect.
    - a. Unauthorized deviations will be subject to removal and correction at no additional cost to the Owner.
  14. In areas where no HVAC work occurs, but where other mechanical and electrical installations are required, each involved Subcontractor shall be

responsible for his/her own work and shall cooperate, as directed by the General Construction Work Contractor, in preparing similar layout and composite drawings.

## **1.8 COORDINATION OF PROJECT CLOSEOUT**

- A. Coordinate completion and clean-up work and administrative activities in preparation for Substantial Completion and occupancy of the Work or of designated portions of the Work.
- B. After Owner occupancy, coordinate access for completion or correction of the work not in conformance with the Contract Documents to minimize disruption of Owner's activities.
- C. Assemble and coordinate closeout submittals specified in Section 01700.

## **1.9 REQUIRED ADMINISTRATIVE / SUPERVISORY PERSONNEL**

- A. General: In addition to the other administrative and supervisory personnel required for the performance of the Work, each Prime Contractor shall provide specific coordinating personnel as specified herein.
- B. Project Manager / Superintendent: A full time on site Project Manager, with a recommended minimum of eight (8) years experience, including project management experience on a similar type of projects.
  - 1. The Contractor for General Construction Work shall provide a full-time staff member or members, (Project Manager/Superintendent), experienced in coordination of mechanical and electrical work on projects of this type and scale, including administration and supervision.
    - a. Responsibilities:
      - 1) Coordinate all mechanical, plumbing, and electrical work, and coordinate that work with the other work of the project.
      - 2) Where space is limited, coordinate arrangement of mechanical, electrical, and other work to fit.
      - 3) Coordinate cutting and patching activities and sequencing.
      - 4) Coordinate use of temporary facilities.
    - b. Prepare coordination drawings where required and where indicated.
    - c. Provide information to the entity preparing the progress schedule.
    - d. Participate in progress meetings; report progress, changes required in schedules, and unresolved problems.
    - e. Review submittals for compliance with the contract documents and for coordination with other work.
    - f. Check field dimensions, clearances, relationships to available space, and anchors.
    - g. Check compatibility with equipment, other work, electrical characteristics, and operational control requirements.



- h. Check motor voltages and control characteristics.
  - i. Coordinate controls, interlocks, wiring of switches, and relays.
  - j. Coordinate wiring and control diagrams.
  - k. Review the effect of changes on other work.
  - l. Obtain and distribute installation data on each item of equipment requiring mechanical or electrical connections; include:
    - 1) Electrical power characteristics.
    - 2) Control wiring requirements.
  - m. Observe and maintain record of tests and inspections.
  - n. Observe work for compliance with contract documents and notify the applicable contractor in writing of observed defects in the work.
  - o. Coordinate and observe startup and demonstration of equipment and systems.
  - p. Coordinate maintenance of record documents.
  - q. Assist the Architect / Construction Manager with final inspections.
2. Other Prime Contractor(s) / Subcontractor(s) shall provide staff for coordination between trades. Staff requirements noted above represent the minimum full-time on site staff required.
  3. Staffing is subject to Owner / Architect / Construction Manager's approvals.
  4. Staff members may not be removed or replaced without Owner/Architect's approvals.
  5. Staff name(s), duties and resumes are to be submitted to the Architect for approval within fifteen (15) days of the Notice to Proceed.

#### **1.10 COORDINATION OF TRADES**

- A. Coordinate work with other trades to eliminate any possible interference before any piping, conduit, equipment, devices, controls, supports, ductwork and fixtures are installed.
- B. Where multiple items of mechanical and electrical equipment, devices, piping, conduits, supporting metal work, hangers, pull boxes, outlets, ductwork or controls are shown on any of the Contract Documents of the various trades in the same location, coordinate and adjust items to fit within designated location(s).
- C. Provide and install necessary offsets, bends, turns and modifications in piping, ductwork, conduit and devices required to install the work without interference with that of other trades or structure, without additional cost to the Owner.
- D. For products specified to be furnished by one Contractor and installed by another Contractor:

1. Contractor specified to furnish (or remove) product shall be responsible for delivery to (or return from) the project site, and shall pay transportation costs.
2. Contractor specified to install product shall be responsible for coordinating product delivery, loading or unloading, storing, protecting and installing product as required.

### **1.11 COORDINATION OF SPACE**

- A. Coordinate use of available space and sequence of installation for work (e.g., mechanical and electrical work) which is indicated diagrammatically or schematically on the drawings. Prevent physical interference of components. Follow routing shown for pipes, ducts and conduits, taking into account the limitations of available space; make runs parallel with lines of building. Utilize space efficiently to ensure proper installations (including installation of other work) and accessibility for maintenance, service and repairs.
- B. Detailed drawings of proposed departures from spatial arrangements or locations indicated in the Contract Documents, due to field conditions or other causes, shall be submitted to the Architect for review. No such departures shall be made without prior review by the Architect.
- C. Where required for coordination, the Architect will have the authority to order, as changes in the Work, changes in locations and sizes of piping, ductwork conduit, raceways and ducts. Such changes shall be made without adjustment to the Contract Sum or Contract Time.
- D. Field verify measurements of existing items and work which precedes each sequence. Ensure proper fit and location.
- E. In finished areas, conceal pipes, ducts and wiring in the construction.
- F. Coordinate locations of fixtures and outlets with finish elements.

### **1.12 COORDINATION OF FIELD MEASUREMENTS AND FIELD CONDITIONS**

- A. Prior to ordering materials or equipment or performing work, the Contractor and/or Subcontractors shall verify Contract Document and submittal of dimensions and weights affecting their work and other Prime Contractor's work associated with field measurements and field conditions at the project site, (for site and building work), and shall be responsible for their accuracy and correctness.
- B. Differences discovered from dimensions or weights indicated in the Contract Documents or submittals shall be submitted in writing to the Architect for review, before proceeding with the work.

- C. Commencing work implies acceptance of surfaces, areas, preceding work and other field conditions, and verification of dimensions, by the Contractor.
- D. No Change Order will be issued in cases where discrepancies in dimensions are discovered after work has been commenced or where the Contractor has failed to properly investigate and take into account field measurements and existing field conditions.
- E. Inspection of Conditions: Require the Installer of each major component to inspect both substrate and conditions under which his/her work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- F. Recheck measurements and dimensions, before starting each installation.
  - 1. Submit to the Architect for review any change in dimensions shown on the Contract Documents or submittals affecting physical size, shape or location of any part of the work, whether due to field conditions or other causes.
- G. Passage of equipment:
  - 1. Establish passage clearances required to deliver, install and erect mechanical and electrical equipment. Wherever necessary, provide equipment in sections or knocked down in order to allow passage of equipment through available openings.
  - 2. Where there is not sufficient clearance for passage of mechanical or electric equipment, deliver, install and protect such equipment before confining walls, floors, slabs and steel work are erected. Schedule and coordinate this work with the work of other trades.
  - 3. If any structure, equipment or system must be altered to allow passage of equipment, the person or entity responsible for providing that structure, equipment, or system shall restore it to its original condition, without additional cost to the Owner.
  - 4. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- H. Verify the size of shafts and chases, the adequacy of partition thickness and the clearance in double partitions and hung ceilings for proper installation of work.
  - 1. (Sub)Contractors shall cooperate in arranging their work with other (Sub)Contractors whose work is in the same spaces.

2. The amount of space occupied by each trade's work shall be kept to the minimum required.
  3. Arrange for chases, slots and openings in other building components during progress of construction, to allow for timely installation of work.
- I. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
  - J. Provide attachment and connection devices and methods necessary for securing work. Secure work true to line and level. Allow for expansion and building movement.
  - K. Provide all appropriate structural supports, hangers, wires for roof, floor and wall and associated assemblies which include but are not limited to materials, finishes, equipment, fixtures, piping, raceways, mechanical and electrical components. This work shall be in conformance with requirements of the Contract Documents whether or not indicated by a reference in specification or as may be in detail shown on drawings and schedules.
  - L. Visual Effects: Provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
  - M. Install each component during weather conditions and construction status that will ensure best possible results. Isolate each part of completed construction from incompatible material as necessary to prevent deterioration.
  - N. Coordinate temporary enclosures with required inspections and tests, to minimize necessity of uncovering completed construction for that purpose.
  - O. Where mounting heights are not indicated:
    1. Install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.
    2. Install mechanical and electrical systems, materials and equipment to provide maximum possible headroom. Maintain maximum headroom and space conditions. Where headroom or space conditions (less than 8'-0") appear inadequate, the Architect shall be notified before proceeding with the work.

**END OF SECTION 01040**

## SECTION 01050 - ALTERATIONS, CUTTING, PATCHING AND REFINISHING WORK

### PART 1 - PRODUCTS

#### 1.1 RELATED DOCUMENTS

- A. The work of this Section applies to all Construction Contract Documents including drawings, Division 1 - Miscellaneous Requirements Sections, and Specifications Sections included in Part-2 through Part-6.

#### 1.2 DESCRIPTION

- A. Work included: Alterations, removals and demolition required for this work include, but are not necessarily limited to:
  - 1. Alterations, cutting, patching, removal and preparation work to be done as noted on drawings and as required to complete construction.
  - 2. Patching and refinishing of existing surfaces damaged or left unfinished as a result of this work, including site work and existing ground surfaces; concrete surfaces, bituminous paving surfaces, etc.
  - 3. Protection.
    - a. Due to COVID-19 and New Jersey Executive Orders, Contractors are required to practice social distancing and hand washing at all times indoors/outdoors.
  - 4. Asbestos.
    - a. The Contractor shall review and familiarize themselves with the Owners Asbestos Hazard Emergency Response Act (AHERA) report prior to the commencement of any demolition activity. Also, the Contractor will be provided with an inventory of all ACM (Asbestos Containing Materials) in the buildings where they are working, and will be required to sign a form (provided by the Owner) that they are in receipt of the inventory.
    - b. Contractor is herein cautioned that asbestos may be within concealed spaces where work will be taking place. The Contractor shall immediately notify the Owner if any concerns or conditions arise in regards to potential asbestos containing building materials (ACBM's) in order that the owner may verify same and take appropriate action. The Contractor shall not proceed with the work until the material has been abated and air sampling clearance levels have been achieved as set forth by the Owner's Environmental Consultant.
    - c. The Contractor shall employ personnel who are trained in accordance with OSHA workplace standards as they pertain to asbestos.
    - d. **The Architect / Engineer has no authority or professional involvement relative to the hazardous material/asbestos removal or disposal phase for this project and are not available for questions and/or direction in**

**this regard. The hazardous material/ asbestos reference is included as a convenience for the Owner, and the Architect accepts no responsibility nor liability for the accuracy of information, bidders conclusions, methods to be used, nor for any aspect of approvals required by the Contractor in undertaking and completing this project insofar as hazardous material/asbestos is concerned. The Contractor shall direct any/all questions and concerns to the Owners Hazardous Material Abatement Consultant.**

- e. Worker and Community Right to Know Act Requirements
  - 1) It is required that the Contractor and/or Subcontractors comply with all of the requirements of HAZCOM 2012 and New Jersey Right To Know (RTK) program. General Contractor is responsible for ensuring that containers of substances belonging to the Contractor and/or Subcontractors that are stored at the Owner's facility are properly RTK labeled. Refer to N.J.A.C. 8:59-5.10.
  - 2) Surveys of hazardous substances stored at the Owner's facility by the Contractor and/or Subcontractor are to be provided to the Owner of the facility. Refer to N.J.A.C. 8:59-2.2(h).
  - 3) Material Safety Data Sheets (MSDS) and/or Safety Data Sheets (SDS) from manufacturers must be provided to the Owner for all products present at, purchased for, and brought on site by Contractors and/or Subcontractors to the Owner's facility. Refer to N.J.A.C. 8:59-2.2(1).
  - 4) Contractor and/or all Subcontractors must submit, prior to starting any work, a copy of their approved Hazard Communication Plan - 29 CFR 1910.1200.
  
- 5. This project shall be subject to the requirements of the EPA "Renovation, Repair and Painting" rule including the following:
  - a. The Contractor must be lead safe trained and certified. The Contractor will be required to submit a copy of their EPA certificate prior to the start of the work.
  - b. The Contractor shall provide the Owner with a copy of the EPA's Lead Hazard Management information pamphlet "Renovate Right-Important Lead hazard Information for Families, Child Care Providers and Schools" prior to the start of any renovation work. The Contractor shall have the Owner sign a pre-renovation disclosure form confirming receipt of the pamphlet.
  - c. The Contractor shall at all times employ lead safe practices as identified in the rules.
  
- 6. This project shall be subject to the requirements of the EPA rules on diesel exhaust and off-site particulate dust, including the following:
  - a. Diesel exhaust contributes the highest cancer risk of all air toxics in New Jersey and is a major source of NOx within the state. Therefore, per NJ DEP recommendations, construction projects involving non-road diesel construction equipment operating in a small geographic area over an extended period of time shall implement the following measures to minimize the impact of diesel exhaust:

- 1) All on-road vehicles and non-road construction equipment operating at, or visiting, the construction site shall comply with the three minute idling limit, pursuant to N.J.A.C. 7:27-14 and N.J.A.C. 7:27-15. Contractor shall purchase "No Idling" signs to post at the site to remind subcontractors to comply with the idling limits. Signs are available for purchase from the Bureau of Mobile Sources at 609/292-7953 or <http://www.stopthesoot.org/sts-no-idle-sign.htm>.
  - 2) All non-road diesel construction equipment greater than 100 horsepower used on the project for more than ten days shall have engines that meet the USEPA Tier 4 non-road emission standards, or the best available emission control technology that is technologically feasible for that application and is verified by the USEPA or the CARB as a diesel emission control strategy for reducing particulate matter and/or NOx emissions.
  - 3) All on-road diesel vehicles used to haul materials or traveling to and from the construction site shall use designated truck routes that are designed to minimize impacts on residential areas and sensitive receptors such as hospitals, schools, daycare facilities, senior citizen housing, and convalescent facilities.
- b. Contractor will be liable for the effects of off-site particulate dust and/or odors during construction and shall take steps to minimize the impact of air pollution from these activities.

B. Related Sections:

1. Section 00870 - Miscellaneous Requirements.
2. Section 01010 - Summary of the Work.
3. Section 01020 - Allowances.
4. Section 01040 - Coordination.
5. Section 02070 - Selective Demolition.
6. **Division 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.**
  - a. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 15 and 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

### 1.3 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

1. Location and Extent of Work: Submit key plan indicating room location where work to take place. Describe cutting and patching, indicate methods and show how they will be performed.
2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
3. Products: List products to be used and firms or entities that will perform the Work. Provide samples and field mock-up as indicated or requested by the Architect.
  - a. Samples and field mock-up shall match existing surfaces and colors.
  - b. Obtain Architect's approval prior to proceeding with work.
4. Schedule and Dates: Provide work schedule, indicate when cutting and patching will be performed.
5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

#### **1.4 QUALITY ASSURANCE**

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Coordinate cutting of operating elements with other plumbing, HVAC, electrical or other trades.
- C. Miscellaneous Building Elements: Do not cut and patch any building elements or related components in a manner that could change their operation, load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion,



reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1. Engage experienced installers or fabricators for all work.
- E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- F. Mock-Ups: Provide mock-ups for Architect / Construction Manager approval for each proposed patching method. Do not proceed with patching work until obtaining of approvals from the Architect / Construction Manager.

## **1.5 WARRANTY**

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties. Confirm existing warranties with Owner prior to starting of work.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

B. Inspection:

1. Prior to start of any work the General Construction Work Contractor shall verify all existing work area conditions; building lines, lengths, corners and all other dimensions.
  - a. Copies of all surveys performed by the General Contractor shall be submitted to the Architect in two copies and shall include layout drawings and data sheets.
2. The General Construction Work Contractor shall submit information and survey to other Prime Work (Sub)Contractor(s), the Architect / Construction Manager for all required coordination of new construction and all other related site work.
3. Prior to work of this section, verify information and survey submitted by the General Construction Work Contractor, carefully inspect the existing conditions and verify that materials and surfaces to be altered or removed are the same as noted on the drawings.

C. Discrepancies:

1. In the event of discrepancy of existing conditions, surfaces, etc., immediately notify the Architect and the Construction Manager.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

### **3.2 PREPARATION**

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid interruption of services to occupied areas.

### **3.3 PERFORMANCE**

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. The Contractor shall provide cutting, patching, relocations, and or re-installations of existing construction to provide for installation of other components or performance of other construction associated with his/her work, and subsequently patch and finish as required to restore surfaces to their original condition. Work shall be performed whether or not shown on drawings.
2. The General Construction Work Contractor shall provide all required and necessary pockets in concrete and masonry walls and in new roof assemblies including all required cutting, and preparation work to allow for installation of new structural steel framing, supports, lintels, bearing plates, dunnage, etc. The General Construction Work Contractor shall subsequently patch as required to restore and prepare surfaces to receive new finishes.
3. All repairing, patching, piecing out, filling in, restoring and refinishing shall be neatly done by craftsmen skilled in their respective trades and completed in proper manner to leave same in condition satisfactory to the Architect.
4. All new work shall be installed plumb, level, true, and shall be shimmed as required to cover any irregularities in substrates.

B. Cutting:

1. Before cutting is started in any location the Contractor shall carefully investigate conditions as to human and structural safety, existing piping, wiring and items concealed, and wherever same interfere with the work they shall be properly relocated, rerouted or removed as the case may be, at no increase to contract price.
2. Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
3. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
4. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
5. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

6. Do not disturb any structural work, plumbing, steam, gas, or electric work without approval of Architect.
  7. Mechanical and Electrical Services:
    - a. Cut off pipe or conduit in walls or partitions to be removed shall be performed by respective trade.
    - b. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting shall be performed by respective trade.
  8. Proceed with patching after construction operations requiring cutting are complete.
    - a. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work.
  9. Existing work disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled or replaced with new work, and refinished and left in as good condition as existing before commencing work.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  2. Field Mock-up: Prepare field mock-up of proposed restoration method as requested or required by the Architect. Obtain Architect's approval prior proceeding with actual work.
  3. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate or minimize evidence of patching and refinishing.
  4. Floors and Walls: Where walls, partitions and/or built-in cabinets that are removed extend one finished area into another, patch and repair floor and wall surfaces in the existing and new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

5. Ceilings: Cut, remove, patch, repair, install new including hanging assemblies and finish ceilings as necessary to provide an even-plane surface of uniform appearance.

### **3.4 CLEAN-UP**

- A. Areas where demolition is in progress within or adjacent to Owner occupied areas shall be broom cleaned at the end of each working day.
- B. Do not burn materials or debris on premises.
- C. Do not allow demolished materials to accumulate inside or outside of existing building.
- D. Remove from the site all rubbish and debris resulting from work of this section.
- E. If the Contractor fails to clean-up their debris within 24 hours, the Owner has the right to clean-up the debris left by the Contractor. All associated clean-up costs, incurred by the Owner, will be back-charged to the Contractor.

### **3.5 PROTECTION**

- A. Contractor shall provide all other necessary temporary enclosures, guardrails, barricades, etc. to adequately protect all workers and public from possible injury. Provide all necessary temporary partitions, enclosures, coverings of approved materials and construction for the exclusion of weather and for confining dust and debris.
- B. Contractor shall be responsible for the protection of the existing building, facilities and improvements within the areas where work is being done. Any disturbance or damage to the work, the existing building, and improvements, equipment or any impairments of facilities resulting from his/her work, shall be promptly restored, repaired, or replaced by the responsible Contractor at no extra cost to the Owner.
- C. Adequate protection of persons and property shall be provided at all times, including Saturdays, Sundays and holidays, and during time work is being performed and after working hours. Protection shall include barricade fencing, traffic control, dust partitions, weather protection and other means as required.
- D. Preserve and protect all existing vegetation such as trees, shrubs, and grass on or adjacent to the site and along access to the site. Be responsible for all unauthorized cutting or damaging of trees and shrubs, including damage due to careless operation of equipment, stock-piling of materials or tracking of grass areas by equipment.

### **3.6 SALVAGE**

- A. Partial Removal: Items of salvable value to Contractor may be removed from structure as work progresses. Salvage items must be transported from site as they are removed.
  - 1. Storage or sale of removed items on site will not be permitted.
- B. Items designated on drawings or in specifications to remain the property of the Owner, or to be reused, shall be removed, and securely stored with care to prevent damage. Repair or replace such items damaged in removal.
- C. Before transporting non-designated, removed items from the site, contact Architect/ Construction Manager for decision as to what items if any are to remain the property of the Owner. Items retained by the Owner will be transported by him/her to his/her storage area.

### **3.7 STANDARDS**

- A. All demolition work shall be performed in accordance with the applicable rules and regulations and the Codes and Ordinances of local, State and Federal authorities, and in accordance with the requirements of public utility corporations.
- B. Work shall satisfy requirements of the Occupational Safety and Health Act of 1970 with amendments.
- C. Work not affected by more stringent requirements of regulatory agencies shall satisfy the provisions of ANSI-A10.6-2006 - American National Standard Safety Requirements for Demolition.
- D. Confine the movement and storage of vehicles, equipment and materials to such routes and locations as may be designated by the Owner and Architect.
- E. The building and grounds will be maintained in a clean and orderly manner so as to conform with all local fire safety regulations and in accordance with the latest editions of the Safety Code of the National and State Board of Fire Underwriters.

### **3.8 INGRESS, EGRESS AND CIRCULATION**

- A. The Prime Contractor shall be responsible for performing his/her construction activities in such manner to maintain ingress and egress for visitors and occupants of Owner-occupied areas and to continuously maintain all required emergency exits from and circulation between existing facilities. Passageways for emergency exits shall be kept continuously free from debris, construction equipment, tools, stockpiles or materials, and other hazards to speedy evacuation. The Contractor shall provide all necessary temporary work as prudence and good practice may dictate and in accordance with Applicable Law and Authorities having jurisdiction to obtain and

maintain all such ingress, egress and circulation requirements. The Prime Contractor shall be responsible for providing coordination of this temporary work between Subcontractor(s), as directed by the Architect. All temporary work shall be removed when no longer required.

### **3.9 NON-INTERFERENCE WITH OWNER'S OPERATIONS**

- A. Work under this Contract will be performed when the existing buildings are occupied. Coordinate with Owner's schedule and operation, obtain Owner's / Construction Manager's approval prior to proceeding with work.
- B. Contractor shall acquaint himself/herself with the general character of the Owner's operations prior to commencing work and shall schedule his/her work to avoid interference therewith. The sequence of alteration operations shall be in accordance with a schedule of contract operations approved by the Owner and Architect.
- C. The Contractor shall not start work until the schedule has been approved in writing by the Architect and the Owner. The Contractor shall not perform work in occupied areas without giving the Owner 72 hours written notice of his/her intention to work in occupied areas.
- D. The Contractor shall expedite placing orders and submission of shop drawings for equipment required to complete work under this Contract to ensure delivery of all equipment with adequate time allowed to complete the installations to conform to the project completion date.

**END OF SECTION 01050**

## **SECTION 01151 - UNIT PRICES**

### **PART 1 GENERAL**

#### **1.1 PROCEDURE**

- A. Bidder shall insert on the Proposal Form, all Unit Prices applicable to the work under his/her bid. Unit Prices will be used as the basis for computing "additions to" or "deductions from" the Contract Price for extra work and for work countermanded, reduced or omitted.
- B. Except as otherwise provided in the General Conditions, the Unit Prices when accepted, adjusted or established by the Contract shall remain binding and irrevocable for the entire period of the Contract, regardless of the quantities of work ordered or required under such Unit Prices.
- C. The acceptance of the Unit Price is on condition that the general character of the material and workmanship required for any work related thereto shall be equivalent to corresponding work as shown and specified, and that all costs, overhead and profit, as well as all incidental work required in connection therewith, has been included in the Unit Price.

#### **1.2 RULES OF MEASUREMENT: EARTHWORK**

- A. Except as provision is made hereinafter for arbitrary measurement, the quantity of excavation shall be its in-place volume before removal.
- B. The reference point for computing changes in depth shall be the plan grade at which the change starts.
- C. No allowance will be made for excavating additional material of any nature taken out for the convenience of the Contractor beyond the quantity computed under these Rules of Measurement.
- D. General excavation for buildings shall arbitrarily be assumed to extend to vertical planes 2 feet outside of the outside wall lines and to the elevation of the plan subgrade.
- E. Excavations shall be in accordance with OSHA requirements and that excavations should be shored and braced, as needed, to avoid encroaching into existing site improvements that are noted to remain undisturbed.
- F. Excavation for a footing (the pad) under a wall shall be measured as the neat plan width and depth of the footing
- G. Rock excavation shall arbitrarily be assumed to extend to vertical planes one foot beyond wall lines, pipe, etc., and to 6 inches below the established elevations.



- H. Excavation for footings for columns or piers shall be computed as vertical shafts, each with a horizontal cross section identical in shape and size with the bottom of the footing.
- I. Excavation for sump and other pits shall be computed as vertical shafts, each with a horizontal cross section identical in shape and size with the plan of the bottom of the construction installed (out to out of pit walls).
- J. The volume of backfill shall be the volume of excavation computed under these Rules of Measurement, less the volume of actual displacement by walls, beams, columns, piers, footings or other construction installed.
- K. Concrete quantities shall be computed from plan size, or if there are no drawings, from actual measurement of the work ordered and placed.

**1.3 UNIT PRICES - GENERAL CONSTRUCTION, PLUMBING AND DRAINAGE, HEATING, VENTILATING AND AIR CONDITIONING, AND ELECTRICAL: EARTHWORK**

- A. Bulk Rock and Trench or Pit Rock Excavation requiring jackhammering - Per Cubic Yard. Price shall include the breaking up of the rock by other means as directed by the Architect and its removal from the site, specified for other excavated material, and shall be the price over and above the price for earth excavation.

Unit Price for bulk rock shall be \$ 300.00 per cu. yd.  
 Unit Price for trench or pit rock excavation shall be \$ 400.00 per cu. yd.

If the Contractor cannot perform the work at the given unit price, he/she shall accept for consideration subcontractor's price suggested by the Owner and/or the Architect.

**1.4 UNIT PRICES - GENERAL CONSTRUCTION: Materials in Place.**

Excavation (unsuitable soil) \$ \_\_\_\_\_ per cu. yd.  
 Compacted fill \$ \_\_\_\_\_ per cu. yd.  
 Cement Based Self Leveling Underlayment per Section 03452 \$ \_\_\_\_\_ per sq. ft.  
 Replacement of existing damaged or deteriorated metal decking \$ \_\_\_\_\_ per sq. ft.  
 Replacement of existing wet or deteriorated roof insulation board \$ \_\_\_\_\_ per sq. ft.  
 Replacement of existing damaged or deteriorated wood nailers/blocking or framing, including removal of existing deteriorated wood, furnishing

and installing new galvanized anchor bolts,  
expansion bolts at 4'-0" o.c. or nails through existing  
construction to remain:

\$ 2.90 per board ft.

- a. 2x4 for the above work \$ \_\_\_\_\_ per lin. ft.
- b. 2x6 for the above work \$ \_\_\_\_\_ per lin. ft.
- c. 2x8 for the above work \$ \_\_\_\_\_ per lin. ft.
- d. 2x10 for the above work \$ \_\_\_\_\_ per lin. ft.
- e. 2x12 for the above work \$ \_\_\_\_\_ per lin. ft.

**1.5 UNIT PRICES - PLUMBING & DRAINAGE: Materials in Place.**

1/2" Type "L" copper tubing \$ \_\_\_\_\_ per lin. ft.

1-1/2" cast iron piping \$ \_\_\_\_\_ per lin. ft.

2" cast iron pipe piping \$ \_\_\_\_\_ per lin. ft.

3" cast iron pipe piping \$ \_\_\_\_\_ per lin. ft.

**1.6 UNIT PRICES - FIRE PROTECTION: Materials in Place.**

Sprinkler head with associated 1" branch piping  
(approx. 5'-0" length) \$ \_\_\_\_\_ per unit

**1.7 UNIT PRICES - HEATING AND VENTILATING: Materials in Place.**

7/8" Type 'L' copper with brazed joints  
(refrigerant piping) \$ \_\_\_\_\_ per lin. ft.

1/2" Type 'L' copper with brazed joints  
(refrigerant piping) \$ \_\_\_\_\_ per lin. ft.

7/8" piping insulation (refrigerant piping) \$ \_\_\_\_\_ per lin. ft.

1/2" piping insulation (refrigerant piping) \$ \_\_\_\_\_ per lin. ft.

3/4" Type 'L' copper with brazed joints  
(hot water piping) \$ \_\_\_\_\_ per lin. ft.

3/4" heating hot water piping insulation \$ \_\_\_\_\_ per lin. ft.

Condensate pump \$ \_\_\_\_\_ per unit

Volume damper, 10x6 \$ \_\_\_\_\_ per unit

24" X 24" ceiling diffuser \$ \_\_\_\_\_ per unit

24" X 24" ceiling register \$ \_\_\_\_\_ per unit

24" X 12" ceiling register	\$ _____ per unit
Thermostat	\$ _____ per unit
Ball Valve, under 1"	\$ _____ per unit
Ball Valve, 1"	\$ _____ per unit
Balancing Valve, 1"	\$ _____ per unit
Balancing Valve, 3/4"	\$ _____ per unit

**1.8 UNIT PRICES - ELECTRICAL WORK: Materials in Place.**

20A-1 Pole branch circuit installation 600V, including MC cable and termination	\$ _____ per lin. ft.
20A-1 Pole branch circuit installation 600V, including EMT conduit, THHN wire, and termination	\$ _____ per lin. ft.
Combination Clock/Speaker assembly, including EMT conduit, wiring and termination at head end	\$ _____ per unit
System Wireless Clock, including 120V receptacle at clock location, EMT conduit, THHN wire and termination	\$ _____ per unit
Tele/Data Outlet, including CAT6 cabling, EMT Conduit and termination at MDF or IDF location.	\$ _____ per unit
Ceiling Speaker, including EMT conduit, wiring and termination at head end	\$ _____ per unit
20A General purpose tamper resistant receptacle including back box, plate, conduit and wiring to the nearest device(30'	\$ _____ per unit
20A GFCI tamper resistant receptacle including back box, plate, conduit and wiring to the nearest device (30')	\$ _____ per unit
Digital Wall Dimming switch for Lighting Control System	\$ _____ per unit
Cost per linear foot of installed 3/4" empty EMT conduit and drag line	\$ _____ per lin. ft.
20A 1 Pole Circuit Breaker Installed in a panel	\$ _____ per unit
20A 2 Pole Circuit Breaker Installed in a panel	\$ _____ per unit

Fire Alarm Ceiling Speaker / Strobe & wiring to  
Control Panel

\$\_\_\_\_\_ per unit

Fire Alarm Detector (heat, smoke, combination, or  
CO Detector) and wiring to Control Panel

\$\_\_\_\_\_ per unit

**END OF SECTION 01151**

## **SECTION 01200 - PROJECT MEETINGS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and other Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:
  - 1. Pre-Construction Conference
  - 2. Pre-Installation Conferences
  - 3. Coordination Meetings
  - 4. Progress Meetings
- B. Construction Schedule requirements is specified in another Division 1, Section.

#### **1.3 PRE-CONSTRUCTION CONFERENCE**

- A. The Architect will schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than fifteen (15) calendar days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: The Owner, Architect, Construction Manager and their consultants, the Contractor and his/her superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the work.
- C. Agenda: Discuss items of significance that could effect progress including such topics as:
  - 1. Tentative construction schedule
  - 2. Critical work sequencing
  - 3. Designation of responsible personnel
  - 4. Procedures for processing field decisions and Change Orders
  - 5. Procedures for processing Applications for Payment
  - 6. Distribution of Contract Documents
  - 7. Submittal of Shop Drawings, Product Data, and Samples
  - 8. Preparation of record documents
  - 9. Use of the premises
  - 10. Office, Work, and storage areas

11. Equipment deliveries and priorities
12. Safety Procedures
13. First Aid
14. Security
15. Housekeeping
16. Working hours

#### **1.4 PRE-INSTALLATION CONFERENCES**

- A. The Prime Contractor to conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The installer and representative of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Architect and Construction Manager of scheduled meeting dates.
  1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:
    - a. Contract Documents
    - b. Options
    - c. Related change orders
    - d. Purchases
    - e. Deliveries
    - f. Shop Drawings, product data and quality control samples
    - g. Possible conflicts
    - h. Compatibility problems
    - i. Time schedules
    - j. Weather limitations
    - k. Manufacturer's recommendations
    - l. Compatibility of materials
    - m. Acceptability of substrates
    - n. Temporary facilities
    - o. Space and access limitations
    - p. Governing regulations
    - q. Safety
    - r. Inspection and testing requirements
    - s. Required performance results
    - t. Recording requirements
    - u. Protection
  2. Record significant discussions and agreements and disagreements of each conference along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner, the Architect and the Construction Manager.

3. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the conference at the earliest feasible date.

## **1.5 COORDINATION MEETINGS**

- A. The Contractor for General Construction will conduct project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.
- C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

## **1.6 PROGRESS MEETINGS**

- A. Regular Progress Meetings: The Construction Manager will schedule and conduct regular progress meetings as follows:
  1. Weekly meetings with the Contractor and Subcontractors.
  2. Bi-weekly meeting with the Owner, Architect, Contractor and Subcontractors.
    - a. Weekly meetings between the Contractor and Subcontractors will be the responsibility of the Contractor and the Architect will not attend.
- B. Special Meetings will be conducted as required by the progress of the work
- C. Location of the meetings: Meetings shall be conducted at a location in the school to be determined by the Owner's Representative.
- D. Attendance: Attendance at Construction Meetings shall be as follows:
  1. The Owner shall be in attendance at bi-weekly meetings and at any special meetings as appropriate to the agenda.
  2. The Construction Manager, Architect and their professional consultants, as needed, at bi-weekly meetings and at any special meetings as appropriate to the agenda.
  3. The Contractor at all construction meetings.
  4. Subcontractors as appropriate to the agenda.
  5. Suppliers as appropriate to the agenda.

6. The Owner's Representative at all construction meetings.
- E. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the project.
- F. Contractor's Construction Schedule:
  1. Review the present and future needs of each entity present, including such items as:
    - a. Interface requirements
    - b. Time
    - c. Sequences
    - d. Deliveries
    - e. Off-site fabrication problems
    - f. Access
    - g. Site utilization
    - h. Temporary facilities and services
    - i. Hours of work
    - j. Hazards and risks
    - k. Housekeeping
    - l. Quality and work standards
    - m. Change orders
    - n. Documentation of information for payment requests
- G. Reporting: No later than three (3) business days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
- H. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.
- I. Attendance by the Contractor is mandatory, whether the meetings are weekly, bi-weekly or at whatever interval is determined by the Architect and the Construction Manager.
  1. Unless given prior approval by the Construction Manager / Architect in writing not to attend meetings, Contractor will be fined **\$250.00** for each regularly scheduled meeting for which he/she is not represented by a person in authority who can speak for and/or make decisions for the Contractor.
  2. Fine amounts shall be withheld and deducted from the Contract Sum.

**END OF SECTION 01200**

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## SECTION 01400 - MATERIAL TESTING / QUALITY CONTROL SERVICES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for material testing and quality control services.
  - 1. **International Construction Code (ICC) requires Special Inspections - Material Testing shall be engaged and performed through Owner's Testing Inspection Agency which will be paid for by the Owner.**
  - 2. **Testing and inspecting services other than the Special Inspections - Material Testing are required to verify compliance with requirements specified or indicated and are the responsibility of the Contractor. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.**
- B. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 1. Quality Control Services is the responsibility of the Contractor.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-control services required by Architect, and the Owner or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
  - 1. Division 1 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections in AIA Document A201 and Section 01200.
  - 2. Division 1 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
  - 3. Division 2 through 16 Sections for specific test and inspection requirements.

### **1.3 DEFINITIONS**

- A. Quality Control Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Architect
- C. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples.
  - 1. Mockups establish the standard by which the Work will be judged.
- D. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

### **1.4 DELEGATED DESIGN**

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

### **1.5 REGULATORY REQUIREMENTS**

- A. Copies of Regulations: Obtain copies of referenced regulations which also available in Local Public Libraries.

### **1.6 SUBMITTALS**

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Delegated-Design Submittal: When requirement is indicated in specific technical section and/or when requested by the Architect, in addition to Shop Drawings,

Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Description of test and inspection.
3. Identification of applicable standards.
4. Identification of test and inspection methods.
5. Number of tests and inspections required.
6. Time schedule or time span for tests and inspections.
7. Entity responsible for performing tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

D. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Ambient conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

E. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## **1.7 QUALITY ASSURANCE**

A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

- B. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- C. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- D. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in the jurisdiction where the Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. **Specialists:** Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  - 1. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.
- G. **Testing Agency Qualifications:** An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.
  - 1. **Preconstruction Testing:** Testing agency shall perform preconstruction testing for compliance with specified requirements for performance and test methods.
  - 2. **Contractor responsibilities include the following:**
    - a. Provide test specimens and assemblies representative of proposed materials and construction. Provide sizes and configurations of assemblies to adequately demonstrate capability of product to comply with performance requirements.
    - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
    - c. Fabricate and install test assemblies using installers who will perform the same tasks for Project.

- d. When testing is complete, remove assemblies; do not reuse materials on Project.
3. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and the Owner with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- H. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect .
  2. Notify Architect seven (7) days in advance of dates and times when mockups will be constructed.
  3. Demonstrate the proposed range of aesthetic effects and workmanship.
  4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
  5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  6. Demolish and remove mockups when directed, unless otherwise indicated.

## **1.8 QUALITY CONTROL**

- A. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
  2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

- a. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- C. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
  1. **Testing Agency Responsibilities:** Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
    - a. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
    - b. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
    - c. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
    - d. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
    - e. Do not perform any duties of Contractor.
  2. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
    - a. Access to the Work.
    - b. Incidental labor and facilities necessary to facilitate tests and inspections.
    - c. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
    - d. Facilities for storage and field-curing of test samples.
    - e. Delivery of samples to testing agencies.
    - f. Preliminary design mix proposed for use for material mixes that require control by testing agency.
    - g. Security and protection for samples and for testing and inspecting equipment at Project site.
  3. **Coordination:** Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
    - a. Schedule times for tests, inspections, obtaining samples, and similar activities.

4. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for commencement of the Work.
  - a. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

## **PART 2 - PRODUCTS (Not Used)**

## **PART 3 - EXECUTION**

### **3.1 REPAIR AND PROTECTION**

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
  2. Comply with the Contract Document requirements for Division 1 Section "Cutting and Patching."
  3. Protect construction exposed by or for quality-control service activities.
  4. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION 01400**

## SECTION 01410 - REFERENCES AND INDUSTRY STANDARDS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The work of this Section applies to all Construction Contract Documents including drawings, Division 1 - Miscellaneous Requirements Sections, and Specifications Sections included in Part-2 through Part-6.

#### 1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved:" The term "approved," when used to convey Architect's action on Contractor's submittals, applications, and requests, is limited to Architect's duties and responsibilities.
- C. "Directed:" Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by Architect, requested by Architect, and similar phrases.
- D. "Indicated:" The term "indicated" refers to graphic representations, notes, or schedules on Drawings or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the user locate the reference.
- E. "Regulations:" The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish:" The term "furnish" means to supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install:" The term "install" describes operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide:" The term "provide" means to furnish and install, complete and ready for the intended use.
- I. "Installer:" An installer is the Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.



- J. The term "experienced," when used with an entity, means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction, subject to verification by and approval of the Architect.
  - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- K. "Project site(s)" is the space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

### **1.3 INDUSTRY STANDARDS**

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
  - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.

- E. Abbreviations and Acronyms for Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S." .

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01410**

## SECTION 01505 - TEMPORARY FACILITIES

### 1.1 RESPONSIBILITIES OF CONTRACTOR

A. Contractor is responsible for the following temporary facilities and services:

1. Installation, operation, maintenance and removal of each temporary facility usually considered as its own normal construction activity.
2. Plug in electric cords, extensions cords, supplementary plug in task lighting and special lighting necessary exclusively for his/her own activities.
3. His/Her own storage and fabrication sheds.
4. All hoisting requirements for his/her work.
5. Collection and disposal of their own debris, hazardous, unsanitary or other harmful waste material from their operations, on a daily basis to trash receptacles, hoppers, containers, etc. furnished by the Contractor.
  - a. **Refer to Section 01050 - Alterations, Cutting, Patching and Refurbishing Work which identifies the responsible Contractor for the collection and disposal of debris and Section 01524 Construction Waste Management for additional information.**
6. Six foot (6'-0") high site enclosure fence, including maintenance and any gates needed. Provide fence relocations as needed during construction.
7. The secure lockup of his/her own tools, materials and equipment.
8. Construction aids and miscellaneous services and facilities necessary exclusively for his/her own construction activities.
9. Temporary storage provisions for work, including offsite provisions, if required.
10. Containerized bottled drinking water units for his/her personnel.
11. Fire protection provisions related to work including fire extinguishers.
12. All personnel safety equipment and provisions for his/her personnel.
13. Environmental protections.
14. Dust and fume control
15. Other temporary facilities and services stated as their responsibility elsewhere in the Project Documents.

- B. The General Construction Work Contractor shall be responsible for the following temporary facilities:
  - 1. Administrative Facilities set forth in this Section for the exclusive use of the Owner, the Architect.
  - 2. Temporary toilets in sufficient quantity to suit project needs and including disposable supplies.
  - 3. Project identification signs.
  - 4. Temporary partitions, whether or not shown on the drawings.

## **1.2 CONSTRUCTION WORKERS PROTECTION DURING COVID-19**

- A. Due to COVID-19 and New Jersey Executive Orders, Construction workers shall follow recommended precautions to protect themselves and other workers, staff, students, etc. at the project site(s).
  - 1. Limit close contact with others by maintaining a distance of at least 6 feet, when possible.
  - 2. Clean and disinfect frequently touched surfaces such as shared tools, machines, vehicles and other equipment, handrails, ladders, doorknobs, and portable toilets.
  - 3. Practice proper hand hygiene.
  - 4. Contractors, Subcontractors and all Workers assume sole responsibility for working at this project under these conditions.
- B. Refer to the follow organizations for additional recommended precautions:
  - 1. Centers for Disease Control and Prevention (CDC).
  - 2. State of New Jersey Department of Health.
  - 3. World Health Organization.

## **1.3 COMPRESSED AIR**

- A. Contractor shall furnish his/her own equipment and energy source to provide compressed air required for the completion of work under his/her contract.

#### **1.4 REMOVAL AND RESTORATION OF TEMPORARY FACILITIES**

- A. At the completion of the work prior to final payment, Contractor shall remove temporary facilities and work which he/she has been responsible. Refer to Section 01700 for additional requirements.

#### **1.5 UTILITY CONSUMPTION**

- A. The Owner shall be responsible and pay all utility costs for electric and water consumption during the construction period.

**END OF SECTION 01505**

## **SECTION 01524 - CONSTRUCTION WASTE MANAGEMENT**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for the following:
  - 1. Salvaging nonhazardous demolition and construction waste.
  - 2. Recycling nonhazardous demolition and construction waste.
  - 3. Disposing of nonhazardous demolition and construction waste.
- B. Related Sections include the following:
  - 1. All of Division 1 and attached specifications and drawings that make a part of this contract.

#### **1.3 DEFINITIONS**

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

## **1.4 SUBMITTALS**

- A. Waste Management Plan: Submit 4 copies of plan within 30 days of date established for the Notice to Proceed.
- B. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- C. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- D. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- E. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- F. Qualification Data: For refrigerant recovery technician.
- G. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

## **1.5 QUALITY ASSURANCE**

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 1. Review methods and procedures related to waste management including, but not limited to, the following:
  - 1. Review and discuss waste management plan.
  - 2. Review requirements for documenting quantities of each type of waste and its disposition.
  - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
  - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
  - 5. Review waste management requirements for each trade.

## **1.6 WASTE MANAGEMENT PLAN**

- A. General: Develop plan consisting of waste identification, and waste reduction work plan. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing, and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
  - 1. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 2. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 3. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  - 4. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  - 5. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **3.1 PLAN IMPLEMENTATION**

- A. General: Implement waste management plan as approved by Owner / Architect. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
  - 1. Comply with Division 1 Section "Temporary Facilities" for operation, termination, and removal requirements.



- B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
  - 1. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
  - 2. Comply with Division 1 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

### **3.2 SALVAGING DEMOLITION WASTE**

- A. Salvaged Items for Sale and Donation: Not permitted on Project site.

### **3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL**

- A. General: Recycle beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
  - 1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.
  - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 3. Stockpile materials away from construction area.
  - 4. Store components off the ground and protect from the weather.
  - 5. Remove recyclable waste off Owner's property and transport to recycling receiving or processor.

### **3.4 RECYCLING CONSTRUCTION WASTE**

#### **A. Packaging:**

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

#### **B. Wood Materials:**

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.

### **3.5 DISPOSAL OF WASTE**

#### **A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.**

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

#### **B. Burning: Do not burn waste materials on-site.**

#### **C. Burying: Do not bury waste materials on-site.**

#### **D. Disposal: Transport waste materials off Owner's property and legally dispose of them.**

#### **E. Washing waste materials into sewers or drains is not permitted.**

**END OF SECTION 01524**

## **SECTION 01600 - PRODUCT REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The work of this Section applies to all Construction Contract Documents including drawings, Division 1 - Miscellaneous Requirements Sections, and Specifications Sections included in Part-2 through Part-6.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. General product requirements, including:
    - a. General specification requirements for all products.
    - b. General requirements and procedures for maintenance materials and tools.
  - 2. General requirements for product documentation, including:
    - a. Requirements and procedures for schedule of products.
    - b. General requirements for operation and maintenance data.
  - 3. General procedures for products including:
    - a. Procedures for transportation and handling.
    - b. Procedures for delivery and receiving.
    - c. Procedures for storage.

### **PART 2 - PRODUCTS**

#### **2.1 GENERAL**

- A. Components required to be supplied in quantity within a specification section shall be identical, interchangeable, and made by the same manufacturer.
- B. Do not use products removed from existing construction.

#### **2.2 MAINTENANCE MATERIALS AND TOOLS**

- A. Maintenance Materials: Parts and materials for repair and maintenance; specific items required are specified in product sections.
  - 1. Provide products and tools which are identical to those used in the work; if necessary to obtain identical items, order at the same time as products to be installed or tools to be used in the work.
- B. Package appropriately and label to show type and quantity of contents.

- C. Deliver, handle, and store in the same manner as products to be installed.
- D. Do not turn over to the Owner until date of substantial completion, unless otherwise approved by the Owner.
- E. Deliver to the Owner; unload.
- F. Obtain receipt prior to final payment.

## **PART 3 - EXECUTION**

### **3.1 PRODUCTS**

- A. It is the Contractor's responsibility to select products which comply with the contract documents and which are compatible with one another, with existing work, and with products selected by other Contractors.
  - 1. Verify that electrical characteristics of products are compatible with electrical systems; notify architect of all discrepancies.
  - 2. Where visual matching to an established physical sample is required, the Architect's decision will be final.
- B. Do not use any substitute products which have not been approved in accordance with the requirements of the contract documents.
- C. Where the specification is silent on whether substitutions will be considered, substitutions will be considered only when submitted in accordance with AIA A201 and Section 00800.
- D. Products Specified by Reference Standard: Use any product meeting the specification. Provisions of reference standards shall not modify the responsibilities of the Owner or Architect as defined in the contract documents.
- E. Products Specified by Performance Requirements: Use any product meeting the specification.
- F. Products Specified to Match a Physical Sample: Use any product that matches; obtain the Architect's approval.
- G. Products Specified by Listing a Brand Name Product(s) made by listed Manufacturer(s) as the "Basis of Design":
  - 1. Pursuant to N.J.S.A. 18A:18A-15(d) indicated basis of design brand name product(s) or equivalent made by one of the manufacturers listed will be acceptable, as determined by the Architect.

- H. Products Specified by Listing Brand Name Product(s) Accompanied by Language Indicating that Substitutions Are Allowed: Provide a product meeting the specification; submit substitution request for any brand-name product, that is not listed, in accordance with AIA A201 and Section 00800.
- I. Products Specified by Listing Manufacturer(s): Provide a product meeting the specification and made by one of the manufacturers listed or an approved equal. Approval of substitutions will be in accordance with AIA A201 and Section 00800.
- J. Unless specified or noted otherwise in the Contract Documents and/or approved submittals, all Work is to be performed in accordance with the respective material Manufacturer's printed installation instruction. Work installed in variance with the Contract Documents, Approved Submittals and Manufacturer's printed installation instructions will be rejected, removed and replaced by the Contractor and at no additional cost to the Owner.

### **3.2 SCHEDULE OF PRODUCTS**

- A. Prepare a complete schedule of products used, including the following for each product:
  - 1. Manufacturer's name.
  - 2. Brand or trade name.
  - 3. Model number, if applicable.
  - 4. Reference standard, if more than one is applicable.
  - 5. Arrange products in the schedule by specification sections; indicate paragraph where specified.
- B. Prepare and submit a preliminary schedule within 15 working days after award of contract; resubmit when revised; submit final schedule prior to final payment. See additional requirements and milestone dates in Section 01800.
- C. Schedule of products shall not be used to obtain approval of substitute products; make separate request for substitution.

### **3.3 OPERATION AND MAINTENANCE DATA**

- A. Provide operation and maintenance data as specified in individual product sections.
  - 1. Provide data sufficient for operation and maintenance by Owner without further assistance from the manufacturer.
  - 2. Provide completed data in time for use during Owner instruction.

- B. Data Required For Products - General:
  - 1. Name of manufacturer and product.
  - 2. Name, address, and telephone number of subcontractor or supplier.
  - 3. Local source of replacements.
  - 4. Local source of replaceable parts and supplies.
- C. Product Data: Where product data is specified for inclusion in operation and maintenance data, provide manufacturer's data sheets marked to indicate specific product and product options actually installed; delete inapplicable data.
- D. Project Record Documents: Provide an additional copy of applicable record documents for inclusion with the operation and maintenance data.
- E. Coordination Drawings: When coordination drawings are prepared, include a copy with the operating and maintenance data.
- F. Custom Manufactured Products: Provide all information needed for reordering.
- G. Finish Materials: Manufacturer's product data, color/texture designations, and manufacturer's instructions for care, cleaning, and maintenance.
- H. Products Exposed to Weather and Products for Moisture Protection: Manufacturer's product data, recommended inspection schedule and procedures, maintenance and repair procedures, and maintenance materials required.
- I. Equipment: Provide at least the following information:
  - 1. Product data giving equipment and function description, with normal operating characteristics and limiting conditions.
  - 2. Starting, operating, and troubleshooting procedures.
  - 3. Cleaning and maintenance requirements and procedures.
  - 4. External finish maintenance requirements.
  - 5. List of maintenance materials required.
  - 6. List of special tools required.
  - 7. Parts list: List all replaceable parts, with ordering data.
  - 8. Recommended quantity of spare parts to be maintained in storage.

- J. Systems: Provide overall function description, with diagrams, prepared especially for this project.
- K. Form of Data: Prepare data in the form of an instructional manual.
  - 1. Arrange contents logically, using section numbers and sequence of sections indicated on the table of contents of this project manual.
  - 2. When multiple volumes are used, arrange by related subjects; identify contents in cover title.
  - 3. Assemble into 3-ring binders with maximum 2-inch ring size.
    - a. Hardback, cleanable plastic covers.
    - b. Identify each book with title "Operation and Maintenance Instructions" and project name.
    - c. Page size 8-1/2 by 11 inches, maximum.
    - d. Prepare special typewritten data on minimum 20-pound paper.
    - e. Provide tabbed divider for each product and system.
    - f. Drawings: Bind in with other data; provide reinforced binding edge; fold larger drawings to size of pages.
      - 1) Do not use pockets or loose drawings.
  - 4. Provide table of contents for each volume listing:
    - a. Name of the project.
    - b. Name, address, telephone number, and contact name of:
      - 1) Architect.
      - 2) Contractor.
    - c. Index of products and systems included in volume.

### **3.4 TRANSPORTATION AND HANDLING**

- A. Require supplier to package finished products in a manner which will protect from damage during shipping, handling, and storage.
- B. Transport products by methods which avoid damage.
- C. Deliver in dry, undamaged condition in manufacturer's unopened packaging.
- D. Provide equipment and personnel adequate to handle products by methods which prevent damage.
- E. Provide additional protection during handling where necessary to prevent damage to products and packaging.
- F. Lift large and heavy components at designated lift points only.

### **3.5 DELIVERY AND RECEIVING**

- A. Arrange deliveries of products to allow time for inspection prior to installation.
- B. Coordinate delivery to avoid conflict with the work and to take into account both the conditions at the site and the availability of personnel, handling equipment, and storage space.
- C. Clearly mark partial deliveries to identify contents, to permit easy accumulation of entire delivery, and to facilitate assembly.
- D. Promptly inspect shipments and remedy damage, incorrect quantity, incompleteness, improper or illegible labeling, and noncompliance with requirements of contract documents and approved submittals.

### **3.6 STORAGE**

- A. No indoor storage areas are available on-site.
- B. General Storage Procedures:
  - 1. Store products immediately on delivery.
  - 2. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.
  - 3. Store in a manner to prevent damage to the stored products and to the work.
  - 4. Store moisture-sensitive products in weathertight enclosures.
  - 5. Store indoors if necessary to keep temperature and humidity within ranges required by manufacturer.
  - 6. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.
  - 7. Arrange storage to provide access for inspection and inventory.
  - 8. Periodically inspect and remedy damage and noncompliance with required conditions.
- C. Loose Granular Materials: Store on solid surfaces in well-drained area; prevent mixing with foreign materials.



D. Exterior Storage:

1. Cover products subject to weather damage with impervious sheet covering; provide ventilation to avoid condensation.
2. Provide surface drainage to prevent runoff or ponded water from damaging stored products.
3. Prevent damage and contamination from refuse and chemically injurious materials and liquids.
4. Store fabricated products on substantial platforms, blocking, or skids above the ground, sloped to drain.

**END OF SECTION 01600**

## SECTION 01700 - PROJECT CLOSEOUT DOCUMENTS AND PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The work of this Section applies to all Construction Contract Documents including drawings, Specifications, Division 1 - Miscellaneous Requirements Sections, and Specification Sections included in Part-2 through Part-6.

#### 1.2 SUMMARY

- A. Section Includes:

1. Maintenance of Project Record Documents,
2. Record drawings, including As-Built drawings,
3. Record project manual (specifications),
4. Operation and Maintenance Manuals,
5. Warranties,
6. Extra Materials,
7. Submittals required prior to requesting for determining dates of substantial and final completion, and also prior to release of final payment(s),
8. Transmittal of Closeout Project Documents to the Owner,
9. Instructions of Owner's personnel,
10. Final Cleaning.

- B. GENERAL REQUIREMENTS

1. All submittals shall indicate reference to the appropriate Architect's Project Number.

- C. As-Built Drawings:

1. Full-size paper set.
2. Two (2) CD-Roms.

### **1.3 MAINTENANCE OF PROJECT RECORD DOCUMENTS**

- A. Do not use record documents of any type for construction purposes.
- B. Maintain record documents in a secure location at the site while providing for access by the Contractor and the Architect during normal working hours; store in a fire-resistive room or container outside of normal working hours.
- C. Record information as soon as possible after it is obtained.
- D. Assign a person or persons responsible for maintaining record documents.
- E. Record the following types of information on all applicable record documents:
  - 1. Dimensional changes.
  - 2. New and revised details.
  - 3. Actual routing of piping and conduit.
  - 4. Revisions to electrical circuits.
  - 5. Actual equipment locations.
  - 6. Sizes and routing of ducts.
  - 7. Locations of utilities concealed in construction.
  - 8. Particulars on concealed products which will not be easy to identify later.
  - 9. Changes made by modifications to the contract; note identification numbers if applicable.
  - 10. New information which may be useful to the Owner, but which was not shown in either the contract documents or submittals.

### **1.4 RECORD AND AS-BUILT DRAWINGS**

- A. During the progress of the installation, the Contractor shall keep a careful record of all changes and variations in the arrangement of his/her work from the layout shown on the Contract Drawings in order that the Owner may be provided with a complete set of all plans (As-Builts) showing the work as actually installed.
  - 1. The Contractor shall maintain complete two (2) sets of opaque prints of the contract drawings, marked to show changes which occur due to his/her work.

2. Where the actual work differs from that shown on the drawings, mark this set to show the actual work.
  3. Mark location of concealed items before they are covered by other work.
  4. Mark either record contract drawings or shop drawings, whichever are best suited to show the change.
  5. Where changes are marked on record shop drawings, mark cross-reference on the applicable contract drawing.
  6. When the Contractor is required by a provision of a modification to prepare a new drawing, rather than to revise existing drawings, obtain instructions from the Architect as to the drawing scale and information required.
  7. Keep drawings in labeled, bound sets.
    - a. Mark with red pencil.
    - b. Mark work of separate contracts with different colors of pencils.
  8. Incorporate new drawings into existing sets, as they are issued.
  9. Where record drawings are also required as part of operation and maintenance data submittals, make copies from the original record drawing set.
  10. As-Built Drawing Format to be submitted to the Architect:
    - a. One (1) complete, legible full-size paper (hard copy) As-Built drawing set with the following information on each page:
      - 1) Note: "As-Built" drawing,
      - 2) Contractor's Firm name,
      - 3) Date.
    - b. Two (2) copies, pdf format CD-Rom, scanned As-Built drawings of the hard copy furnished to the Owner (indicated above) shall be furnished to the Owner and the Architect and as directed by the Architect.
  11. Mechanical/ Electrical As-Built drawings must be submitted to the Engineer with a copy of the transmittal to the Architect. Approval must be obtained before issuing Final Certificate of Payment.
- B. Record drawings shall be provided for **all work** including but not limited to the following:
1. General Construction Work
  2. Structural Steel Work
  3. Plumbing and Drainage Work
  4. HVACR Work
  5. Electrical Work

## **1.5 PROJECT SPECIFICATION MANUAL**

- A. The Contractor shall maintain a complete copy of the project specification manual, marked to show changes which occur due to his/her work.
- B. Where the actual work differs from that shown in the project manual, mark the record copy to show the actual work.
  - 1. Include a copy of each addendum and modification to the contract.
  - 2. In addition to the types of information required on all record documents, record the following types of information:
    - a. Product options taken, when the specification allows more than one.
    - b. Product substitutions.
    - c. Proprietary name and model number of actual products furnished, for each product, material, and item of equipment specified.
    - d. Name of the supplier and installer, for each product for which neither a product data submittal nor a maintenance data submittal was specified.

## **1.6 OPERATION AND MAINTENANCE MANUALS**

- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
  - 1. Operation Data:
    - a. Emergency instructions and procedures.
    - b. System, subsystem, and equipment descriptions, including operating standards.
    - c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
    - d. Description of controls and sequence of operations.
    - e. Piping diagrams.
  - 2. Maintenance Data:
    - a. Manufacturer's information, including list of spare parts.
    - b. Name, address, and telephone number of Installer or supplier.
    - c. Maintenance procedures.
    - d. Maintenance and service schedules for preventive and routine maintenance.
    - e. Maintenance record forms.
    - f. Sources of spare parts and maintenance materials.
    - g. Copies of maintenance service agreements.
    - h. Copies of warranties and bonds.

- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.
- C. Operation and Maintenance Manuals must be submitted to the appropriate Engineer with a copy of the transmittal to the Architect. Approval must be obtained before issuing Final Certificate of Payment.
  - 1. Contractors shall submit electronic version of the MEP/FP O&M manuals for review by the MEP/FP Consultant. \*Paper copies should not be submitted as part of the MEP/FP review process.

## **1.7 WARRANTIES**

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  - 4. Warranty manual must be submitted to the Architect for review. Architect's approval must be obtained before issuing final payment.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

## **1.8 SUBMITTAL REQUIREMENTS - SUBSTANTIAL COMPLETION**

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  2. Advise Owner of pending insurance changeover requirements.
  3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs and digital images on CD Rom, damage or settlement surveys, and similar final record information.
  6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  8. Complete startup testing of systems.
  9. Submit test/adjust/balance records.
  10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  11. Advise Owner of changeover in heat and other utilities.
  12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  13. Complete final cleaning requirements, including touch-up painting.
  14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

## **1.9 SUBMITTAL REQUIREMENTS - FINAL COMPLETION**

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
  1. Submit a final Application for Payment according to the requirements of the Contract Documents.
  2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and signed by the Contractor.
  3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Provide statement signed by Owner's representatives stating that they have received the required training.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
  1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected. The cost of additional inspections required by the Architect or his/her consultants or the Construction Manager due to Contractor's failure to complete the punch list will be paid by the Contractor and will be deducted from the Contractor's final payment.
- C. The Contractor is required to obtain all final releases from governmental and regulatory agencies having jurisdiction over the project with the assistance from the Architect / Engineer and Owner (if required).

## **1.10 LIST OF INCOMPLETE ITEMS (PUNCH LIST)**

- A. Preparation: Submit three copies of list to the Architect and Construction Manager. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.



1. Organize list of spaces in sequential order, **starting with exterior areas first and proceeding from lowest floor to highest floor**, as applicable.
2. Organize items applying to each space by major element, including categories for ceilings, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
  - a. Project name.
  - b. Date.
  - c. Name of Architect and Construction Manager.
  - d. Name of Contractor.
  - e. Page number.

### **1.11 PROJECT RECORD DOCUMENTS**

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's and Construction Manager's reference during normal working hours.
- B. Record Drawings: Maintain and submit one set of blue - or black-line white prints of Contract Drawings and Shop Drawings.
  1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
    - b. Accurately record information in an understandable drawing technique.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
    - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.
  2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
  3. Mark important additional information that was either shown schematically or omitted from original Drawings.
  4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.

5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
- C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Note related Change Orders, Record Drawings and Product Data, where applicable.
- D. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  3. Note related Change Orders, Record Drawings, and Record Specifications, where applicable.
- E. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

## **1.12 DEMONSTRATION AND TRAINING**

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
1. Provide instructors experienced in operation and maintenance procedures.
  2. Provide instruction at mutually agreed-on times.

3. Schedule training with Owner, through Architect and Construction Manager, with at least seven calendar days advance notice.
  4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
1. System design and operational philosophy.
  2. Review of documentation.
  3. Operations.
  4. Adjustments.
  5. Troubleshooting.
  6. Maintenance.
  7. Repair.

### **1.13 FINAL CLEANING**

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
1. Refer to other Division 1 - specification sections for additional cleaning as required and where applicable.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective

- surfaces to their original condition.
- f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
  - g. Sweep concrete floors broom clean in unoccupied spaces.
  - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
  - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - j. Remove labels that are not permanent.
  - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
    - (1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
  - l. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - m. Replace parts subject to unusual operating conditions.
  - n. Plumbing Work Subcontractor shall clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - o. Heating, Ventilating Air Conditioning Work and Refrigeration Subcontractor shall replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
    - 1) Clean ducts, blowers, and coils if units were operated without filters during construction.
  - p. Electrical Work Subcontractor shall clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
  - q. Leave Project clean and ready for occupancy.
  - r. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

#### **1.14 TRANSMITTAL TO OWNER**

- A. Collect, organize, label, and package ready for reference.
  - 1. Provide cardboard file boxes for submittals.
  - 2. Provide cardboard drawing tubes with end caps for transparencies.

3. Bind print sets with durable paper covers.
  4. Label each document (and each sheet of drawings) with "PROJECT RECORD DOCUMENTS - This document has been prepared using information furnished by \_\_\_\_\_" [insert the contractor's name], and the date of preparation.
- B. Submit to the Architect for transmittal to the Owner, unless otherwise indicated.

#### **1.15 REMOVE TEMPORARY FACILITIES**

- A. At the completion of the work prior to final payment, remove all temporary facilities entirely from the site, including, but not limited to, the following:
1. Trailers, temporary toilets, temporary enclosures, dust barriers and other temporary protection devices.

#### **1.16 SUBMITTALS REQUIRED PRIOR TO FINAL PAYMENT**

- A. Contractor must satisfy all requirements of Sections 01700 and 01900 prior to submitting for Final Payment.
- B. A closeout checklist will be provided to the Contractor when he/she is substantially complete. The Contractor is instructed to mark each submittal with the corresponding item number on the checklist. All warranties must have the Owner Name, Project Name, Architect Project Number and Warranty Periods. If all documents are not received in this format, the submittal will be rejected and the Contractor will be instructed to pick these documents up at the Architect's office for correction.
- C. Submittals required prior to final payment shall be in accordance with "Checklist" include, but are not limited to, the following items:
1. Completed Operations Insurance Certificate - ACORD Form.
  2. Affidavit of Payment of Debts and Claims - AIA Document G706.
  3. Affidavit of Release of Liens - AIA Document G706A.
  4. Consent of Surety Company to Final Payment - AIA Document G707.
  5. Certification of Wages in accordance with New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq.
  6. 10% two year Maintenance Bond on the form provided in this specification.

7. Manufacturers' product warranties, Special written guarantees and warranties, maintenance warranty, etc. in accordance with Section 01900, various specification sections and the table of contents of the Project Manual. This is in addition to the two-year guarantee covered by the Maintenance Bond and in addition to the Contractor's two-year guarantee.
  - a. Guarantee shall be signed and sealed by Officer of the Contracting Firm and shall be notarized.
8. Project Record Drawings, (As-Built Drawings), Record Specifications, Record Product Data, and Miscellaneous Record Submittals.
  - a. Note: As-Built Drawings shall be submitted to the Engineer / Architect.
9. Operation and Maintenance Manuals and Instructions.
  - a. Note: Operation and Maintenance Manuals shall be submitted to the Engineer / Architect.
10. Balancing Reports for Heating, Ventilating, Air Conditioning and Refrigeration systems.
11. Certificate of Occupancy / Copies of all Building Department inspection approvals.
12. In accordance with requirements of N.J.S.A. 52:32-44. Contractor must submit accurate list of all subcontractors and suppliers. Contractor must provide a certification that all proofs of business registration for all subcontractors and suppliers are maintained on his/her file.
13. All approvals and final releases from governmental and regulatory agencies have jurisdiction including, but not limited to: NJDCA, Local Construction Department, NJDEP, etc., as required.

**END OF SECTION 01700**

## CLOSEOUT CHECKLIST

<b>Owner</b>		
<b>Title</b>		
<b>Project #</b>		<b>Contract:</b>
<b>Contractor</b>		
<b>Substantial Completion Date:</b>		<b>Updated:</b>
<p><b>Refer to Specification Sections 01700 and 01900 for closeout requirements.</b>  <b>All Warranties must have the Owner Name, Project Name, Project Number and Warranty Periods.</b>  <b>As-built drawings, O&amp;M manuals, reports, certifications, warranties, punch list must be submitted to Engineer for review.</b></p>		
<b>Item No.</b>	<b>Documents &amp; Warranties Required For Closeout</b>	<b>Status</b>
1	Completed Operations Insurance Certificate - ACORD Form	
2	Completed Operation Insurance Statement (Sample Enclosed)	
3	AIA Document G704 Certificate of Substantial Completion	
4	AIA Document G706 Affidavit of Payment of Debts & Claims	
5	AIA Document G706A Affidavit of Release of Liens	
6	AIA Document G707 Consent of Surety to Final Payment	
7	Certification that all wages have been paid - NJ Prevailing Wage Act, N.J.S.A. 34:11-56.25	
8	10% - two year Maintenance Bond - must be on form provided in spec book - sample attached	
9	Record Project Manual indicating changes or company letter stating no changes.	
10	One Year Contractor's Guarantee Covered by Maintenance Bond - Sample Attached	
11	Operation Instructions & Maintenance Manuals <b>(2 each in 3-ring binder)</b>	
12	Record Drawings. Indicate As-Built drawings with company name, address and date <b>(1 Paper Set &amp; 2 CD's)</b>	
13	Final Payment Requisition & Board Voucher/Invoice (3) Contractor will not be closed out until all paperwork is submitted	
14	Certificate of Approval/Acceptance	
15	Confirmation that FVHD has received "hard copies" (not electronic) of all shop drawing submittals.	
16	Copies of all outstanding certified payroll reports or letter on Contractor's letterhead stating all outstanding certified payroll sheet and manning reports have been sent to the Owner.	
17	Letter on Contractor's letterhead stating date of substantial completion and requesting punch list review to Architect & Engineer	
18	Final Punch list signed and dated indicating completion of all work	
19	Accurate list of all subcontractors and suppliers	
20	Balancing & Testing Reports (HVAC)	
21	Fire Alarm Certification (ELECTRICAL)	
22	Warranties - Refer to Specification Section 01900 for required warranties for each trade	

## SECTION 01800 - TIME OF COMPLETION AND LIQUIDATED DAMAGES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section describes the requirements for completion of interim milestone events and final completion of all work required by the contract documents.
- B. Related Sections:
  - 1. Items of Work attached to the "Certificate of Substantial Completion" and establishing "Final Completion Time" as per Section 00800.
- C. This section also establishes the relation of liquidated damages for failure to complete the interim milestone events or final completion requirements within the time requirements stated herein.
- D. **The building(s) (or part of the building(s)) will be occupied at all times. The Contractor shall maintain heat, electric, fire safety systems and emergency egress paths, control dust and water infiltration at all times.**

#### 1.2 TIME FOR COMPLETION

- A. It is understood that the / each Contractor has mutual responsibility to complete its work in sequence with the work of the other Contractor(s) and to allow the other Contractor(s) access to the work site so that they may complete their work within the times established.
- B. Completion of the Contract Work by the Contractor shall be time of the essence.
- C. The Contractor shall work overtime, additional shifts, weekends or holidays to complete the work on time with no additional cost to the Owner.
  - 1. Scarce resources will be no excuse for not completing the work on time.
  - 2. **No work may take place during the school day in any occupied area. All work, in occupied areas, shall be performed on second shift (3:00 PM - 11:00 PM) until June 24, 2024. Only limited / selective work is permitted. Contractor must review proposed work activities and have approval of Owner and Architect prior to proceeding.**
  - 3. **Work may take place during regular shift and second shift (7:00 AM - 10:00 PM) after June 24, 2024 until August 16, 2024; however, the Contractor is required to review and coordinate all work activities with the Architect and School Facilities Director prior to commencing with the work.**
    - a. **Contractor to review permitted work hours to comply with the local "Noise Ordinance".**



4. **Contractor is required to include the cost of any premium time, second shift and weekend work which may be required in their bid to complete the work within the indicated milestone dates.**
- D. Substantial and final completion of the Work shall include but is not limited to final inspection and acceptance by the Local Building Officials.

### 1.3 SEQUENCE OF CONSTRUCTION

- A. In order to allow the Prime Contractor(s) and Subcontractor(s) to understand the requirements of the Project, the following general sequence of construction Work will be followed:
1. Generally, the General Construction Contractor is to schedule, sequence and coordinate the Work with Subcontractors, as required, to logically progress the Work, meeting the overall design intent, construction quality and time of completion. **Schedule inspections and obtain required approvals of all stages of the Work as required by the Local Construction Officials.**
  2. Proper scheduling of the Work includes timely sequencing, preparation, review and approval by the / each Prime Contractor and **submission of requisite technical and other project submittals and shop drawings** to the Architect / Engineer(s) for approval to advance the proper, logical progression of the Work.
  3. After mobilization and securing the work site, the General Construction Work Contractor is to perform selective demolition of existing general building construction, layout and coordinate the proposed new building construction with existing construction to remain, as noted on the Construction Drawings.
    - a. Apply for and obtain demolition permit to allow commencement of the Work while permit applications for new Construction are under review by the Construction Official.
  4. Progress the Work of all Trades towards completion, as required, by the Contract Documents to obtain **Substantial Completion** including, inspection and testing by local construction officials, commissioning, testing and balancing of the HVAC, Automatic Temperature Controls, Plumbing and Electrical Work to obtain the Certificate of Occupancy.
  5. Provide written formal notification of **Substantial Completion** to the Architect / Engineer and request Punch-List Observations.
  6. Complete proper preparation, review and approval by the / each Prime Contractor and submission of all Close-out Documents, Operation and Maintenance Manuals, As-built surveys and drawings to the Architect / Engineer(s) within contract time required to achieve **Final Completion**.

## 1.5 PROJECT CONTRACT MILESTONE DATES

### A. TIME OF COMPLETION

#### 1. Milestone No. 1

- a. Sign Contract, no later than **fourteen (14)** calendar days, Sundays and Holiday's excepted, from **Notice of Award**; on or about **June 28, 2023**.
- b. Contractor submits Bonds and Insurance **ten (10) calendar days from Notice of Award, Sundays and holidays excepted**.
- c. **Notice to Proceed** shall be within **three (3) business days** of date of signing Contract; on or about **July 19, 2023**.

#### 2. Milestone No. 2

- a. **Time Critical submittals** for special equipment, fixtures, etc. shall be submitted within **twenty (20) calendar days from Notice to Proceed**.

#### 3. Milestone No. 3

- a. Submission of all remaining technical shop drawing submittals shall be submitted within **thirty (30) calendar days from Notice to Proceed**.

#### 4. Milestone No. 4

- a. Physical work at the site shall commence on or about **January 2, 2024**.

#### 5. Milestone No. 5

- a. Substantial Completion of the entire project shall be on or before **379 Calendar Days from the Notice to Proceed, July 12, 2024**.
- b. Liquidated Damages - \$1,000.00 / Calendar day of delay.

#### 6. Milestone No. 6

- a. Final Completion of all Work including punch list items and closeout documents, no later than **31 Calendar Days from Substantial Completion, August 12, 2024**.
- b. Liquidated Damages - \$1,000.00 / Calendar day of delay.

## 1.6 LIQUIDATED AND OTHER DAMAGES

- A. By bidding the Project, the Contractor is accepting that the time allotted for the completion of Work is reasonable. Completion of Work on or about these milestones are prerequisites for the coordinated Work of all Contractors. When the Owner will suffer financial loss and/or extra cost if a milestone task is not completed within the allotted time, the Contractor responsible for the delay in achievement of each milestone, as determined by the Owner's Project Manager and the Architect, shall pay to the Owner a fixed, agreed sum as liquidated damages for each calendar day of delay until the milestone task is substantially completed.
- B. The Liquidated Damages set for above shall be in addition to other consequential losses or damages the Owner may incur by reason of such delay, such as, but not

limited to, the cost of additional architectural and engineering, independent third party inspection and other services resulting from the delay, additional costs to the Owner for payments to other Contractors resulting from delay.

- C. Liquidated Damages are fixed and agreed upon by and between the Contractor and the Owner because of the impracticality and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amounts shall be retained from time to time by the Owner for the current periodical payments.
  - 1. The Liquidated Damages set for above are intended to compensate Owner for loss of use during the period of delay, for other delay during construction which may result further delay in substantial and/or final completion dates and for any acceleration costs by other contractors to recover the defaulting contractor's delay.
  - 2. In no way shall costs of Liquidated Damages be construed as a penalty to the Contractor.
- D. The Owner shall have the right to deduct the total amount any Liquidated Damages for which the Contractor may be liable from any monies otherwise due the Contractor, including any retainage under control of the Owner.
- E. The Surety providing the Performance Bond, furnished by the Contractor, will be liable for Liquidated Damages assessed against the Contractor, to the extent that the Contractor shall not make settlement thereof with the Owner.
- F. The Contractor agrees that in the event the Owner is required to incur or advance any additional necessary and reasonable costs (including but not limited to Architect, Attorney or other fees related expenses), as a result of the failure of the Contractor to perform any obligation of this Contract or to perform its obligations in a timely manner as required by the Contract Documents, the Contractor agrees that such additional necessary and reasonable costs shall be borne by the Contractor and may be deducted by the Owner from any payment due the Contractor.
- G. In accordance with N.J.S.A. 18A:18A-19, the Owner shall deduct from the Contract Price, for any wages paid by the Owner to any inspector or inspectors necessarily employed by for the work of this project, for any number of days in excess of the number of days or indicated dates allowed in milestones above. Such sums shall be part of the Liquidated Damages indicated herein after.

**END OF SECTION 01800**

## SECTION 01900 - GUARANTEES AND WARRANTIES

### PART 1 - GENERAL

#### 1.1 CONTRACT

- A. Period for all guarantees and warranties shall commence at date of substantial completion for the entire project, as determined by the Architect.
- B. The Contractor's guarantee on all work, covered by Maintenance Bond **.Two (2) Yrs.**
  - 1. The Maintenance Bond shall represent a continuing obligation of the Prime Contractor and his Subcontractor(s) to repair/replace defective materials and/or labor of products installed in the project for **two (2) year** from the date of Substantial Completion.
- C. Provide all required warranties indicated in specification sections which include but not limited to the following:

#### 1.2 GENERAL CONSTRUCTION WORK

- A. Finish Grading & Seeding as specified in Section 02485.
  - 1. Warranty lawns and grasses unconditionally for **one full growing season** beginning from date of final acceptance.
  - 2. Beginning from the date of final acceptance, all lawns and grasses shall be alive and in satisfactory growth at end of warranty period.
  - 3. Replace any material that is diseased or 25% dead or more at no cost to the Owner.
- B. PVC Fencing as specified in Section 02837.
  - 1. Manufacturer's standard form in which the manufacturer warrants to the owner that the product will be free from manufacturing defects - including peeling, flaking, blistering and corroding - during the warranty period.
    - a. Warranty period: **Thirty (30) years** from date of installation.
- C. Self-Drying Finishing Underlayment as specified in Section 03452.
  - 1. Special Project Warranty: Submit a written warranty signed by the manufacturer, the contractor, and the installer, guaranteeing to correct failures in materials and workmanship which occur within the warranty period, including those attributable to abnormal aging, without reducing or otherwise limiting any other rights to correction which the Owner may have under the contract documents.
    - a. The warranty shall include responsibility for removing and replacing other work as necessary to accomplish repairs or replacement of materials covered by the warranty.

1) Special Warranty period: **Two (2) years** after date of substantial completion.

D. Solid Polymer Fabrications as specified in Section 06650. . . . . **Ten (10) Yrs.**

1. Provide manufacturer's warranty against defects in materials, fabrication and installation, excluding damages caused by physical or chemical abuse or excessive heat. Warranty shall provide for replacement or repair of material and labor for a period of **ten (10) years**, beginning at Date of Substantial Completion.
  - a. For fabrications with installed warranty coverage, identify by affixing manufacturer's fabrication/installation source plate.

E. Joint Sealer Assemblies as specified in Section 07900.

1. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - a. Warranty Period: **Five (5) years** from date of Substantial Completion.
2. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - a. Warranty Period: **Five (5) years** from date of Substantial Completion.
  - b. Submit two (2) copies of written guarantee for all sealant work of this section signed by the Contractor and the sealant manufacturer for a period of **five (5) years** from the date of acceptance by the Owner.

F. Attack Resistant Flush Wood Doors as specified in Section 08141.

1. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
  - a. Failures include, but are not limited to, the following:
    - 1) Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
    - 2) Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
  - b. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
  - c. Warranty Period for Solid-Core Interior Doors: **Life of Installation.**

G. Wood Doors as specified in Section 08211. . . . . **Life of Installation.**

1. Submit written agreement in door manufacturer's standard form signed by the manufacturer and contractor, agreeing to repair or replace defective doors which have warped (bow, cup or twist) or which show photographing of construction below its face veneers, or do not conform to tolerance limitations of NWMA.
2. The warrant shall also include refinishing and reinstallation as may be required due to repair or replacement of defective doors.

H. Finish Hardware as specified in Section 08700.

1. Special guarantee workmanship and material provided against defective manufacture. Repair or replace defective workmanship and material appearing within period of **two (2) years** after substantial completion.
2. Provide **twenty-five (25) year** factory warranty on door closers against defects in material and workmanship from date of occupancy of project.
3. Provide **five (5) year** factory warranty on exit devices, locksets and overhead stops against defects in material and workmanship from date of occupancy of project.
4. Provide **ten (10) year** factory warranty on locksets against defects in material and workmanship from date of occupancy of project.

I. Glass and Glazing as specified in Section 08800.

1. Manufacturer's Limited Warranty on Fire-Rated / Impact Glazing: Written warranty, made out to the Owner and signed by manufacturer, warrants only that the product will be free of manufacturing defects resulting in material obstruction through the glass area and/or edge separation and changes in properties of the interlayer for a period of **five (5) years** from the date of purchase, provided the Products have been properly shipped, stored, handled, installed and maintained.
  - a. Limitation of Remedy - Inspection: The remedy for product proved to be defective under the terms of this warranty is limited to shipment of replacement product. With respect to all claims under this warranty, the Manufacturer shall have the right to inspect any and all products alleged to be defective.

J. Security Glazing as specified in Section 08871.

1. General: Submit warranties provided by the manufacturer agreeing to repair or replace defective material or workmanship within the specified warranty periods, starting from the date of substantial completion.
  - a. Fire Rated Security Glazing: Submit a **five (5) year** warranty from date of shipping
  - b. Laminated Security Glazing: Submit a **ten (10) year** warranty against delamination.

K. Acoustical Ceilings and Suspension System as specified in Section 09510. . . . **Thirty (30) Yrs.**

1. Special Manufacturer's Warranty: Written warranty, signed by the ceiling manufacturer agreeing to furnish ceiling materials and replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
2. Warranty Period: **Thirty (30) year** System Performance Guarantee against visible sag, Mold/Mildew and Bacteria Growth.

L. Acoustical Baffle as specified in Section 09512.

1. **Ten (10) year** performance-based warranty on all standard components.

M. Resilient Flooring as specified in Section 09650.

1. Vinyl Composition Tile:

a. Special Warranty - Manufacturer warrants its regular (first quality) commercial floor products to be free from manufacturing defects for **five (5) years** from date of purchase.

1) **Within One Year:** If a defect covered by this warranty is reported to the manufacturer in writing within one year of purchase, Manufacturer will supply new material of the same or similar grade sufficient to repair or replace the defective material. Manufacturer will also pay reasonable labor costs.

2) **Within Two Years:** If a defect covered by this warranty is reported to the manufacturer in writing after one year but within two years of purchase, Manufacturer will supply new material of the same or similar grade sufficient to repair or replace the defective material. Manufacturer will also pay fifty (50%) percent of reasonable labor costs.

3) **After Two Years:** If a defect covered by this warranty is reported to the manufacturer in writing after two years but within five years of purchase, Manufacturer will supply new material of the same or similar grade sufficient to repair or replace the defective material. Manufacturer will not pay for labor costs.

4) **Otherwise: Within Five(5) Years** of Purchase: Installation is not according to Manufacturer's Engineered Installation Systems. If a defect covered by this warranty is reported to Manufacturer in writing within five(5) years of purchase, Manufacturer will replace or repair at its discretion defective material only (excluding cost of installation).

5) Manufacturer does not warrant the installers' workmanship. Workmanship errors should be addressed to the contractor who installed the floor.

N. Carpet Tile as specified in Section 09685.

1. Manufacturer's Warranties:

a. **Twenty (20) year** excessive surface wear (loss of more than 10% by weight of face fiber), edge ravel, backing separation, shrinking, stretching and static electricity Warranty from the date of invoice.

b. **Twenty (20) year** - Antimicrobial Preservative Protection Warranty (Tile Only).

2. Special Project Warranty:

a. In addition, a written special project warranty, executed by the Contractor and the Installer, agreeing to repair or replace carpet which fails in material or workmanship within a period of **two (2) years**, which starts at the date of substantial completion, without any cost to the Owner, and agreeing to repair or replace other defects beyond Contractor's / Installer's / Manufacturer's controls, as judged by the Architect, at Owner's expense at prevailing rates.

- b. TacTiles® carpet tile will not be adversely affected by defects in their materials or workmanship for a period of **two (2) year** from the date of invoice when used to install the appropriate Interface® carpet products.
  - O. Dry Marker Boards / Exhibition Boards as specified in Section 10100 . **Fifty (50) Yrs.**
    - 1. Submit a **“Life of Building”** warranty, stating that under normal usage and maintenance, and when installed in accordance with manufacturer’s instructions and recommendations, porcelain enamel steel markerboard and chalkboard writing surfaces are guaranteed for the Life of the Building. Guarantee covers replacement of defective boards, but does not include cost of removal or reinstallation.
    - 2. Submit a standard warranty, stating that when installed in accordance with manufacturer’s instructions and recommendations, exhibition boards are guaranteed for **one (1) year** against defects in materials and workmanship. Guarantee does not cover normal wear and tear, improper handling, any misuse, or any defects caused by vandalism or subsequent abuse. Guarantee covers replacement of defective material, but does not include cost of removal or reinstallation.
    - 3. Writing Surface Warranty Period: Lifetime of the building commencing on the Date of Substantial Completion.
  - P. Fire Extinguishers as specified in Section 10522.
    - 1. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
      - a. Failures include, but are not limited to, the following:
        - 1) Failure of hydrostatic test according to NFPA 10 when testing interval required by NFPA 10 is within the warranty period.
        - 2) Faulty operation of valves or release levers.
      - b. Warranty Period: **Six (6) years** from date of Substantial Completion.
  - Q. Interior Window Shades as specified in Section 12495.
    - 1. Roller Shade Hardware, Chain and Shadecloth (except EcoVeil): Manufacturer's standard non-depreciating **twenty-five (25) year** limited warranty.
      - a. EcoVeil standard non-depreciating **ten (10) year** limited warranty
    - 2. Special Roller Shade Installation: **Two (2) years** from date of Substantial Completion, not including scaffolding, lifts, or other means to reach inaccessible areas.
- 1.3 CASEWORK AND EQUIPMENT WORK**
- A. Casework (Solid Wood) as specified in Section 11011.....**Three (3) Yrs.**



1. Manufacturer shall warrant the casework to be free from defects in materials and workmanship, under normal use and service, for **three (3) years** from date of delivery.
  - a. Within the warranty period, manufacturer shall repair, replace, or refund the purchase price of defective casework.

B. Library Equipment & Furniture as specified in Section 11050.

1. Special Project Warranty: Submit a written warranty signed by the manufacturer, the contractor, and the installer, guaranteeing to correct failures in materials and workmanship which occur within the warranty period, including those attributable to abnormal aging, without reducing or otherwise limiting any other rights to correction which the owner may have under the contract documents.
2. The warranty shall include responsibility for removing and replacing other work as necessary to accomplish repairs or replacement of materials covered by the warranty.
3. Submit proof of manufacturer's standard warranty: Minimum **five (5) years** for furniture.

#### 1.4 PLUMBING & DRAINAGE WORK

A. Plumbing as specified on Drawings P1.1MH and P1.1V.

1. All work shall be guaranteed to be free from leaks or defects. Any defective materials or workmanship shall be replaced or repaired as directed for the duration of guaranteed period **two (2) years**. Any damage to the work of all Trades resulting from same shall be replaced or repaired as directed by Architect/Owner.

#### 1.5 FIRE PROTECTION

A. Fire Protection as indicated on Drawing FP1.0V.

1. Guarantee all work, material and equipment for a period of **two (2) years** from date of certificate of occupancy.

#### 1.6 MECHANICAL

A. Mechanical as specified on Drawings M1.1MH, M1.2MH, M1.3MH, M1.4MH and M1.0V.

1. Guarantee: the contractor shall guarantee, in writing, for a period of **two (2) years**, commencing from the date of acceptance by the owner, all materials and workmanship provided as part of this project.

B. Roof Top Units as specified on Drawing M1.2MH.

1. Special Warranty: Manufacturer's standard form in which manufacturer agrees to replace components of RTU's that fail in materials or workmanship within specified warranty period.
  2. Warranty period for Compressors: Manufacturer's standard, but not less than **five (5) years** from Date of Substantial Completion.
  3. Warranty period for Gas Furnace Heat Exchangers: Manufacturer's standard, but not less than **fifteen (15) years** from Date of Substantial Completion.
  4. Warranty period for Solid-State Ignition Modules: Manufacturer's standard, but not less than **three (3) years** from Date of Substantial Completion.
  5. Warranty period for Control Boards: Manufacturer's standard, but not less than **three (3) years** from Date of Substantial Completion.
- C. Unit Ventilators as specified on Drawing M1.2MH.
1. General Warranty: Special Warranty specified in this article shall not deprive Owner of other rights Owner may have other provisions of the Contract Documents and shall be in addition to and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
  2. Special Warranty: Written Warranty, executed by manufacturer agreeing to repair or replace components of compressor that fails in materials or workmanship within specified warranty period.
  3. Warranty Period: **Five (5) years** from Date of Substantial Completion.
- D. Air-Cooled Condensing Unit as specified on Drawing M1.2MH.
1. General Warranty: Special Warranty specified in this article shall not deprive Owner of other rights Owner may have other provisions of the Contract Documents and shall be in addition to and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
  2. Special Warranty: Manufacturer's standard form which manufacturer agrees to repair or replace components of compressor and condenser units that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to:
    - a. Compressor failure.
    - b. Condenser coil leak.
  3. Warranty Period: **Five (5) years** from Date of Substantial Completion.
- E. Air Handling Unit as specified on Drawing M1.2MH.

1. General Warranty: Special Warranty specified in this article shall not deprive Owner of other rights Owner may have other provisions of the Contract Documents and shall be in addition to and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
  2. Special Warranty: Written warranty executed by manufacturer agreeing to repair or replace components of compressor and condenser units that fail in materials or workmanship within specified warranty period.
  3. Warranty Period: **Two (2) years** from Date of Substantial Completion.
- F. Instrumentation and Controls for HVAC System as specified on Drawings M1.2MH and M1.3MH.
1. Warranty period (Labor and Materials) equipment, materials and workmanship incorporated into the work shall be warranted for a period of **two (2) years** from the time of system acceptance.
  2. Warranty shall cover all costs for parts, labor, associated travel, and expenses for a period of **twenty-four (24) months** from completion of system demonstration.
  3. Hardware and software personnel supporting this warranty agreement shall provide on-site or off-site service in a timely matter after failure notification to the vendor. The maximum acceptable response time to provide this service at the site shall be 24 hours.
  4. Remote Connectivity
    - a. The Owner shall provide all TCP/IP services and connections for remote site access for the BMS Contractor (BMSC) to perform warranty response work.
    - b. The BMS Contractor (BMSC) shall identify the specific connection requirements in a shop drawing submittal.
    - c. This requirement provides several functions including remote alarm notifications, remote connectivity for both the Owner and BMS Contractor's (BMSC) response. Failure of the Owner to provide this remote connectivity will relieve the BMS Contractor (BMSC) of the initial response times.
  5. BMS System Access
    - a. The Owner shall grant the BMS Contractor (BMSC) reasonable access to the BMS during the warranty period.
    - b. Remote access to the BMS (for the purpose of diagnostics and troubleshooting, via the Internet, during the warranty period) will be allowed.
  6. Warranty Repair and/or Replacement
    - a. Within this period, upon notice by the Owner, any defects in the BMS due to faulty materials, methods of installation or workmanship shall be promptly repaired or replaced by the BMS Contractor (BMSC) at no expense to the Owner.

7. Final Adjustments

- a. When requested by the Owner within the warranty period, the BMS Contractor (BMSC) shall provide remote seasonal adjustments to the system to suit actual conditions.

**1.7 ELECTRICAL**

A. Electrical as specified on Drawings E1.0MH, E1.1MH, E1.0V and E1.1V..

1. Guarantee all work in writing to the owner against any and all defects in material and workmanship for a period of **two (2) years** from date of acceptance and perform all corrective work at no cost to the owner.

B. Lighting Fixtures as specified on Drawings E1.1MH and E1.1V.

1. Warranty: **Five (5) year** manufacturer's warranty from date of Substantial Completion.

C. Lighting Controls as specified on Drawings E1.1MH and E1.1V.

1. Warranty: **Five (5) year** manufacturer's warranty from date of Substantial Completion and **one (1) year** system adjustment and maintenance.

D. Fire Alarm Devices as specified on Drawings E1.1MH and E1.1V.

1. Warranty: System provider agrees to repair or replace Fire-Alarm system components including, but not limited to, the detection devices and notification devices that fail in materials and workmanship within **five (5) years** from date of Substantial Completion.

**END OF SECTION 01900**

**PART 2**  
**GENERAL CONSTRUCTION**

## **SECTION 02070 - SELECTIVE DEMOLITION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of selective demolition work is indicated on the drawings.
- B. Type(s) of Selective Demolition Work: Demolition requires the selective removal and subsequent offsite disposal of the following:
  - 1. Portion(s) of building structure as indicated on drawings and as required to accommodate new construction.
  - 2. Removal and protection of existing fixtures and equipment items indicated as "salvage", and reinstallation and/or deliver to the Owner.
- C. Removal Work Specified Elsewhere:
  - 1. Mechanical and Electrical Work - Cutting non-structural concrete floors and masonry walls for underground piping, conduit, and for above grade piping, conduit, is included with the work of the respective mechanical and electrical trades.
- D. Related Work Specified Elsewhere:
  - 1. Remodeling construction work and patching is included within the respective sections of specifications, including removal of materials for re-use and incorporated into remodeling or new construction.

#### **1.3 SUBMITTALS**

- A. Proposed Demolition Activities: Submit schedule indicating proposed methods and sequence of operations for selective demolition work to Owner's Representative for review prior to commencement of work. Provide starting and ending dates for each activity as appropriate.
  - 1. Include coordination for shut-off, capping, and continuation of utility services, as required, together with details for dust and noise control protection.
  - 2. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
  - 3. Sequence construction so as to minimize obstruction of exits and provide temporary alternate exits, as required by authorities having jurisdiction.
  - 4. Coordinate with Owner's continuing occupation of portions of existing building, and with Owner's reduced usage during summer months.

- B. Photographs: Photograph existing conditions of structure, surfaces, equipment or surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Owner's Representative prior to starting work.
- C. Project Record Documents:
  - 1. Indicate unanticipated structural, electrical, or mechanical conditions.

#### **1.4 JOB CONDITIONS**

- A. Occupancy: Owner will be continuously occupying areas of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities which will severely impact Owner's normal operations.
- B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.
  - 1. Conditions existing at time of commencement of contract will be maintained by Owner insofar as practicable. However, variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.
- C. Protections: Provide temporary barricades and other forms of protection, as required, to protect Owner's personnel and general public from injury due to selective demolition work.
  - 1. Provide protective measures , as required, to provide free and safe passage of Owner's personnel and general public to and from occupied portions of building.
  - 2. Protect existing finish work, from being damaged during the project, which is to remain in place and becomes exposed during demolition operations.
  - 3. Protect floors with suitable coverings so as to leave the flooring in same condition at end of job.
  - 4. Construct temporary insulated solid dustproof partitions, where required, to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors, if required.
  - 5. Remove protections at completion of work.
- D. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to Owner, including but not limited to concealed interior and exterior utility lines not properly investigated by the contractor, prior to commencement of demolition work.
- E. Traffic: Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

1. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- F. Explosives: Use of explosives will not be permitted.
- G. Utility Services: Maintain existing interior and exterior utilities indicated to remain, keep in service, and protect against damage during demolition operations.
1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

## **PART 2 - PRODUCTS (Not Applicable).**

## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- A. Prior to commencement of selective demolition work, inspect areas in which work will be performed.
1. **Photograph existing conditions of structure, surfaces, equipment or surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Owner's Representative prior to starting work.**
  2. Commencement of work shall constitute acceptance of conditions. Any necessary remedial work required to correct any unsatisfactory conditions, found after the start of installation, will be provided at no cost to the Owner.
  3. Prior to the commencement of work review the demolition activities with the Owner's representative to identify additional salvage items requested by the Owner.

### **3.2 PREPARATION**

- A. Cover and protect furniture, equipment and fixtures to remain from soiling or damage when demolition work is performed in rooms or areas from which such items have not been removed.
- B. Erect and maintain dust-proof partitions and closures, as required, to prevent spread of dust or fumes to occupied portions of the building.
1. Provide weatherproof closures for exterior openings resulting from demolition work.
- C. Locate, identify, stub off and disconnect utility services that are not indicated to remain.
1. Provide by-pass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shut-down of service is necessary during change-over.



### **3.3 DEMOLITION**

- A. Perform selective demolition work in a systematic manner. Use such methods , as required, to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
  - 1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
    - a. The Contractor shall use caution when cutting into existing masonry construction (eg.: concrete slabs, single wythe and cavity wall construction) as there may be undocumented utilities within the cavity or built into the cores of cmu wall construction or under the floor slab. The contractor shall perform all necessary investigation prior to demolition work to determine the presence of existing utilities within construction to be demolished, including but not limited to radar, thermal, impact echo, etc. The Contractor shall pay for restoring / repairing the existing construction if utilities are cut and proper selective demolition investigation work was not performed. Refer to Section 01050.
  - 2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors or framing.
  - 3. Provide services for effective air and water pollution controls, as required by authorities having jurisdiction.
  - 4. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.
- B. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative / Architect in written, accurate detail. Pending receipt of directive from Owner's Representative / Architect rearrange selective demolition schedule as necessary to continue overall job progress without delay.

### **3.4 SALVAGE MATERIALS**

- A. Salvage Items: Where indicated on Drawings as "Salvage-Deliver to Owner", carefully remove indicated items, clean, store and turn over to Owner and obtain receipt.
  - 1. Unless otherwise indicated all materials, items, equipment, etc. resulting from demolition work shall be removed from the site at the Contractor's expense.
- B. Historic artifacts, including cornerstones and their contents, commemorative plaques and tablets, antiques, and other articles of historic significance remain the property of the Owner. Notify Owner's Representative if such items are encountered and obtain acceptance regarding method of removal and salvage for Owner.

### **3.5 DISPOSAL OF DEMOLISHED MATERIALS**

- A. Remove debris, rubbish and other materials resulting from demolition operations from building site. Transport and legally dispose of materials off-site.

- B. If hazardous materials are encountered during demolition operations, notify the Owner's Representative immediately, comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.
- C. Burning of removed materials is not permitted on project site.

### **3.6 CLEAN-UP AND REPAIR**

- A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.
- B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

**END OF SECTION 02070**

## **SECTION 02150 - SHORING AND BRACING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Extent of shoring and bracing work includes, but is not limited to, the following:
  - 1. Shoring and bracing necessary to protect existing building(s), streets, walkways, utilities, and other improvements and excavation against loss of ground or caving embankments.
  - 2. Maintenance of shoring and bracing.
  - 3. Removal of shoring and bracing, as required.
- B. Types of shoring and bracing system include, but are not limited to the following:
  - 1. Column shoring. (Building Structure)
  - 2. Scaffolding shoring. (Building Structure)
  - 3. Cantilever shoring. (Building Structure)
- C. Building excavation is specified in another Division-2 section.

#### **1.3 SUBMITTALS**

- A. Layout Drawings: Provide layout drawings for shoring and bracing system and other data prepared and sealed by a registered Professional Engineer licensed in the State of the project. System design and calculations must be acceptable to local authorities having jurisdiction.

#### **1.4 QUALITY ASSURANCE**

- A. Supervision: Engage and assign supervision of shoring and bracing work to a qualified consultant.
- B. Submit name of engaged consultant and qualifying technical experience.
- C. Regulations: Comply with local codes and ordinances of governing authorities having jurisdiction.

#### **1.5 JOB CONDITIONS**

- A. Before starting work, check and verify governing dimensions and elevations. Survey condition of adjoining properties. Take photographs to record any prior settlement or

cracking of structures, pavements, and other improvements. Prepare a list of such damages, verified by dated photographs, and signed by Contractor and others conducting investigation.

- B. Survey adjacent structures and improvements, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations. Locate datum level used to establish benchmark elevations sufficiently distant so as not to be affected by movement resulting from excavation operations.

## **1.6 EXISTING UTILITIES**

- A. Protect existing active sewer, water, gas, electricity and other utility services and structures.
- B. Notify municipal agencies and service utility companies having jurisdiction. Comply with requirements of governing authorities and agencies for protection, relocation, removal and discontinuing of services, as affected by this work.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. General: Provide suitable shoring and bracing materials which will support loads imposed. Materials need not be new, but should be in serviceable condition.

## **PART 3 - EXECUTION**

### **3.1 BRACING**

- A. Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move a brace, install new bracing prior to removal of original brace.
- B. Do not place bracing where it will be cast into or included in permanent work, except as otherwise acceptable to Architect.
- C. Install internal bracing, if required, to prevent spreading or distortion to braced frames.
- D. Maintain bracing until structural elements are rebraced by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.
- E. Repair or replace, as acceptable to Architect, adjacent work damaged or displaced through installation or removal of shoring and bracing work.

**END OF SECTION 02150**

## **SECTION 02200 - EARTHWORK**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of earthwork is indicated on drawings.
  - 1. Rough grading.
  - 2. Preparation of subgrade for building slabs, pads, pavement, and lawns is included as part of this work.
  - 3. Porous fill course for support of building slabs, equipment pads and exterior concrete pavement is included as part of this work.
  - 4. Excavation and backfill for foundations and footings.
- B. Conform to the requirements of "Standards for Soil Erosion and Sediment Control in New Jersey," latest edition.

#### **1.3 QUALITY ASSURANCE**

- A. Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

#### **1.4 SUBMITTALS**

- A. Test Reports: Testing service will submit following reports directly to Architect with copy to the Contractor:
  - 1. Test reports on borrow material.
  - 2. Verification of each footing subgrade.
  - 3. Field density test reports.
  - 4. One optimum moisture-maximum density curve for each type of soil encountered.
  - 5. Report of actual unconfined compressive strength and/or results of bearing tests of each strata tested.

#### **1.5 JOB CONDITIONS**

- A. Surveys, test borings and other exploratory operations may be made by Contractor at no cost to Owner.

- B. Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.
1. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
  2. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by Architect/Engineer and then only after acceptable temporary utility services have been provided.
- C. **Use of Explosives**
1. **Do not** bring explosives onto site or use in work without prior written permission from authorities having jurisdiction.
  2. Contractor is solely responsible for handling, storage, and use of explosive materials when their use is permitted. Comply with applicable requirements of NFPA 495, "Explosive Material Code".
- D. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.
1. Operate warning lights as recommended by authorities having jurisdiction.
  2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

- A. Allowable Gradational Envelope, Type "S" Fill (Structural Fill):

<u>U.S. Standard Sieve Size</u>	<u>Percent Finer by Weight</u>
1"	100
3/8"	65-100
No. 10	40-85
No. 30	20-65
No. 60	10-45
No. 200	5-12

- B. Allowable Gradational Envelope, Type "G" Fill (Granular Fill):

<u>U.S. Standard Sieve Size</u>	<u>Percent Finer by Weight</u>
2"	100
1"	80-100
3/8"	70-100

No. 10	50-100
No. 30	30-85
No. 60	15-65
No. 200	5-15

- C. Porous Fill: Coarse Aggregate, crushed stone or gravel, poorly graded with 100 passing a 1½" sieve and not more than 10 percent of material that passes through No. 4 sieve.
- D. All soil materials imported to the site shall be certified by an independent testing agency to be free from contamination in accordance with standards of the U.S. Environmental Protection Agency.

## **PART 3 - EXECUTION**

### **3.1 EXCAVATION**

- A. Excavation is Unclassified, and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.
  - 1. Earth excavation includes removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, material of any classification indicated in data on subsurface conditions, and other materials encountered that are not classified as rock excavation or unauthorized excavation.
- B. Excavation Classifications: The following classifications of excavation will be made when rock excavation is encountered in work:
  - 1. Rock Excavation
    - a. Footing Rock Excavation: All boulders or rock above the bottom of the footing elevations which can be removed by a 1 cubic yard power shovel or backhoe using a prime mover equal in size to a Bucyrus Erie 30B Series 3, or a pneumatic hammer using a pavement breaker shall be classified as earth excavation.
    - b. General Rock Excavation: Removal of boulders or rock encountered in the excavation by a 1 cubic yard power shovel or backhoe using a prime mover equal in size to a Caterpillar 325, or a hydraulic hammer using a pavement breaker, or a D-8N bulldozer, or equivalent, equipped with ripper teeth, shall be classified as earth excavation. All boulders and rock which cannot be removed by the foregoing equipment and require other means for their removal, shall be classified as general rock excavation.
    - c. Intermittent drilling or ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.
- C. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Architect/Engineer. Unauthorized excavation, as well as remedial work directed by Architect / Engineer, shall be at Contractor's expense.
  - 1. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without

altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Architect / Engineer.

2. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Architect / Engineer.
- D. Additional Excavation: When excavation has reached required sub-grade elevations, notify Architect/Engineer who will make an inspection of conditions.
1. If unsuitable bearing materials are encountered at required sub-grade elevations, Contractor must notify the Architect / Soil Engineer.
    - a. In pavement areas, unsuitable soils shall be over excavated to a depth required by the Soils Engineer and replaced with imported granular fill as defined herein.
  2. Contractor shall carry excavations deeper to elevations as directed by the Soil Engineer, replace excavated material with Type "S" structural fill, as described herein.
  3. Additional fill shall be provided, placed and compacted to required elevations.
  4. Additional excavation and compacted fill work, when authorized by the Architect / Engineer, shall be in the form of change order(s) using Unit Prices, when accepted, adjusted or established by the Contract.
- E. Excavation for Structures:
1. Prior to foundation construction, all superficial materials including asphalt and topsoil shall be stripped from the limits of construction.
  2. All excavations within the building area(s) shall be backfilled with a clean bankrun sand and gravel conforming to the gradational requirements for Structural (Type S) Fill, unless Soils Report indicates on site materials may be used as structural fill. The Type S fill shall also be used for filling within the building limits to attain proposed porous fill subgrade elevation. All imported fill materials and on-site material shall be placed in a controlled manner, utilizing maximum lift thicknesses of 12 inches and be compacted with vibratory compaction equipment. All Type S fill shall be compacted to a minimum of 95% of their Modified Proctor Density. On-site materials placed as backfill outside the building limits shall be compacted to 90% of its Modified Proctor Density. The compaction levels shall be confirmed in the field in accordance with ASTM Designation D-1557. Moisture-density relationships shall be established in accordance with ASTM Designation D-1556 and be observed in the field during placement procedures.
  3. Provide 6 inches of porous fill under floor slabs to achieve final floor slab subgrade elevation.
  4. Provide 4 inches of porous fill under exterior concrete sidewalks and pads.
- F. Stability of Excavations: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
1. Maintain sides and slopes of excavations in safe condition until completion of backfilling.



- G. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.
1. It will be the Contractor's responsibility to provide sheet piling and other shoring as required to protect existing facilities from damage during excavation. Such work shall be designed by a professional engineer licensed in New Jersey, and shop drawings submitted to Architect for information purposes. Damage to existing structures or pavement caused by earthwork operations shall be repaired to Architect's satisfaction.
  2. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.
  3. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
- H. All existing construction debris, old foundations, floors and any other old construction encountered shall be removed entirely from the building and paved areas; replaced with Type S structural fill.
- I. Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
1. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
  2. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.
  3. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
    - a. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.
- J. Excavation for Pavements: Cut surface under pavements to comply with cross-sections, elevations and grades as shown. Also see subparagraph D.1.a. above.
- K. Excavation for Trenches: Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room and per typical trench detail where shown.
- L. Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F.
- M. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.

1. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
2. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

### **3.2 COMPACTION**

- A. General: Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below.
- B. Percentage of Maximum Dry Density Requirements: Compact soil to not less than the following percentages of maximum dry density for soils which exhibit a well-defined moisture density relationship (cohesive soils) determined in accordance with ASTM D 1557.
  1. Structures, Building Slabs and Steps, Pavements: Compact top 12" of subgrade and each layer of backfill or fill material at 95% Modified Proctor in accordance with ASTM D-1557.
  2. Lawn or Unpaved Areas: Compact top 6" of subgrade and each layer of backfill or fill material at 90% Modified Proctor in accordance with ASTM D-1557.
  3. Walkways: Compact top 6" of subgrade and each layer of backfill or fill material at 95% Modified Proctor in accordance with specification section ASTM D-1557.
  4. In Detention Basin Embankments: Compact top 6" of subgrade and each layer of backfill or fill material at 95% Standard Proctor in accordance with specification section ASTM D-698.
- C. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
  1. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
  2. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

### **3.3 BACKFILL AND FILL**

- A. General: Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.
  1. Under grassed areas, use satisfactory excavated or borrow material.
  2. Under steps and building slabs, use compacted structural fill or on site materials permitted for use as structural fill.

3. Under pavements use Imported Granular Fill, as defined herein.
- B. Backfill excavations as promptly as work permits, but not until completion of the following:
1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
  2. Inspection, testing, approval, and recording locations of underground utilities.
  3. Removal of concrete formwork.
  4. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.
  5. Removal of trash and debris.
  6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.
  7. Maintain carefully all bench marks, monuments and other reference points; if disturbed or destroyed, replace as directed.
- C. Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.
1. When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.
- D. Placement and Compaction: Place backfill and fill materials in layers not more than 8" in loose depth for material compacted by heavy compaction equipment, and not more than 4" in loose depth for material compacted by hand-operated tampers and /or in confined areas.
1. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density per ASTM D-1557 test procedure or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
  2. Place backfill and fill materials evenly adjacent to structures, piping or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping or conduit to approximately same elevation in each lift.
  3. Proofrolling of soils within 10 feet of existing building shall be performed with vibrator disengaged.

- E. Additional material required for filling, backfilling and grading:
1. The on-site soils removed during excavation are suitable for reuse as fill outside the building and other pavement areas when placed in a controlled manner.
  2. Material which may be required in addition to that obtained from excavations, shall be provided by the contractor. Such material shall be as specified hereinbefore. Such material shall be provided at no additional cost to the Owner, in sufficient quantity to compensate for the "fluff factor", to provide compacted grade at the elevations shown or required.
  3. Imported fill material must include a written certification from the supplier stating that the fill is virgin material and if it is from a commercial or non-commercial source. The material shall also be certified free of contamination or hazardous materials.

### **3.4 GRADING**

- A. Areas which will receive the floor slabs or pavement shall be graded and proof-rolled with vibratory compaction equipment to densify the soil surface and delineate potential soft areas.
- B. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.
- C. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding.
1. Finish surfaces free from irregular surface changes, and as follows:
    - a. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10' above or below required subgrade elevations. Plan grades and spot elevations are to final surface.
    - b. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10' above or below required subgrade elevation.
    - c. In addition to the above tolerances, slope between any two points shall not vary more than 1.5 inches in 100 feet from the slope indicated.
- D. Grading Surface of Fill under Building Slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2" when tested with a 10' straightedge.
- E. The cutting, filling and grading within the building area, together with sufficient area outside of the filled areas of the building to provide a slope of 1 vertically to 4 horizontally beyond the building walls, shall be done before excavations are made for footings and foundation walls.

### **3.5 MAINTENANCE**

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

- B. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
  - 1. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.
  - 2. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

### **3.6 DISPOSAL OF WASTE MATERIALS**

- A. Removal from Owner's Property: Remove waste materials, including excess excavated material, trash and debris, and dispose of it off Owner's property in a legal manner.

### **3.7 RECORD DRAWING**

- A. As the work progresses, record on one set of grading drawings all changes and deviations from the Contract Drawings in line and finished grade.
- B. All record drawing verifications must be executed by a licensed surveyor.
- C. Record Drawings shall be submitted to Architect when all parking lots, sidewalks and rough grading are complete. Contractor shall not spread topsoil until written notice to proceed is issued by the Architect.
- D. At the completion of the work, transfer accurately all such records in waterproof ink mylar reproducibles of the grading drawings, have them certified by the licensed surveyor and deliver same to the Architect.

**END OF SECTION 02200**

## **SECTION 02485 - FINISH GRADING AND SEEDING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of work is shown on the drawings and in schedules.
- B. The work includes, but is not limited to the following.
  - 1. Soil erosion and sediment control.
  - 2. Fine grading of topsoil.
  - 3. Application of lime and fertilizer.
  - 4. Seeding.
  - 5. The task items specified in 1 through 4 above must be applied to all disturbed areas, whether or not indicated on the drawings. Include adjacent property wherever grass is disturbed in execution of this contract.
- C. See notes on drawings for additional requirements relating to work of this section.
- D. Subgrade Elevations: Excavation, filling and grading required to establish elevations shown on drawings are not specified in this section. Refer to Section 02200 - Earthwork.
- E. Refer to Section 02200 - Earthwork for As-Built drawings required prior to finish grading and seeding work.

#### **1.3 QUALITY ASSURANCE**

- A. Conform to the requirements of "Standards for Soil Erosion and Sediment Control in New Jersey", current edition.
- B. Analysis and Standards: Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.

#### **1.4 SUBMITTALS**

- A. Certification: Submit certificates of inspection as required by governmental authorities, and manufacturer's or vendors certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Certified analysis of a recognized laboratory shall be submitted for topsoil; analysis shall be

made to determine compliance with requirements for topsoil as hereinafter specified under "Materials". Additional topsoil may be required. The costs of the tests shall be borne by the Contractor. Reports of the tests shall be submitted to the Architect in writing.

- B. Lawn Seed: Furnish in duplicate, signed copies of a statement from the vendor, certifying that each container of seed delivered is fully labeled in accordance with the Federal Seed Act. This certification shall appear on or with all copies of invoices for seed.
- C. Furnish in duplicate copies of invoices for all fertilizer used on the project.

**1.6 JOB CONDITIONS**

- A. Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- B. Special Project Warranty: Refer to Part 1, Section 01900, Guarantees and Warranties.

**PART 2 - PRODUCTS**

**2.1 TOPSOIL**

- A. The existing topsoil shall be tested and, if necessary, shall be made to conform to the pH acidity range and percentage of organic matter, and other requirements as listed below. Additional topsoil may be required; it shall be furnished by the Contractor at no additional expense, and shall be tested and made to meet the requirements listed below. Tests shall be made by the Contractor at his expense.
- B. All topsoil (new and existing) shall be of uniform quality, free from hard clods, roots, sods, stiff clay, hard pan, stones larger than 1 inch, lime cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks, or any undesirable material.
- C. Topsoil shall contain organic matter in accordance with the current method of the Local Soil Conservation District. The acidity range shall be Ph 5.0 to Ph 7.0 inclusive.
- D. The mechanical analysis of the soil shall be:

<b>Quantity Percent oven dry weight</b>	<b>Size Fraction</b>	<b>Range of Particle Diameter in Inches</b>
Less than 2%	Gravel	Larger than 1
Less than 3%	Gravel	1/4 to 1
Less than 10%	Gravel	2/25 to 1/4
40% to 65%	Sand	1/500 to 2/25
25% to 60%	Silt	1/12,500 to 1/500
Less than 20%	Clay	Smaller than 1/12, 500

Passing	Retained On	Percent
1" Screen		100%
1" Screen	1/2" Screen (gravel not more than)	3%
1/4" Screen	#10000USS Sieve (coarse, medium & fine sand)	40-60%
	#100USS Sieve (very fine sand, silt & clay)	40-60%

- E. Obtain topsoil from local sources or from areas having similar soil characteristics to that found at project site. Obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth of not less than 4 inches; do not obtain from bogs or marshes.

## 2.2 SOIL AMENDMENTS

- A. Provide the following as recommended by the Local Soil Conservation District or if not required by the District provide as indicated below.
- B. Lime: Natural limestone containing not less than 85% of total carbonates, ground so that not less than 90% passes a 10-mesh sieve and not less than 50% passes a 100-mesh sieve.
1. Agriculture Pulverized Limestone: 50% calcium availability.
  2. Commercial Fertilizer: Complete fertilizer of neutral character with some elements derived from organic sources and containing following percentages of available plant nutrients.
  3. Provide fertilizer with not less than 4% phosphoric acid and not less than 2% potassium, and percentage of nitrogen required to provide not less than 1 pound of actual nitrogen per 1000 square feet of lawn area. Provide nitrogen in a form that will be available to lawn during initial period of growth.
- C. Weed Killer: Type selected by the Seeding Subcontractor and approved by the local authorities having jurisdiction. Apply to planting and ground cover areas, in strict accordance with the manufacturer's recommendations.
- D. Grass seed shall be fresh, re-cleaned seed of the latest crop mixed in the following proportions by weight and meeting the following standards of pure live seed content. The tolerance for P.L.S. (purity x germination) shall be those called official and tabulated on page 5, Department of Agriculture Bulletin No. 480.
1. Lawn Material Mix: Low Maintenance, Droughty and Heavy Traffic Areas
    - a. 80% - Tall Fescue Turf Type (Low Grow Variety)\*#
    - b. 10% - Perennial Ryegrass (Low Grow Variety)
    - c. 10% - Kentucky Bluegrass
(\* Include three different varieties in the mix)  
(# Exclude K-31)  
Rate = 200 lbs/acre



2. All seed shall be fresh and clean and shall be "new crop" seed. All seed shall be delivered in the original packages, unopened, which shall bear the manufacturer's guaranteed analysis. No packages shall be opened or seed labels removed until inspected by the Architect.
- E Water: Water used in the work will be suitable for irrigation and free from ingredients harmful to plant life. Hose and other water equipment required for the work shall be furnished by the Contractor.

## **PART 3 - EXECUTION**

### **3.1 GENERAL REQUIREMENTS**

- A. Perform all work to reasonably control soil erosion resulting from construction operations, including the work of other contractors on the project, and to prevent excessive flow of sediment from the construction site.
- B. When no work will be performed on critical areas for more than 30 days, they shall be protected by temporary seeding, and mulching in accordance with drawings. Earth berms or diversions shall be constructed to intercept and divert runoff water away from critical areas.
  1. Diversion outlets shall be stable or shall be stabilized by paving or other means acceptable to Architects.
- C. Permanent restoration of vegetative cover on all areas shall be accomplished within 10 days after final grading operations have been completed. Time extensions beyond the 10 days requirement may be requested in writing and are subject to written approval by the Architect.
- D. Excavated soil materials shall not be placed adjacent to wetlands streams and bodies of water.
- E. Pollutants such as chemicals, fuels, lubricants and other harmful waste shall not be discharged into or alongside of streams, wetlands, impoundments or into natural or man-made channels leading thereto.

### **3.2 PROTECTION FOR CRITICAL AREAS**

- A. Except as otherwise directed by the Soil Conservation District, the type of protection for critical areas shall be optional with the Contractor.
- B. Protection shall be by means of straw mulch, hydro seeding or matting, applied in conformance with referenced standards.
- C. Critical areas shall be those areas subject to excessive erosion due to highly erodible soils, slope length and steepness or water concentrations, including overflow spillways.

### **3.3 PREPARATION OF SUBGRADE AND SPREADING OF TOPSOIL**

- A. The subgrade soil shall be loosened to a depth of 6 inches and graded to remove all ridges and depressions so that it will be everywhere parallel to proposed finished grade. All stones

over 2 inches in any dimension, sticks, rubbish and other extraneous matter shall be removed during this operation. No heavy equipment shall be moved over lawn areas after the subgrade soil has been prepared before topsoil is spread. This scarification must be done and approved before topsoil is spread.

- B. After the subgrade soil has been prepared, topsoil shall be spread evenly thereon and the area then rolled with a 200 lb. roller so as to produce a compact depth of 6 inch topsoil. No topsoil shall be spread in frozen or muddy conditions. In all lawn areas, the finished surface of the topsoil shall conform and shall be free from hollows or other inequalities, stones over 1 inch every dimension, sticks, and other extraneous matter.

### **3.4 SEEDBED PREPARATION, FERTILIZING AND SEEDING**

- A. Before any seed is sown, the topsoil shall be cultivated (raked) to a depth of 3-4" to produce an even, friable surface or moderately coarse particles. Do not work soil into dusty powder. No fertilizer shall be applied or seed sown on any area which has not been so prepared.
- B. Fertilizer and limestone shall be applied to lawn areas at the rate as indicated on drawings. Fertilizer and limestone shall be spread evenly on the newly prepared soil prior to seeding and incorporated into the topsoil.
- C. Ground limestone shall be evenly distributed in an amount related to the pH and worked into the top 3 inches of soil at least 5 days before applying commercial fertilizer. Commercial fertilizer shall be worked lightly into the top 3 inches of the soil of new areas.
- D. Lawn areas shall be seeded at the rates specified. The seed shall be sown in a uniform application by the use of an accurate spreader, properly calibrated, in the opposite direction of fertilization. The spreader shall be set at the specified rate. After the seed has been applied lightly, mix into surface by pulling a short section of chain link fence (or an alternate method if approved by the Architect) over the seeded area. Do not roll seed bed unless specifically ordered by the Architect. If rolling is deemed necessary by the Architect, it shall be done with 100 lb. roller or less and under his direction.

### **3.5 MULCHING**

- A. Mulching is required on all seeding. Mulch will insure against erosion before grass is established and will promote faster and earlier establishment. (The existence of vegetation sufficient to control soil erosion shall be deemed compliance with this mulching requirement.)
  - 1. Mulch materials should be unrotted small grain straw, hay free of seeds, or salt hay to be applied at the rate of 1-1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of a liquid mulch-binder (tackifying or adhesive agent), the rate of application must be double the lower rate. Mulch chopper-blowers must not grind the material.
  - 2. Spread uniformly by hand or mechanically so that approximately 75% to 95% of the soil surface will be covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square feet sections and distribute 70 to 90 pounds within each section.

3. Mulch anchoring should be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes, and costs.
  - a. Peg and Twine - Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross and a square pattern. Secure twine around each peg with two or more round turns.
  - b. Mulch Nettings - Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting in areas to be mowed.
  - c. Crimper (mulch anchoring tool) - A tractor-drawn implement, somewhat like a discharrow, especially designed to push or cut some of the broadcast long fiber mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.
  
4. Liquid Mulch-Binders - May be used to anchor salt hay or straw mulches.
  - a. Applications should be heavier at edges where wind catches the mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance.
  - b. Use one of the following:
    - (1) Emulsified asphalt - (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, and CRS-2). Apply 0.04 gal./sq./yd. or 194 gal./acre on flat slopes less than 8 feet high. On slopes 8 feet or more high, use 0.075 gal./sq. yd. or 363 gal./acre.
    - (2) Cutback asphalt - rapid curing (RC-70, RC-250, and RC-800) or medium curing (MC-250 or MC-800). Apply 0.04 gal./sq. yd. or 194 gal./acre on flat areas and on slopes less than 8 feet high. On slopes 8 feet or more high, use 0.075 gal./sq. yd. or 363 gal./acre.
    - (3) Synthetic or Organic binders - binders such as Curasol, DCA-70, Petro-set, Terra-Tack; or approved equal, may be used at rates recommended by the manufacturer to anchor mulch materials.

NOTE: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.
  
5. Wood-fiber or paper-fiber mulch at the rate of 1,500 pounds per acre may be applied by a hydro seeder. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.

### **3.6 SEEDING PERIOD**

- A. Seeding shall be executed according to the following schedule: From 28 February to 15 April or 15 August to 1 November. This period may be extended or reduced according to prevailing weather conditions at the time, as directed by the Architect.

### **3.7 LAWN PROTECTION**

- A. Adequate protection shall be provided at all times for lawn areas against trespassing by any individuals and damage of any kind during planting or other operations. Such protection shall be maintained from the completion of seeding to the completion of the Contract Work.

### **3.8 MAINTENANCE OF LAWNS**

- A. The Contractor shall be responsible for all areas during the period when the grass is becoming established and until all work under this Contract is completed and accepted.
- B. Maintenance shall include but not be limited to reseeding, watering, mowing and reworking as follows:
  - 1. Reseeding of any bare areas.
  - 2. Proper and adequate watering.
    - a. The lawn area shall be watered 3 times a day lightly (5 minute duration) until germination.
    - b. Upon germination, the lawn area shall be watered twice a week with an accumulation of ½ inch of water at each watering.
    - c. The above watering schedule is a minimum and shall be changed at the discretion of the Architect according to climatic conditions, etc.
  - 3. If any portion of the surface becomes gullied or otherwise damaged following seeding, the affected portion shall be repaired to re-establish the conditions and grade of the soil prior to seeding and shall then be reseeded as specified herein.
- C. Mowing: The grass shall be properly mowed to a height of 2 inches when the grass attains a height of 3 inches. It is essential that at all times the mower blades are kept sharp.
- D. Reworking and reseeding of any areas which fail to show a uniform stand of grass shall be done at the Contractor's expense with the same seed mixture applied at the rate originally used and repeated until all areas are covered with a satisfactory stand of grass.
- E. It is the Contractor's responsibility to carry out the above operations on a continuing basis until a uniform, thick stand of specified grasses is established and until acceptance by the Architect.

### **3.9 INSPECTION AND ACCEPTANCE**

- A. Inspection of the seeding and related work to determine completion of Contract work will be made by the Architect upon notice requesting such an inspection by the Contractor several days prior to the anticipated date. The conditions of the planting and lawns will be noted and determination made by the Architect whether maintenance shall be continued in any part.
- B. After inspection, the Contractor will be notified in writing by the Architect of acceptance of the work or, if there are any deficiencies, the requirements for completion of the work. Remaining work to be done shall be subject to inspection before acceptance. Maintenance shall become the responsibility of the Owner immediately upon acceptance.

### **3.10 CLEAN UP**

- A. The Contractor shall dispose of excess materials and debris including but not limited to branches, paper, and rubbish resulting from this work.

- B. All areas shall be left neat, clean and upon completion of the work, the site shall be left in an orderly condition satisfactory to the Architect.

**END OF SECTION 02485**

## SECTION 02837 - PVC FENCING AND GATES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to the work of this Section.

#### 1.2 DESCRIPTION OF WORK

- A. Extent of PVC fences and gates is indicated on drawings and the following.
- B. Refer to Section 02200, Earthwork, for excavation and backfill required work.
- C. Refer to Section 03300, for site concrete work required.

#### 1.3 QUALITY ASSURANCE

- A. Provide types of fences and gates as complete units controlled by a single source including necessary erection accessories, fittings, and fastenings.

#### 1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data, and installation instructions for fencing, gates and accessories.
- B. Shop Drawings: Submit shop drawings indicating location of fences and gates. Include details of each framing type and size, elevation of fencing, condition at each gate, details of construction, location and installation requirements for hardware and reinforcements, and details of anchorage and accessory items.
- C. Samples: Color selection for available finishes.

#### 1.5 WARRANTY

- A. Manufacturer's standard form in which the manufacturer warrants to the owner that the product will be free from manufacturing defects - including peeling, flaking, blistering and corroding - during the warranty period.
  - 1. Warranty period: **Thirty (30) years** from date of installation.

### PART 2 - PRODUCTS

#### 2.1 GENERAL

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include; but are not limited to, the following. Obtain fence and gates, including accessories, fittings, and fastenings, from a single source.
  - 1. Certainteed; or approved equal.

#### 2.2 MATERIALS

- A. Basis of Design: Designs based on the following types:

1. Solid Privacy Fence, as indicated on the drawings. "Brookline Smooth" style or approved equal.
- B. Provide all system components, including but not limited to the following:
  1. 2" x 6" ribbed top rail, 2"x8" ribbed bottom rail, 5"x5" posts, caps, aluminum channels for bottom rail only, tubing, brackets, hardware and accessories.
  2. Concrete: Provide concrete consisting of portland cement, ASTM C 150, aggregates ASTM C 33, and clean water. Mix materials to obtain concrete with a minimum 28-day compressive strength of 3500 psi using at least 4 sacks of cement per cu. yd., 1" maximum size aggregate, maximum 3" slump, and 2% to 4% entrained air.
  3. Obtain fence, gates, accessories, fittings, and fastenings, from the same manufacturer.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Do not begin installation and erection before final grading is completed, unless otherwise permitted.
- B. Excavation: Drill or hand excavate (using post hole digger) holes for posts to diameters and spacings indicated, in firm, undisturbed or compacted soil.
  1. If not indicated on drawings, excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than 4 times largest cross-section of post.
  2. Unless otherwise indicated, excavate hole depths approximately 6" lower than post bottom, with bottom of posts set not less than 36" below finish grade surface.
- C. Setting Posts: Center and align posts in holes 6" above bottom of excavation.
  1. Place concrete around posts and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.
- D. All fencing components shall be installed in strict conformance with the manufacturer's specifications. No deviation from them will be permitted unless specifically approved by the manufacturer in writing.

**END OF SECTION 02837**

## **SECTION 03300 - CONCRETE WORK**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

#### **1.2 SUMMARY**

- A. Extent of concrete work is shown on the drawings.
- B. Concrete footings.

#### **1.3 SUBMITTALS**

- A. Product Data: Submit data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds and others as required by Architect.
- B. Samples: Submit samples of materials as requested by Architect, including names, sources and descriptions.
- C. Laboratory Test Reports: Submit laboratory test reports for concrete materials and mix design test.
- D. Materials Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by Architect. Materials certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.
- E. Shop Drawings: Reinforcement: Submit shop drawings for fabrication, bending and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing diagrams of bent bars, arrangement of concrete reinforcement.

#### **1.4 QUALITY ASSURANCE**

- A. Codes and Standards: Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:

ASTM C94/C94M "Specification for Ready-Mixed Concrete"

ACI 117 "Tolerances for Concrete Construction and Materials"

ACI 211.1 "Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete"

ACI 301/301M "Structural Concrete for Buildings."



ACI 302.1R	"Guide for Concrete Floor and Slab Construction"
ACI 304R-00	"Guide for Measuring, Mixing, Transporting and Placing Concrete"
ACI 305R	"Hot Weather Concreting"
ACI 306R	"Cold Weather Concreting"
ACI 308.1	"Standard Specification for Curing Concrete"
ACI 311.1R	"ACI Manual of Concrete Inspection (SP-2)"
ACI 311.4R	"Guide for Concrete Inspection"
ACI 318	"Building Code Requirements for Reinforced Concrete", except as modified in accordance with International Building Code.
ACI 347R	"Guide to Formwork for Concrete"

Concrete Reinforcing Steel Institute, "Manual of Standard Practice."

- B. Concrete Testing Service: The Owner shall engage a testing laboratory acceptable to Architect to perform material evaluation tests and to design concrete mixes.
- C. Materials and installed work may require testing and retesting at anytime during progress of work. Tests, including retesting of rejected materials for installed work, shall be done at Contractor's expense.
- D. Installation of Vapor Barrier: Installation shall be in accordance with manufacturer's direction and in compliance with ASTM E 1745 "Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs".

## **PART 2 - PRODUCTS**

### **2.1 REINFORCING MATERIALS**

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- C. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.
- D. Welded Deformed Steel Wire Fabric: ASTM A 497.
- E. Supports for Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications.

### **2.3 CONCRETE MATERIALS**

- A. Portland Cement: ASTM C 150, Type I or Type II.

1. Use one brand of cement throughout project, unless otherwise acceptable to Architect.
- B. Normal Weight Aggregates: ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.
- C. Water: Drinkable.
- D. Water-Reducing Admixture: ASTM C 494, Type A, and containing not more than 0.05 percent chloride ions.
  1. Products: Subject to compliance with requirements, provide one of the following:
    - a. "WRDA" Hycol"; W.R. Grace.
    - b. "Eucon WR-75" or "Eucon WR-89"; Euclid Chemical Co.
    - c. "Pozzolith 322N"; Master Builders.
    - d. "Plastocrete"; Sika Corp.
    - e. Or approved equal
- E. Water-Reducing, Retarding Admixture: ASTM C 494, Type D and containing not more than 0.05 percent chloride ions.
  1. Products: Subject to compliance with requirements, provide one of the following:
    - a. "Pozzolith Retarder"; Master Builders.
    - b. "Eucon Retarder 75"; Euclid Chemical Co.
    - c. "Daratard 17"; W.R. Grace.
    - d. "Plastocrete 161R"; Sika Corporation.
    - e. Or approved equal
- G. Prohibited Admixtures: Calcium chloride thycyanates or admixtures containing more than 0.05 percent chloride ions are not permitted.

## **2.4 RELATED MATERIALS**

- A. Non-Shrink Grout: CRD-C 621, factory pre-mixed grout.
  1. Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
    - a. Non-metallic:
      - 1) "Masterflow 713"; Master Builders
      - 2) "Euco-NS"; Euclid Chemical Co.
      - 3) "Five Star Grout"; U.S. Grout Corporation.
      - 4) Or approved equal
- B. Absorptive Cover: Burlap cloth made from jute or kenaf weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.
- C. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
  1. Waterproof paper.
  2. Polyethylene film.
  3. Polyethylene-coated burlap.

- D. Clear curing and sealing compound (VOC Compliant): The compound shall have 30% solids content minimum, and will not yellow under ultra violet light after 500 hours of test in accordance with ASTM D 4887 and will have test data from an independent testing laboratory indicating a maximum moisture loss of 0.039 grams per sq. cm. when applied at a rate of 300 sq. ft. per gallon. Sodium silicate compounds are not permitted.
1. Product: "Super Diamond Clear Vox" by Euclid Chemical Co.; or approved equal.
- E. Vapor Barrier: Provide vapor barrier cover over prepared base material where indicated. Use only materials which are resistant to decay when tested in accordance with the following:
1. Thickness: 15 mils.
  2. Permeance: ASTM E 96; .01 perms before and after conditioning and in accordance with ASTM E 1745 Class A requirements and ATM E 154 for mandatory conditioning tests.
  3. Puncture Resistance: ASTM D 1709; 2200 grams.
  4. Chemical Resistance: ASTM E 154, unaffected.
  5. Life Expectancy: ASTM E 154, indefinite.
  6. Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
    - a. "Wrap 15-mil " Vapor Barrier; Stego Industries, LLC.
    - b. "VaporFLEX" by Layfield.
    - c. "Moistop Ultra 15-mil" by Fortifiber.
    - d. "Griffolyn G15" by Reef.
    - e. Or approved equal.
  7. Accessories: Seam tape; ASTM E 96 , 0.3 perms or lower.
  8. Vapor barrier sheets with seams overlapped not less than 12".
  9. **All penetrations must be sealed using a combination of the manufacturer's tape and/or mastic.**
  10. Installation shall be in accordance with manufacturer's direction and in compliance with ASTM E 1643-98 "Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs". Include manufacturer's recommended adhesive or pressure-sensitive tape.
- F. Joint-Filler Strips: ASTM D 1752, cork or self-expanding cork.

## 2.5 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.

- B. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Architect.
- C. Design mixes to provide normal weight concrete with the following properties, as indicated on drawings and schedules:
  - 1. 3500 psi 28-day compressive strength; W/C ratio, 0.47 maximum.
- D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be admitted to and accepted by Architect before using in work.
- E. Admixtures:
  - 1. Use water-reducing admixture or high range water-reducing admixture (super plasticizer) in concrete as required for placement and workability.
  - 2. Use admixtures for water-reducing and set-control in strict compliance with manufacturer's directions.
- F. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
  - 1. Ramps, slabs and sloping surfaces: Not more than 3".
  - 2. Other concrete: Not less than 1" nor more than 4"

## **2.6 CONCRETE MIXING**

- A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
- B. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.

## **PART 3 - EXECUTION**

### **3.1 PLACING REINFORCEMENT**

- A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.
  - 1. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations.
- B. Clean reinforcement of loose rust and mill scale, earth, ice and other materials which reduce or destroy bond with concrete.

- C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required.
- D. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

### **3.2 JOINTS**

- A. Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate at a maximum spacing of 90 feet, so as not to impair strength and appearance of the structure, as acceptable to Architect.
- B. Control Joints: Locate and install control joints as indicated or at a maximum spacing of 30 feet. Locate at a spacing which does not impair appearance of the structure as acceptable to Architect.
- C. Joint filler and sealant materials are specified in Section 07900.

### **3.3 INSTALLATION OF EMBEDDED ITEMS**

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.
- B. Edge Forms and Screed Strips for Slabs: Set edge forms, or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.
- C. Installation of Vapor Barrier: Install materials in accordance with manufacturer's direction and in compliance with ASTM 1643-98 "Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs".
  - 1. Seal all slab penetrations with manufacturer's approved or recommended tapes, sealants, adhesives, and other materials to achieve indicated testing requirements.
  - 2. Protect vapor barrier materials during construction operation, repair or replace damaged material with new materials.

### **3.4 CONCRETE PLACEMENT**

- A. Pre-placement inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten

wood forms immediately before placing concrete where form coatings are not used.

1. Apply temporary protective covering to lower 2' of finished walls adjacent to poured floor slabs and similar conditions, and guard against spattering during placement.
- B. General: Comply with ACI 304R-00 "Guide for Measuring, Mixing, Transporting and Placing Concrete", and as herein specified.
- C. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.
- D. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
- E. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- F. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
- G. Maintain reinforcing in proper position during concrete placement operations.
- H. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which would be caused by frost, freezing actions or low temperatures, in compliance with ACI 306R.
- I. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.
- J. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305R.

### **3.5 MONOLITHIC SLAB FINISHES**

- A. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo, and as otherwise indicated.
- B. After screeding, consolidating and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level surface plane to tolerances as follows:
  1. Ff 15 - Fl 12 For carpeted areas
  2. Ff 21 - Fl 15 For thin-set flooring

Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

- C. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or other thin film finish coating system.
- D. After floating, begin first trowel finish operation using a power driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances as follows:
  - 1. Ff 25 - Fl 20 For carpeted areas
  - 2. Ff 35 - Fl 25 For thin-set flooring

Grind smooth surface defects which would telegraph through supplied floor covering system.

### 3.6 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
- C. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 308 (latest edition) procedures. Avoid rapid drying at end of final curing period.
- D. Curing Methods: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing and by combinations thereof, as herein specified.
- E. Provide moisture curing by following methods.
  - 1. Keep concrete surface continuously wet by covering with water.
  - 2. Continuous water-fog spray.
  - 3. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 12" lap over adjacent absorptive covers.
- F. Provide moisture-cover curing as follows:
  - 1. Cover concrete surfaces with moisture-retaining cover for curing concrete, place in widest practicable width with sides and ends lapped at least 12" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- G. **Do not use membrane curing compounds on surfaces which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, dampproofing,**

**membrane roofing, flooring (such as ceramic or quarry tile, glue-down carpet), painting and other coatings and finish materials, unless otherwise acceptable to Architect.**

- H. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing method.
- I. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture retaining cover, unless otherwise directed.

### **3.7 CONCRETE SURFACE REPAIRS**

- A. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness using a template having required slope.
- B. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets and other objectionable conditions.
- C. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.
- D. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Architect.
- E. Underlayment Application: Leveling of floors for subsequent finishes may be achieved by use of specified underlayment material.

### **3.8 QUALITY CONTROL TESTING DURING CONSTRUCTION**

- A. The Owner will employ and pay for a testing laboratory to perform the following tests, inspect formwork and reinforcement placement and to submit test reports. Testing laboratory must be pre-approved by the Architect.
- B. Sampling and testing for quality control during placement of concrete may include the following, as directed by Architect.
- C. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
  - 1. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
  - 2. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.



- D. Compression Test Specimen: ASTM C 31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
- E. Compressive Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yds. plus additional sets for each 50 cu. yds. over and above the first 25 cu. yds. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
- F. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.
- G. Test results will be reported in writing to Architect, Structural Engineer and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.
- H. Nondestructive Testing: Impact hammer, sonoscope or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- I. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.

**END OF SECTION 03300**

## **SECTION 03452 - CEMENT BASED SELF-LEVELING UNDERLAYMENT**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Extent of Cement Based Self Leveling underlayment for application under flooring work as indicated on drawings.
- B. Related Sections:
  - 1. Section 01455 - Concrete In-Situ Relative Humidity and pH Testing
  - 2. Section 09650 - Resilient Flooring
  - 3. Section 09685 - Carpet Tile

#### **1.3 DEFINITIONS**

- A. Self-Leveling underlayment for flooring includes systems which consist of materials specially formulated, cementitious self-smoothing, rapid hardening compound to level and repair existing interior concrete slabs.

#### **1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's specifications, installation instructions, and general recommendations for each major product required. Include data substantiating that products to be furnished comply with requirements of the contract documents.
- B. Test Reports: Submit results of testing specified.
  - 1. Certificates: Submit manufacturer's test data certifying compliance with specified performance requirements.
  - 2. Test reports: Submit test data for moisture content and hydrostatic pressure of existing concrete slab.
- C. Certificates: Submit manufacturer's certification that products comply with requirements of the contract documents.

#### **1.5 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Obtain required products from a single manufacturer.

- B. **Manufacturer Experience:** Provide products of this section by companies which have successfully specialized in production of this type of work for not less than 5 years.
- C. **Installer's Qualifications:** All work of this section shall be performed by an experienced applicators, licensed by the manufacturer of the system and successfully completed this type of work for the last 2 years.
- D. **Codes and Standards:** Comply with requirements of the contract documents or of governing codes and authorities having jurisdiction.
- E. **Mock-up:** Prior to installation of work of this section, erect sample at location directed by or acceptable to the Architect, using specified materials and workmanship to be expected in the completed work. Once mock-up has been approved by the Architect, retain until the work has been completed and accepted.
  - 1. **Configuration:** Approximately 4 feet by 4 feet.
  - 2. Mock-up may not be incorporated into the final work; demolish and remove from site when directed by the Architect.
- F. **Pre-installation Conference:** Prior to installation of work of this section, conduct a meeting at the project site to discuss quality assurance requirements. In addition to the contractor and the installer, arrange for attendance of the following:
  - 1. Other installers affected by the work of this section.
  - 2. The Owner's Representative.
  - 3. The Architect.
  - 4. Manufacturer's Representative.
  - 5. Supplier.
- G. **Allowable Tolerances:**
  - 1. **Variation from Level:** Do not exceed 1/4 inch in any bay or 10 feet in distance.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Keep materials dry at all times. Protect against exposure to weather and against contact with damp or wet surfaces.
- B. Store materials on one site to maintain proper separation and grading integrity. Cover materials to prevent excessive accumulation of moisture.
- C. Protect materials from excessive moisture in shipment, storage, and handling. Deliver materials in manufacturer's unopened packages, and store in dry place with adequate air circulation.
- D. **Storage:** Stack products of this section carefully to provide air circulation within stacks.

## 1.7 PROJECT CONDITIONS

- A. Environmental Requirements: Do not proceed with installation when air temperatures are below 40°F, or above 95°F, unless protective measures acceptable to the manufacturer are taken.
- B. Do not proceed with installation until temperature and relative humidity have been stabilized and will be maintained within values established by the manufacturer for optimum quality control.
- C. Provide adequate ventilation to prevent accumulation of hazardous fumes during application of components in enclosed spaces, and maintain ventilation until materials have thoroughly cured.

## 1.8 SEQUENCING AND SCHEDULING

- A. Coordinate work of this section with other trades and installation of special construction and equipment.

## 1.9 WARRANTY

- A. Special Project Warranty: Submit a written warranty signed by the manufacturer, the contractor, and the installer, guaranteeing to correct failures in materials and workmanship which occur within the warranty period, including those attributable to abnormal aging, without reducing or otherwise limiting any other rights to correction which the Owner may have under the contract documents.
  - 1. The warranty shall include responsibility for removing and replacing other work as necessary to accomplish repairs or replacement of materials covered by the warranty.
    - a. Warranty period: **Two (2) years** after date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis of Design: "Ultraplan Easy" or "Ultraplan 1 Plus", as manufactured by Mapei Corporation; or approved equal.
- B. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include the following:
  - 1. "Silflo 230", as manufactured by Silpro, LLC,
  - 2. "K15 ", as manufactured by Ardex, Inc.,
  - 3. Equivalent system from USG,
  - 4. Or approved equal

## 2.2 MATERIALS

- A. Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in uniform thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations to 2" in a single lift.
  - 1. Cement Binder: ASTM C 150, Portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C-219.
  - 2. Compressive Strength: Not less than 4,100 psi at 28 days when tested according to ASTM C109.
- B. PHYSICAL PROPERTIES - (Basis of Design)
  - 1. Provide self - leveling underlayment system in which physical properties of topping including aggregate, which meets or exceeds the following requirements:
    - a. Compressive Strength: ASTM C109, greater than 4,100 psi. after 28 days.
    - b. Flexural Strength: ASTM C348, greater than 1,070 psi after 28 days.
    - c. Final set at 50 - 95°F: 2 - 3 hours.
    - d. Time required before installation of stile: Typically 3 hours

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Inspect substrates and conditions under which the work of this section will be performed, and verify that installation properly may commence. Do not proceed with the work until unsatisfactory conditions have been resolved fully.
  - 1. Commencement of work shall constitute acceptance of conditions. Any necessary remedial work required to correct any unsatisfactory conditions, found after the start of installation, will be provided at no cost to the Owner.
- B. Testing: Perform required testing of existing concrete slab, for hydrostatic pressure and moisture content. Follow manufacturer's recommended procedures for testing slab. Do not proceed with the work until unsatisfactory conditions have been resolved fully.

### 3.2 PREPARATION

- A. Clean substrate, removing projections, all loose material and substances detrimental to the work; comply with recommendations of manufacturer of products to be installed for proper preparation procedures.
- B. Prepare substrate in accordance with recommendations of manufacturer for optimum installed performance.
- C. Mask off or otherwise protect adjacent surfaces not scheduled to receive products of this section.

- D. Coordinate installation with other trades, report conditions in writing to the Owner/Architect. Do not proceed with application work until any unsatisfactory conditions have been corrected.

### **3.3 APPLICATION**

- A. General: Comply with manufacturer's instructions, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.
  - 1. Apply materials in a featheredge to 2" per lift, thickness as required to suite actual condition(s).

### **3.4 CLEANING**

- A. Upon completion, clean all surfaces which have become soiled or coated as a result of work of this section, using proper methods which will not scratch or otherwise damage finished surfaces.
- B. For cleaning, use only products and techniques acceptable to manufacturer of products being cleaned.

### **3.5 PROTECTION**

- A. General: Institute protective procedures and install protective materials as required to ensure that work of this section will be without damage or deterioration.

**END OF SECTION 03452**

## **SECTION 04200 - UNIT MASONRY**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of each type of masonry work is indicated on drawings and schedule.
- B. Type of masonry work required includes:
  - 1. Concrete unit masonry.
  - 2. Mortar and grout.
  - 3. Reinforcement, anchorage, and accessories.
  - 4. Concrete masonry lintels and bond beams.
  - 5. Installation of miscellaneous loose steel lintels, plates and other steel fabrications.
- C. Related Work:
  - 1. Section 06650 - Solid Polymer Fabrications
  - 2. Section 07900 - Joint Sealer Assemblies
  - 3. Section 08110 - Hollow Metalwork
  - 4. Section 09650 - Rubber Base
  - 5. Section 09900 - Painting of exposed to view CMU surfaces

#### **1.3 QUALITY ASSURANCE**

- A. Fire Performance Characteristics: Where indicated, provide materials and construction which are identical to those of assemblies whose fire endurance has been determined by testing in compliance with ASTM E119 by a recognized testing and inspecting organization or by another means, as acceptable to authority having jurisdiction.
- B. Single Source Responsibility for Masonry Units: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.
- C. Single Source Responsibility for Mortar Materials: Obtain mortar ingredients of uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source and producer for each aggregate.
- D. Source Quality Control: Materials and fabrication procedures are subject to inspection and tests in mill, shop, and field, conducted by a qualified inspection agency. Such inspections and tests will not relieve Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements.

#### **1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's product data for each type of masonry unit, accessory, and other manufactured products, including certifications that each type complies with specified requirements.
- B. Shop Drawings: Submit shop drawings for the following:
  - 1. All locations of Vertical Control Joints for interior concrete masonry unit walls including control joints shown or required.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver masonry materials to project in undamaged condition.
- B. Store and handle masonry units to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion or other causes.
- C. Limit moisture absorption of concrete masonry units during delivery and until time of installation to the maximum percentage specified for Type I units for the average annual relative humidity as reported by the U.S. Weather Bureau Station nearest project site.
- D. Store cementitious materials off the ground, under cover and in dry location.
- E. Store aggregates where grading and other required characteristics can be maintained.
- F. Store masonry accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.

#### **1.6 REFERENCE STANDARDS**

- A. Comply with the current applicable provisions of all codes, regulations, industry standards and specifications referenced in this section, unless otherwise modified by the requirements of the Contract Documents, including but not limited to the following:
  - 1. ACI 531 Building Code Requirements for Masonry Structures.
  - 2. ACI 531 Commentary on Building Code Requirements for Masonry Structures.
  - 3. ACI 530.1 Specification for Masonry Construction.
  - 4. ASTM C129 Non-Load Bearing Masonry Units.
  - 5. ASTM C140 Testing Concrete Masonry Units.
  - 6. ASTM C270 Standard Specification for Mortar for Unit Masonry
  - 7. ASTM C780 Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
  - 8. ASTM C1586 Standard Guide for Quality Assurance of Mortars.
  - 9. NCMA TEK Bulletins.

#### **1.7 PROJECT CONDITIONS**

- A. Do not apply uniform floor or roof loading for at least 12 hours after building masonry walls.
- B. Do not apply concentrated loads for at least 3 days after building masonry walls.



- C. Staining: Prevent grout or mortar or soil from staining the face of masonry to be left exposed or painted. Remove immediately grout or mortar in contact with such masonry.
- D. Protect sills, ledges and projections from droppings of mortar.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- A. Manufacturer: Obtain masonry units from one manufacturer, of uniform texture and color for each kind required, for each continuous area and visually related areas.
  - 1. Concrete Masonry Units: Subject to compliance with requirements, manufacturers of concrete masonry units which may be incorporated in the work include, but are not limited to, the following:
    - a. Anchor Concrete Products Inc.
    - b. Clayton Block Co., Inc.
    - c. EP Henry Corporation.
    - d. Or approved equal.
  - 2. Masonry Anchors, Joint Reinforcing, Accessories, etc.: Subject to compliance with requirements, manufacturers of masonry anchors, joint reinforcing, accessories which may be incorporated in the work include, but are not limited to, the following:
    - a. Heckman Building Products, Inc.
    - b. Hohmann & Barnard, Inc.
    - c. Or approved equal.

### **2.2 CONCRETE MASONRY UNITS**

- A. General: Comply with referenced standards and other requirements indicated below applicable to form of concrete masonry unit required.
- B. Provide special shapes where required for lintels, corners, jambs, sash, control joints, headers, bonding and other special conditions.
  - 1. Provide bullnose units for outside corners unless otherwise indicated.
- C. Concrete Block: Provide units complying with characteristics indicated below for face size, exposed face and under each form of block included, for weight classification.
- D. Size: Manufacturer's standard units with nominal face dimensions of 16" long x 8" high (15-5/8" x 7-5/8" actual) x thicknesses indicated.
- E. Hollow Loadbearing Block: ASTM C90 and as follows:
  - 1. Weight Classification: Lightweight.
- F. Solid 4" and 6" CMU (2 Hour Fire Resistance Rated) Loadbearing Block: Standard Method for Determining Fire Resistance of Concrete and Masonry Assemblies - ANSI/ACI 216.1-97, TMS-0216-97 and as follows:

1. Construction and material requirements of concrete masonry including units, mortar, grout, control joint materials and reinforcement shall comply with ACI 530/ASCE 5/TMS 402.
2. Concrete masonry units shall comply with ASTM C55, C73, C90 or C129.
3. Weight Classification: Lightweight.
4. Aggregate Type: Expanded clay, expanded shale or expanded slate with a minimum required equivalent thickness of 3.6 inches for 4" CMU.

### **2.3 MORTAR AND GROUT MATERIALS**

- A. General: Do not add admixtures including coloring pigments, air-entraining agents, accelerators, retarders, water repellent agents, anti-freeze compounds or other admixtures, unless otherwise indicated.
  1. Do not use calcium chloride in mortar or grout.
- B. Limit cementitious materials in mortar to portland cement-lime.
- C. Portland Cement: ASTM C150, Type 1, except Type III may be used for cold weather construction. Provide natural color or white cement as required to produce required mortar color.
- D. Hydrated Lime: ASTM C207, Type S.
- E. Aggregate for Mortar: ASTM C144, except for joints less than 1/4 inch use aggregate graded with 100% passing the No. 16 sieve.
  1. White Mortar Aggregates: Natural white sand or ground white stone.
- F. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification, for types of mortar required, unless otherwise indicated.
- G. Grout for Unit Masonry: Comply with ASTM C476.
  1. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C143.
- H. The proper use of ASTM C270 and Test Method ASTM C780 for evaluating masonry mortars produced in the laboratory and the construction site is in accordance with ASTM C1586.
- I. Aggregate for Grout: ASTM C404.
- J. Water: Clean and potable.

### **2.4 JOINT REINFORCEMENT, TIES AND ANCHORING DEVICES**

- A. Materials: Comply with requirements indicated below for basic materials and with requirements indicated under each form of joint reinforcement, tie and anchor for size and other characteristics:

1. Hot-Dip Galvanized Steel Wire: ASTM A82 for uncoated wire and with ASTM A153, Class B-2 (1.5 oz. per sq. ft. of wire surface) for zinc coating applied after prefabrication into units.
- B. Joint Reinforcement: Provide welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10 feet, with prefabricated corner and tee units, and complying with requirements indicated below:
1. Width: Fabricate joint reinforcement in units with widths of approximately 2 inch less than nominal width of walls and partitions as required to provide mortar coverage of not less than 5/8 inch on joint faces exposed to exterior and 1/2 inch elsewhere.
    - a. Wire Size for Side Rods: 9 gauge.
    - b. Wire Size for Cross Rods: 9 gauge.
  2. Ladder design rods spaced not more than 16 inch o.c.
  3. Number of Side Rods: One side rod for each face shell of concrete masonry back-up and one rod for brick wythe.
  4. Configuration:
    - a. Applications of Single Wythe Wall width: Ladder type design rods at not more than 16 inches on center.
      - 1) Basis of Design: Provide Hohmann & Barnard, Inc., No.# 220, Ladder-Mesh; or approved equal.
- C. Flexible Anchors: Where flexible anchors are indicated for connecting masonry to structural framework, provide 2-piece anchors as described below which permit vertical or horizontal differential movement between wall and framework parallel to, but resist tension and compression forces perpendicular to, plane of wall.
1. For anchorage to steel framework provide manufacturer's standard anchors with triangular-shaped wire tie section sized to extend within 1 inch of masonry face. Coordinate with Steel Contractor for type and size required. Provide 3/16 inch diameter, hot-dip galvanized steel.
- D. Unit Type Masonry Inserts in Concrete: Furnish cast iron or malleable iron inserts of type and size indicated.
- E. Anchor Bolts: Provide steel bolts with hex nuts and flat washers complying with ASTM A307, Grade A, hot-dip galvanized to comply with ASTM C153, Class C, in sizes and configurations indicated.
- F. Pencil rods at construction joints as shown: Dowels dipped in tar for 1/2 of length.

## **2.5 MASONRY LINTELS**

- A. General: Provide one of the following:
1. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMU's matching adjacent CMU's in color, texture, and density classification, with

reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

## **2.6 MISCELLANEOUS MASONRY ACCESSORIES**

- A. Non-Metallic Expansion Joint Strips: Premolded, flexible cellular neoprene rubber filler strips complying with ASTM D1056, Grade 2A1, capable of compression up to 35%, of width and thickness indicated.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION, GENERAL**

- A. Do not wet concrete masonry units.
- B. Cleaning Reinforcing: Before placing, remove loose rust, ice and other coatings from reinforcing.
- C. Thickness: Build single-wythe walls to the actual thickness of the masonry units, using units of nominal thickness indicated.
- D. Build chases and recesses as shown or required for the work of other trades. Provide not less than 8 inch of masonry between chase or recess and jamb of openings, and between adjacent chases and recesses.
- E. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.
- F. Cut masonry units using motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining work. Use full-size units without cutting where possible. No discoloration of units caused by cutting will be acceptable.
- G. Pattern Bond:
  - 1. Concrete masonry units: Running bond, unless otherwise shown.
  - 2. Lay concealed masonry with all units in a wythe bonded by lapping not less than 2 inches.

### **3.2 CONSTRUCTION TOLERANCES**

- A. Variation from Plumb: For vertical lines and surfaces of columns, walls and arises do not exceed 1/4 inch in 10 feet, or 3/8 inch in a story height not to exceed 20 feet, nor 1/2 inch in 40 feet or more. For external corners, expansion joints, control joints and other conspicuous lines, do not exceed 1/4 inch in any story or 20 feet maximum, nor 1/2 inch in 40 feet or more. For vertical alignment of head joints do not exceed plus or minus 1/4 inch in 10 feet, 1/2 inch maximum.

- B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, do not exceed 1/4 inch in any bay or 20 feet maximum, nor 1/2 inch in 40 feet or more. For top surface of bearing walls do not exceed 1/8 inch between adjacent floor elements in 10 feet or 1/16 inch within width of a single unit.
- C. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls and partitions, do not exceed 1/2 inch in any bay or 20 feet maximum, nor 3/4 inch in 40 feet or more.
- D. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4 inch nor plus 1/2 inch.
- E. Variation in Mortar Joint Thickness: Do not exceed bed joint thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not exceed head joint thickness indicated by more than plus or minus 1/8 inch.

### **3.3 LAYING MASONRY WALLS**

- A. Layout walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to accurately locate openings, movement-type joints, returns and offsets. Avoid the use of less-than-half-size units at corners, jambs and wherever possible at other locations.
- B. Lay-up walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other work.
- C. Stopping and Resuming Work: Rack back 1/2-unit length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh masonry.
- D. Built-in Work: As the work progresses, build-in items specified under this and other sections of these specifications. Fill in solidly with masonry around built-in items.
  - 1. Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.
  - 2. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.
  - 3. Fill cores in hollow concrete masonry units with grout 3 courses (24 inches) under bearing plates, beams, lintels, posts and similar items, unless otherwise indicated.
- E. Extend all interior walls full height to underside of structure of deck, unless otherwise indicated. Include compressible insulation at top to completely close space between wall and structure above.

### **3.4 MORTAR BEDDING AND JOINTING**

- A. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on concrete floor slab.

- B. Maintain joint widths shown, except for minor variations required to maintain bond alignment. If not shown, lay walls with 3/8 inch joints.
- C. Cut joints flush for masonry walls which are to be concealed or to be covered by other materials, unless otherwise indicated.
- D. Tool exposed joints slightly concave using a jointer larger than joint thickness, unless otherwise indicated.
- E. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners or jambs to shift adjacent stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.

### **3.5 HORIZONTAL JOINT REINFORCEMENT**

- A. Provide continuous horizontal joint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcing a minimum of 6 inches.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures and other special conditions.
  - 1. Space continuous horizontal reinforcement as follows:
    - a. For single-wythe walls, space reinforcement at 16" o.c. vertically, unless otherwise indicated.
  - 2. Cut reinforcement units at walls intersecting and/or abutting firewalls. Provide control joints with fire-rated sealant as indicated in Section 07900.
- D. Reinforce masonry openings greater than 1'-0" wide, with horizontal joint reinforcement placed in 2 horizontal joints approximately 8" apart, immediately above the lintel and immediately below the sill. Extend reinforcement a minimum of 2'-0" beyond jambs of the opening except at control joints.

### **3.6 ANCHORING MASONRY WORK**

- A. Provide anchoring devices of the type indicated. If not indicated, provide standard type for facing and back-up involved.
  - 1. Strap anchors for masonry at existing walls.
  - 2. Do not anchor fire walls to Structural Steel, intersecting and/or abutting walls.

### **3.7 CONTROL AND EXPANSION JOINTS**

- A. General: Provide vertical and horizontal expansion, control and isolation joints in masonry maximum 30 feet on center. Build-in related items as the masonry work progresses.

1. Coordinate location of all control and expansion joints in the field with Architect prior to commencement of work.
- B. Build in joint fillers where shown: See Section 07900, Joint Sealers. Joint width for sealants: 3/8 inch unless otherwise indicated. Include straight joints at vertical recessed brick detail.

### **3.8 REPAIR, POINTING AND CLEANING**

- A. Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints including corners, openings and adjacent work to provide a neat, uniform appearance, prepared for application of sealants.
- C. Clean exposed CMU masonry by dry brushing at the end of each day's work and after final pointing to remove mortar spots and droppings. Comply with recommendations in NCMA TEK Bulletin No. 28.
  1. Prepare exposed to view CMU surfaces to receive paint coatings in accordance with Section 09900.

**END OF SECTION 04200**

## **SECTION 05300 - METAL DECKING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Extent of metal decking is indicated on drawings.

#### **1.3 SUBMITTALS**

- A. Product Data: Submit manufacturer's specifications and installation instructions for each type of decking and accessories. Include manufacturer's certification as may be required to show compliance with these specifications.
- B. Shop Drawings: Submit detailed drawings showing layout and types of deck panels, anchorage details and conditions requiring closure panels, pour stops, supplementary framing, sump pans, cant strips, cut openings, special jointing or other accessories.

#### **1.4 QUALITY ASSURANCE**

- A. Code and Standards: Comply with provisions of the following codes and standards, except as otherwise indicated or specified:
  - 1. AISI "Specification for the Design of Cold-Formed Steel Structural Members - Allowable Stress Design".
  - 2. AWS D1.3 "Structural Welding Code - Sheet Steel".
  - 3. SDI "Design Manual for Floor Decks and Roof Decks"
- B. Qualification of Field Welding: Qualify welding processes and welding operators in accordance with "Welder Qualification" procedures of AWS D1.1.
- C. Welded decking in place is subject to inspection and testing. Expense of removing and replacing portions of decking for testing purposes will be borne by Owner if welds are found to be satisfactory. Remove work found to be defective and replace with new acceptable work.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:



1. Metal Roof Deck Units: United Steel Deck, Inc.
2. Composite Metal Floor Deck Units: United Steel Deck, Inc.
3. Or approved equal.

## **2.2 MATERIALS**

- A. Steel for Galvanized Metal Deck Units: ASTM A 446, Grade A.
- B. Sheet Metal Accessories: ASTM A 526, commercial quality, galvanized.
- C. Galvanizing: ASTM A 525, G60.
- D. Galvanizing Repair Paint: High zinc-dust content paint for repair of damaged galvanized surfaces complying with Military Specifications MIL-P-21035 (Ships).
- E. Flexible Closure Strips: Manufacturer's standard vulcanized, closed-cell, synthetic rubber.

## **2.3 FABRICATION**

- A. General: Form deck units in lengths to span three (3) or more supports, with flush, telescoped or nested 2" laps at ends and interlocking or nested side laps, unless otherwise indicated.
- B. Deck Units: Provide deck configurations complying with SDI and AISI "Deck Specifications" of metal thickness, depth and width as shown.
- C. Metal Closure Strips: Fabricate metal closure strips, for cell raceways, at changes in deck direction and openings between decking and other construction, of not less than 0.045" min. (18 gage) sheet steel. Form to provide tight-fitting closures at open ends of cells or flutes and sides of decking.
- D. Roof Sump Pans: Fabricate from single pieces of .071" min. (14 gage) galvanized sheet steel with level bottoms and sloping sides to direct water flow to drain, unless otherwise shown. Provide sump pans of adequate size to receive roof drains and with bearing flanges not less than 3" wide. Recess pans not less than 1-1/2" below roof deck surface, unless otherwise shown or required by deck configuration. Holes for drains will be cut in the field.
- E. Open-beam composite units: Fabricate deck with integral embossing or raised pattern to furnish mechanical bond with concrete slabs. Fabricate open beam units with fluted sections having interlocking side laps of metal thickness depth and width as shown.
- F. Pour Stops: Fabricate metal pour stops, to form all edges of concrete slabs, of a minimum thickness not less than 0.045" (18 gage) sheet steel. Form to provide tight closure to full height of concrete slab.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. General: Install deck units and accessories in accordance with manufacturer's recommendations and final shop drawings, and as specified herein.
- B. Place deck units on supporting steel framework and adjust to final position with ends accurately aligned and bearing on supporting members before being permanently fastened. Do not stretch or contract side lap interlocks.
- C. Place deck units in straight alignment for entire length of run of cells and with close alignment between cells at ends of abutting units.
- D. Place deck units flat and square, secured to adjacent framing without warp or excessive deflection.
- E. Do not place deck units on concrete supporting structure until concrete has cured and is dry.
- F. Coordinate and cooperate with structural steel erector in locating decking bundles to prevent overloading of structural members.
- G. Fastening Deck Units:
  - 1. Fasten deck units to steel supporting members by not less than 5/8" diameter fusion welds or elongated welds of equal strength, spaced not more than 12" o.c. In addition, secure deck to each supporting member in ribs where side laps occur.
- H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds methods used in correcting welding work.
- I. Cutting and Fitting: Cut and neatly fit deck units and accessories around other work projecting through or adjacent to the decking, as shown.
- J. Mechanically fasten side laps of adjacent deck units between supports, at intervals not exceeding 36" o.c. using self-tapping No. 8 or larger machine screws, unless a closer spacing or a larger screw is called for on the drawing.
- K. Uplift Loading: Install and anchor roof deck units to resist gross uplift of 45 lbs. per sq. ft. at eave overhang and 30 lbs. per sq. ft. for other roof areas.
- L. Reinforcement at Openings: Provide additional metal reinforcement and closure pieces as required for strength, continuity of decking and support of other work shown.
- M. Joint Covers: Provide metal joint covers at abutting ends and changes in direction of floor deck units, except where taped joints are required.
- N. Roof Sump Pans: Place over openings provided in roof decking and weld to top decking surface. Space welds not more than 12' o.c. with at least one weld at each corner. Cut opening in roof sump bottom to accommodate drain size indicated.

- O. Edge Finish Strips: Provide metal finish strip at edges of roof decking, parallel to flutes. Weld into position to provide a complete deck installation.
- P. Touch-Up Painting: After deck installation, wire brush, clean and paint scarred areas, welds and rust spots on top and bottom surfaces of decking units and supporting steel members.
  - 1. Touch-up galvanized surfaces with galvanizing repair paint applied in accordance with manufacturer's instructions.
  - 2. Touch-up painted surface with same type of shop paint used on adjacent surfaces.
- Q. In areas where shop-painted surfaces are to be exposed, apply touch-up paint to blend into adjacent surfaces.
- R. Touch-Up Painting: Cleaning and touch-up painting of field welds, abraded areas and rust spots, as required after erection and before proceeding with field painting, is included in Division 9 under Painting.
- S. Pour Stops: Weld continuous pour stops to supporting decking units or structural steel supports with a minimum 1" long weld at 12" on center. Install pour stop with a minimum of 2" of bearing on supports.
- T. Shear Connectors: Weld shear connectors to supports through decking units in accordance with manufacturer's instructions. Do not weld shear connectors through two layers (lapped ends) of decking units. Weld only on clean, dry deck surfaces.

### **3.2 QUALITY CONTROL**

- A. The Owner will employ a testing laboratory satisfactory to the Architect to perform the following tests and to submit testing and inspection reports.
  - 1. Welding: Inspect welding to determine if welds are at proper locations, are proper size and material, and meet AWS standards.
  - 2. Sidelap Connections: Inspect sidelap connections to determine if the connections are in accordance with contract documents.
  - 3. Shear Connectors: All shear connectors shall be visually inspected and tapped with a hammer. All/any studs which do not appear to have a sound weld or which produce a dull sound rather than a ringing sound when tapped shall be further tested as follows:
    - a. The stud shall be struck with a hammer and bent approximately 15 degrees off perpendicular towards the nearest end of the beam. Studs meeting this test without coming loose shall remain on the beam. Studs failing this test shall be replaced.

**END OF SECTION 05300**

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## SECTION 05400 - MISCELLANEOUS STRUCTURAL STEEL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 DESCRIPTION OF WORK

- A. Definition: Miscellaneous structural steel includes items made from iron and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of Structural Steel or other metal fabrication systems specified elsewhere.
- B. Extent of miscellaneous structural steel fabrications is indicated on drawings and schedules.
  - 1. Work of this section shall include miscellaneous structural steel framing and supports for floor, wall and roof openings whether or not shown on structural drawings.
    - a. Refer to architectural, mechanical and electrical drawings for the following:
      - 1) Locations and sizes of roof penetrations, roof top supported mechanical and electrical equipment, roof drains, ducts, piping, raceways, etc.
      - 2) Locations and sizes of wall penetrations, wall chases, louvers, duct penetrations, etc.
      - 3) Locations and sizes of floor penetrations; ducts, piping, raceways, etc.
      - 4) Locations of all steel handrails, railings and guardrails.
    - b. All miscellaneous structural steel supports shall be in accordance with typical structural steel details and schedules shown on structural steel drawings and/or as directed by the Architect.
    - c. All miscellaneous structural steel supports shall meet indicated load requirements and/or as directed by the Architect.
    - d. In existing building(s) where alteration and/or renovation work is/are indicated, refer to Division 1 Sections for miscellaneous structural steel framing and supports which may be assigned to be provided and installed by other Trades.
- C. Types of work in this section include metal fabrications for:
  - 1. Loose Steel lintels, bearing and leveling plates and miscellaneous steel framing and supports.
  - 2. Steel Framed Stairs:
    - a. Steel perforated panel infill @ guardrails
  - 3. Steel railings, handrails, and guardrails at all stair and ramps.
- D. Related Sections:
  - 1. Section 01400 - Testing Laboratory Service
  - 2. Section 03300 - Concrete Work
  - 3. Section 04200 - Unit Masonry
  - 4. Section 05300 - Metal Decking

5. Section 05500 - Metal Fabrications
6. Section 09900 - Painting
7. Mechanical Work as specified on Drawings.

### **1.3 QUALITY ASSURANCE**

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrications might delay work.
- B. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- C. Delegated Design:
  1. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated. Designated Design includes, but is not limited to:
    - a. Miscellaneous steel framing, stair stringers, tread pans, platforms, landings and supplemental framing for landings, metal framing, hangers, columns, struts, clips, brackets, bearing plates and other components.
    - b. Handrails, guardrails, balusters, newel posts, clips struts, brackets, bearing plates and other components.
  2. Professional Engineer Qualifications: A professional engineer legally authorized to practice in the jurisdiction where the Project is located, (State of New Jersey), and experienced in providing engineering services of the kind indicated that have resulted in the installation of structural assemblies, similar to this Project in material, design, and extent and that has a record of successful in-service performance. Provide analysis data and signed & sealed documents.
  3. Conform to all applicable State and Local Codes for design loads and all other requirements.
  4. Refer to paragraph 1.4 - SUBMITTALS (below).
- D. Regulatory Requirements: Products and finished installations to be used by persons with disabilities must comply with requirements of the Uniform Construction Code, American National Standard, Accessible and Usable Buildings and Facilities, ICC / ANSI A117.1-2009.
- E. NAAMM Stair Standard: Comply with "Recommended Voluntary Minimum Standards for Fixed Metal Stairs" in NAAMM AMP 510, "Metal Stairs Manual," for class of stair designated, unless more stringent requirements are indicated.
  1. Architectural Class.
    - a. Fabricator Qualifications: A firm experienced in producing metal stairs similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

- F. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code-Steel," and AWS D1.3, "Structural Welding Code-Sheet Steel."

#### **1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's specifications, anchor details and installation instructions for products used in miscellaneous metal fabrications, including paint products and grout.
- B. Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous steel fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.
  - 1. Submit shop drawings for miscellaneous steel framing and supports, steel stairs and railings. Signed and sealed shop drawings shall be submitted by a qualified professional Structural Engineer, licenced in the state where the project is located
- C. Where materials or fabrications are indicated to comply with certain requirements for design loadings, include structural computations, material properties and other information needed for structural analysis.
- D. Samples: Submit 2 sets of representative samples of materials and finished products as may be requested by Architect.

### **PART 2 - PRODUCTS**

#### **2.1 MATERIALS**

- A. Metal Surfaces, General: For fabrication of miscellaneous structural steel work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
- B. Steel
  - 1. Steel Plates, Shapes and Bars: ASTM A36.
  - 2. Steel Tubing: Cold-formed, ASTM A500; or hot-rolled, ASTM A501.
  - 3. Structural Steel Sheet: Hot-rolled, ASTM A570; or cold-rolled ASTM A611, Class 1; of grade required for design loading.
  - 4. Galvanized Structural Steel Sheet: ASTM A446, of grade required for design loading. Coating designation as indicated, or if not indicated, G90.
  - 5. Steel Pipe: ASTM A53; Type and grade (if applicable) as selected by fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (schedule 40), unless otherwise indicated.
  - 6. Gray Iron Castings: ASTM A48, Class 30.
  - 7. Malleable Iron Castings: ASTM A47, grade as selected by fabricator

8. Vent / Drainage Hole Requirements: ASTM A385/A385M for steel that will be galvanized.
- C. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
  - D. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A47, or cast steel, ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.
  - E. Grout:
    1. Metallic Non-Shrink Grout: Pre-mixed, factory-packaged, ferrous aggregate grout complying with CE CRD-C588, Type M.
    2. Non-Shrink Non-Metallic Grout: Pre-mixed, factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with CE CRD-C621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.
  - F. Fasteners:
    1. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
    2. Bolts and Nuts: Regular hexagon head type, ASTM A307, Grade A.
    3. Lag Bolts: Square head type, FS FF-B-561.
    4. Machine Screws: Cadmium plated steel, FS FF-S-92.
    5. Wood Screws: Flat head carbon steel, FS FF-S-111.
    6. Plain Washers: Round, carbon steel, FS FF-W-92.
    7. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.
  - G. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.
    1. Lock Washers: Helical spring type carbon steel, FS FF-W-84.
  - H. Paint:
    1. Surface Preparation: SSPC-2P6 commercial Blast Cleaning.
    2. Primer: Tnemec Series 90-97 Tneme-Zinc, or equal, @ 2.5 - 3.5 mils (dry)
    3. Primer selected must be compatible with finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Section 09900.

## 2.2 FABRICATION, GENERAL

- A. Workmanship: Use materials of size and thickness indicated, or if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of work.
- B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- C. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.
- D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts.
- E. Provide for anchorage of type indicated, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
- F. Galvanizing:
  - 1. Provide a zinc coating for exterior items and those items indicated or specified to be galvanized, as follows:
    - a. ASTM A 153 for galvanizing iron and steel hardware.
    - b. ASTM A 123 for galvanized rolled, pressed and forged steel shapes, plates, bars and strip 1/8" thick and heavier.
    - c. ASTM A 386 for galvanizing assembled steel products.
- G. Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.
  - 1. The primary reason for vent and drain holes is to allow air to be evacuated from within and around the fabrication, allowing it to be completely immersed in the cleaning solutions and molten zinc and for the excess zinc and solutions to drain out and away from the part.
  - 2. The secondary reason is that if fabrications to be galvanized are not properly vented, cleaning solutions or rinse waters trapped in overlapping or contacting surfaces flash to steam. The resulting pressure increase (up to 3600 psi [25MPa]) can rupture the fabrication. Additionally, trapped moisture that flashes to steam can result in localized uncoated surfaces.
  - 3. Plugging Vent / Drainage Holes as manufactured by "The Steel Supply Company", "Bruce Reichelt Enterprises", or approved equal.
    - a. The fabricator is responsible for installing the vent hole plugs.
    - b. Plugs are usually aluminum or zinc vent plugs in sizes ranging from 1/4" to 1-1/16" in 1/16" increments.



## H. Shop Painting

1. Shop paint miscellaneous structural steel, except members or portions of members to be embedded in concrete or masonry, surfaces and edges to be field welded, and galvanized surfaces, unless otherwise indicated.
2. Remove scale, rust and other deleterious materials before applying shop coat. Clean off heavy rust and loose mill scale in accordance with SSPC SP-6.
3. Immediately after surface preparation, brush or spray on primer in accordance with manufacturer's instructions. Use painting methods which will result in full coverage of joints, corners, edges and exposed surfaces.
4. Apply one shop coat to fabricated metal items, except apply two coats of paint to surfaces inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

## 2.3 MISCELLANEOUS STRUCTURAL STEEL

### A. Steel Railings and Handrails: Provide handrails to comply with applicable State and Local Regulatory Requirements and in accordance with minimum requirements indicated in the Uniform Construction Code, American National Standard, Accessible and Usable Buildings and Facilities, ICC / ANSI A117.1-2009.

1. Structural Performances: Provide railing and handrail assemblies which, when installed, shall comply ASCE standards for minimum design loads for handrail assemblies and guardrail systems and capable of withstanding the following loads applied as indicated:
  - a. To resist a load of 50 pound per linear foot applied in any direction at the top and to transfer this load through the supports to the structure.
  - b. To resist a single concentrated load of 200 pounds applied in any direction at any point along the top, and have attachment devices and supporting structure to transfer this loading to the building structural assemblies, walls, floors or slabs. This load shall act concurrently with loads indicated in Paragraph "a" above.
  - c. Intermediate rails (all those except the handrail), balusters and panel fillers shall withstand a horizontally applied normal load of 50 lbs. On an area not to exceed one square foot area including openings and space between rails. Reactions due to this loading are not required to be superimposed with those of paragraphs "a" and "b" above.
  - d. Guards: Intermediate rails and balusters capable of withstanding a horizontal concentrated load of 200 lbs. applied on a one square foot area at any point in system of gross area of guard, including any open areas, of which they are a part. Load need not be assumed to be acting concurrently with uniform horizontal loads on top rails of railing assembly in determining stress on guard supporting members.
  - e. Guards shall be designated and constructed for a uniform load of 50 pounds per foot applied horizontally at required guardrail height and a simultaneous uniform load of 100 pounds applied vertically downwards at top of guardrail.
  - f. In-fill Area:
    - 1) Concentrated Load: 200 pounds, horizontal load, applied on a 1-square-foot area at any point in the system, including intermediate rail or other elements serving this purpose.

- 2) This loading condition shall not be applied simultaneously with loading conditions indicated above, (a, b, and c).
- B. Fabricate pipe railings and handrails to design, dimensions, and details indicated. Provide railings and handrails members formed of pipe of sizes and wall thickness indicated, or if not shown, as required to support indicated design loading. Unless otherwise indicated all shown dimensions for pipes, rails and other round shapes are outside diameter.
1. Interconnect railing and handrail members by butt-welding or welding with internal connectors, at fabricator's option, unless otherwise indicated.
    - a. At tee and cross intersections provide coped joints.
    - b. At bends interconnect pipe by means of prefabricated elbow fittings or flush radius bends, as applicable, of radiuses indicated.
    - c. Perform welding to comply with applicable AWS specifications, using method appropriate for metal and finish indicated. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.
  2. Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross-section of pipe throughout entire bend without buckling, twisting or otherwise deforming exposed surfaces of pipe.
  3. Provide wall returns at ends of wall-mounted handrails, except where otherwise indicated.
  4. Close exposed ends of pipe by welding 3/16" thick steel plate in place or by use of prefabricated fittings.
  5. Brackets, Flanges, Fittings and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings and anchors for interconnections of pipe and attachment of railings and handrails to other work. Furnish inserts and other anchorage devices for connecting railings and handrails to concrete or masonry work.

## **2.4 ARCHITECTURAL GRILLWORK**

- A. Guardrail Perforated Metal Infill: Basis of Design: Provide "Item #16800016M2", 1-1/2" x 1/4" square end slot slots (68% open area) perforated carbon steel panels, 16 gauge (.0598" thick), as manufactured by McNichols®; or approved equal.
1. Provide and install security fasteners to secure the perforated metal panels to the steel frame, as indicated on the drawings.
  2. Finish and Color: Kynar 500, 2 - coat system in color as selected by the Architect from manufacturer's available full range of colors.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and

miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

1. Coordinate work of this section with other work affected by other Trades.
2. Obtain locations, opening sizes, weights and other required information from affected trades.
3. Comply with coordination requirements indicated in Division 1 Sections.

### **3.2 INSTALLATION**

- A. **Fastening to In-Place Construction:** Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.
- B. **Cutting, Fitting and Placement:** Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plus, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete masonry or similar construction.
- C. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.
- D. **Field Welding:** Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.
- E. Set loose lintels weighing more than 200 pounds, leveling and grouting as for plates. Deliver loose lintels weighing less than 200 pounds to the General Construction Contractor, allow sufficient time for scheduling the installation.

### **3.3 PIPE RAILINGS AND HANDRAILS**

- A. Adjust railing prior to anchoring to ensure matching alignment at abutting joints. Space posts at spacing indicated, or if not indicated, as required by design loadings. Plumb posts in each direction. Secure posts and railing ends to building construction as follows:
  1. Anchor posts in concrete by means of sleeves preset and anchored into concrete. After posts have been inserted into sleeves, fill annular space between post and sleeve solid with non-shrink, non-metallic grout, mixed and placed to comply with grout manufacturer's directions.
  2. Leave anchorage joint exposed; wipe off excess grout and leave 1/8 inch build-up, sloped away from post. For installation exposed on exterior or to flow of water, seal grout to comply with grout manufacturer's directions.

3. Anchor rail ends into concrete and masonry with steel round flanges welded to rail ends and anchored into wall construction with lead expansion shields and bolts.
- B. Anchor rail ends to steel with steel oval or round flanges welded to rail ends and bolted to structural steel members, unless otherwise indicated.
- C. Secure handrails to wall with wall brackets and end fittings. Provide bracket with not less than 1-1/2" clearance from inside face of handrail and finished wall surface. Locate brackets as indicated, or if not indicated, at spacing required for design loading. Secure wall brackets and wall return fittings to building construction as follows:
  1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.
  2. For concrete and solid masonry anchorage, use drilled-in expansion shield and either concealed hanger bolt or exposed lag bolt, as applicable.
  3. For hollow masonry anchorage, use toggle bolts having square heads.

### **3.4 ADJUST AND CLEAN**

- A. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting.
- B. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- C. For galvanize surfaces: Clean field welds, bolted connections and abraded areas and apply galvanizing repair paint to comply with ASTM A780.

**END OF SECTION 05400**

## **SECTION 05500 - METAL FABRICATIONS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Definition: Metal fabrications include items made from iron and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems specified elsewhere and non-ferrous items listed herein.
- B. Type of work in this section includes metal fabrications for assemblies which include but are not limited to the following:
  - 1. Rough hardware.
  - 2. Expansion joint covers.
  - 3. Miscellaneous structural shapes.
  - 4. Steel pipe handrails.
  - 5. Steel perforated metal guardrails.
  - 6. Post Installed Anchors.
- C. Related Work:
  - 1. Section 03300 - Concrete Work.
  - 2. Section 04200 - Unit Masonry.
  - 3. Section 05300 - Metal Decking.
  - 4. Section 05400 - Miscellaneous Structural Steel.
  - 5. Section 09900 - Painting.

#### **1.3 QUALITY ASSURANCE**

- A. Codes and Standards:

ASTM A108-99 - Standard Specification for Steel Bars, Carbon, Cold-Finished, Standard Quality.

ASTM A123 - Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

ASTM A276-03 - Standard Specification for Stainless Steel Bars and Shapes.

ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

ASTM A563-00 - Standard Specification for Carbon and Alloy Steel Nuts.

ASTM A569/A569M-91a - Standard Specification for Steel, Carbon (.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality (superseded by A1011).

ASTM A780-01 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

ASTM A786/A786M-00b - Standard Specification for Hot-Rolled Carbon, Low-Alloy, High-Strength Low-Alloy, and Alloy Steel Floor Plates.

ASTM A1011/A1011M-03 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.

ASTM F844-00 - Standard Specification for Washers, Steel, Plain (Flat), Unhardened for General Use.

NAAMM Standard AMP 510-92 - Metal Stairs Manual 5<sup>th</sup> Edition.

AWS D1.1/D1.1M: Structural Welding Code - Steel, Welding qualification procedures and personnel.

ASTM A385/A385M for vent / drainage hole requirements in steel that will be galvanized.

- B. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrications might delay work.
- C. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- D. Regulatory Requirements: Products and finished installations to be used by persons with disabilities must comply with requirements of the Uniform Construction Code, American National Standard, Accessible and Usable Buildings and Facilities, ICC / ANSI A117.1.
- E. Furnish joint cover assemblies and accessories manufactured by one firm for each type of joint cover required.

#### **1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's specifications, anchor details and installation instructions for products used in miscellaneous metal fabrications, including paint products and grout.
- B. Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.
  - 1. Expansion joint covers: Include joint cover and column cover profiles, joints between joint cover sections, corners or intersection details, and installation in adjacent work.

- a. Layout Drawings: Submit to the Architect Showing full extent of locations of joint and column cover assemblies including intersections, terminations and transitions to different surfaces or substrates.
- C. Where materials or fabrications are indicated to comply with certain requirements for design loadings, include structural computations, material properties and other information needed for structural analysis.
- D. Samples: Submit 2 sets of representative samples of materials and finished products as may be requested by Architect.
- E. Mill test reports: Reports indicating metals to be furnished comply with project requirements.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
- B. Aluminum: Comply with the following standards for the forms and types of aluminum for the required items of work.
  - 1. Alloy and Temper: Provide alloy and temper as recommended by the aluminum producer or finisher, with not less than the strength and durability properties specified in ASTM B 632/B 632 M, alloy 6061-T6.
  - 2. Welding Electrodes and Filler Metal: Type and alloy of filler metal and electrodes as recommended by producer of the metal to be welded, and as required for color match, strength and compatibility in the fabricated items.
  - 3. Fasteners: Finish of basic metal and alloy, matching finished color and texture as the metal being fastened, unless otherwise indicated. Unless otherwise shown, provide Phillips flat-head screws for exposed fasteners.
  - 4. Bituminous Paint: SSPC-Paint (cold-applied asphalt mastic).
  - 5. Protective Lacquer: Clear non-yellowing, of type recommended by metal producer for protection of the finished metal surfaces.
  - 6. Aluminum Pipe and Tube: ASTM B429, Alloy 6063-T6.
  - 7. Aluminum Extrusions: ASTM B221, Alloy 6063-T6.
  - 8. Aluminum Plate and Sheet: ASTM B209, Alloy 6061-T6.
  - 9. Aluminum-Alloy Rolled Tread Plate: ASTM B632/B 632M, Alloy 6061-T6.
  - 10. Aluminum Castings: ASTM B26/B26M, Alloy 443.0-F.

C. Steel

1. Steel Plates, Shapes and Bars: ASTM A36/A 36M.
2. Steel Tubing: Cold-formed, ASTM A500; or hot-rolled, ASTM A501.
3. Structural Steel Sheet: Hot-rolled, ASTM A570; or cold-rolled ASTM A611, Class 1; of grade required for design loading.
4. Steel Pipe: ASTM A 53; Type and grade (if applicable) as selected by fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (schedule 40), unless otherwise indicated.

D. Gray Iron Castings: ASTM A48, Class 30.

E. Malleable Iron Castings: ASTM A47, grade as selected by fabricator.

F. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

H. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.

I. Grout:

1. Non-Shrink, Metallic Grout: Pre-mixed, factory-packaged, ferrous-aggregate grout complying with CE CRD-C588, Type M, and ASTM C1107, specifically recommended by manufacturer for heavy-duty loading applications and not to be used in wet areas or on exterior applications.
2. Non-Shrink, Non-Metallic Grout: Pre-mixed, factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with CE CRD-C621, and ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

J. Fasteners:

1. General: Provide zinc-plated fasteners complying with ASTM B633, Class Fe/Zn 5, for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
2. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A, with hex nuts, ASTM A563; and where needed, flat washers.
3. Weathering Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A325, Type 3, with hex nuts, ASTM A563, Grade C3; and where needed, flat washers.
4. Lag Screws: Square head type, ASME B18.2.1.
5. Machine Screws: Cadmium plated steel, ASME B18.6.3.



6. Wood Screws: Flat head, carbon steel, ASME B18.6.1.
  7. Plain Washers: Round, carbon steel, ASME B18.22.1.
  8. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.
  9. Expansion Anchors: Anchor bolt and sleeve assembly; Carbon-steel components zinc-plated to comply with ASTM B633, Class Fe/Zn 5.
  10. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as needed.
  11. Lock Washers: Helical, spring type, carbon steel, ASME B18.21.1.
  12. Eyebolts: ASTM A 489.
  13. Anchor Bolts: ASTM F 1554, Grade 36, of dimension indicated; with nuts, ASTM A563; and where indicated, flat washers.
- K. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E488, conducted by a qualified independent testing agency.
- L. Cast-in-Place in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A47/A47M malleable iron or ASTM A27/A27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F2329.
- M. Post-Installed Anchors:
1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633, Class Fe/Zn 5, unless otherwise indicated.
- N. Paint:
1. Metal Primer Paint: Red lead mixed pigment, alkyd varnish, linseed oil paint, FS TT-P-86I, Type II; or red lead iron oxide, raw linseed oil, alkyd paint, Steel Structures Painting Council (SSPC) Paint 2-64; or basic lead silico chromate base iron oxide, linseed oil, alkyd paint, FS TT-P-615, Type II.
  2. Primer selected must be compatible with finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Section 09900.

## **2.2 FABRICATION, GENERAL**

- A. Workmanship
1. Use materials of size and thickness indicated, or if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of work.

2. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
3. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.
4. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts.
5. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
6. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.

#### B. Shop Painting

1. Shop paint miscellaneous metal work, except members of portions of members to be embedded in concrete or masonry, surfaces and edges to be field welded, and galvanized surfaces, unless otherwise indicated.
2. Remove scale, rust and other deleterious materials before applying shop coat. Clean off heavy rust and loose mill scale in accordance with SSPC SP-2 "Hand Tool Cleaning", or SSPC SP-3 "Power Tool Cleaning", or SSPC SP-7 "Brush-Off Blast Cleaning".
3. Remove oil, grease and similar contaminants in accordance with SSPC SP-1 "Solvent Cleaning".
4. Immediately after surface preparation, brush or spray on primer in accordance with manufacturer's instructions, and at a rate to provide uniform dry film thickness of 2.0 mils for each coat. Use painting methods which will result in full coverage of joints, corners, edges and exposed surfaces.
5. Apply one shop coat to fabricated metal items, except apply two (2) coats of paint to surfaces inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

### 2.3 MISCELLANEOUS METAL FABRICATIONS

#### A. Rough Hardware

1. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items as specified in Division-6 sections.

2. Fabricate items to sizes, shapes and dimensions required. Furnish malleable-iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.

B. Expansion Joint Covers:

1. Basis of Design: Provide extruded aluminum expansion joint covers as manufactured by Balco Inc.; or approved equal.
  - a. Other acceptable manufacturers:
    - 1) CS Construction Specialties,
    - 2) MM Systems,
    - 3) Gordon Interior Specialties Division,
    - 4) Or approved equal.
  - b. Aluminum Finish: Provide clear anodized finish or as selected by the Architect to suit adjacent construction conditions, finishes and colors.
2. Provide type and size where shown on drawings, or as required at all building areas to receive expansion joint covers. Where used in rated construction, provide fire rated units.
  - a. Submit to the Architect a complete layout drawing indicating all locations of expansion joint and column covers, type, size and detailed construction conditions.
3. Do not proceed with fabrication and/or installation until you receive Architect's approval.
4. Provide assemblies including manufacturer's available anchors, hardware and accessories.

C. Miscellaneous Structural Shapes, Framing and Supports, Etc.

1. Provide miscellaneous steel framing and supports which are not a part of structural steel framework, as required to complete work.
2. Fabricate miscellaneous units to sizes, shapes and profiles indicated or, if not indicated, of required dimensions to receive adjacent other work to be retained by framing. Except as otherwise indicated, fabricated from structural steel shapes, plates and steel bars of welded construction using mitered joints for field connection. Cut, drill and tap units to receive hardware and similar items.
3. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.
4. Galvanize exterior miscellaneous frames and supports.

D. Nosing:

1. Provide nosings for edge of slab and similar conditions, fabricated of structural steel shapes as shown, of all welded construction with mitered corners and continuously welded joints. Provide anchors welded to nosings for embedding in concrete or masonry construction, spaced not more than 6" from each curb end, 6" from corners and 24" o.c., unless otherwise shown.

2. Galvanize exterior nosings.
- E. Steel Railings and Handrails: Provide handrails to comply with applicable State and Local Regulatory Requirements and in accordance with minimum requirements indicated in the Uniform Construction Code, American National standard, Accessible and Usable Buildings and Facilities, ICC / ANSI A117.1- 2009.
1. Structural Performances: Provide railing and handrail assemblies which, when installed, shall comply ASCE standards for minimum design loads for Handrail assemblies and Guardrail Systems and capable of withstanding the following loads applied as indicated.
    - a. To resist a load of 50 pound per linear foot applied in any direction at the top and to transfer this load through the supports to the structure.
    - b. To resist a single concentrated load of 200 pounds applied in any direction at any point along the top, and have attachment devices and supporting structure to transfer this loading to the building structural assemblies, walls, floors or slabs. This load shall act concurrently with loads indicated in paragraph "a" above.
    - c. Intermediate rails (all those except the handrail), balusters and panel fillers shall withstand a horizontally applied normal load of 50 lb. On an area not to exceed one square foot area including openings and space between rails. Reactions due to this loading are not required to be superimposed with those of paragraphs "a" and "b" above.
  2. Perforated Metal Panels
    - a. Perforated Steel Infill Grille:
      - 1) Fabricate to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including thickness of material, spacings, and anchorage, but not less than that needed to withstand indicated loads.
      - 2) Finish: Provide field painted finish in accordance with Section 09900 requirements; color as selected.

## 2.4 MISCELLANEOUS MATERIALS

- A. Injectable Mortar: Provide and install injectable mortar at all post-installed anchors, as follows:
1. Except where indicated on the drawings, post-installed anchors shall consist of the following anchor types as provided by Hilti, Inc.; or approved equal.
    - a. Anchorage to Concrete
      - 1) Adhesive anchors for cracked and uncracked concrete:
        - a) Hilti HIT-HY 200 Safe Set System with Hilti HIT-Z ROD per ICC ESR-3187.
        - b) Hilti HIT-HY 200 Safe Set System with Hilti Hollow Drill Bit System with HAS-E threaded rod per ESR-3187.
        - c) Hilti HIT-RE 500-SD Epoxy Adhesive Anchoring System with HAS-E Threaded Rod per ICC ESR-2322 for slow cure applications.
      - 2) Medium duty mechanical anchors for cracked and uncracked concrete:
        - a) Hilti KWIK HUS-EZ and KWIK HUS EZ-I Screw Anchors per ICC ESR-3027.
        - b) Hilti KWIK BOLT-TZ Expansion Anchors per ICC ESR-1917.
        - c) Hilti KWIK BOLT 3 Expansion Anchors (uncracked concrete only) per

ICC ESR-2302.

- 3) Heavy Duty mechanical anchors for cracked and uncracked concrete:
  - a) Hilti HDA Undercut Anchors per ICC ESR 1546.
  - b) Hilti HSL-3 Expansion Anchors per ICC ESR 1545.
- b. Rebar Doweling into Concrete
  - 1) Adhesive anchors for cracked and uncracked concrete use:
    - a) Hilti HIT-HY 200 Safe Set System with Hilti Hollow Drill Bit System with continuously deformed rebar per ICC ESR-3187.
    - b) Hilti HIT-RE 500-SD Epoxy Adhesive Anchoring System with continuously deformed rebar per ICC ESR-2322.
  - c. Anchorage to Solid Grouted Masonry
    - 1) Adhesive Anchors:
      - a) Hilti HIT-HY 70 Masonry Adhesive Anchoring System (ICC pending).
      - b) Steel anchor element shall be Hilti HAS-E Continuously Threaded Rod or continuously deformed steel rebar.
    - 2) Mechanical Anchors:
      - a) Hilti KWIK HUS-EZ Screw Anchor per ICC ESR-3056.
      - b) Hilti KWIK BOLT-3 Expansion Anchors per ICC ESR-1385.
  - d. Anchorage to Hollow/Multi-Wythe Masonry
    - 1) Adhesive Anchors:
      - a) Hilti HIT-HY 70 Masonry Adhesive Anchoring System per ICC ESR-3342.
      - b) Steel anchor element shall be Hilti HAS-E Continuously Threaded Rod or continuously deformed steel rebar.
      - c) The appropriate size screen tube shall be used per adhesive Manufacturer's recommendation.
2. Anchor capacity used in design shall be based on the technical data published by Hilti or such other method as approved by the Architect/Structural Engineer. Substitution requests for alternate products must be approved in writing by the Architect/Structural Engineer. Contractor shall provide calculations demonstrating that the substituted product is capable of achieving the performance values of the specified product. Substitutions will be evaluated by their having an ICC ESR showing compliance with the relevant building code for seismic uses, load resistance, installation category, and availability of comprehensive installation instructions. Adhesive anchor evaluation will also consider creep, in-service temperature and installation temperature.
3. Install anchors per the manufacturer instructions, as included in the anchor packaging.
4. Overhead adhesive anchors must be installed using the Hilti Profi System.
5. The Contractor shall arrange an anchor manufacturer's representative to provide onsite installation training for all of their anchoring products specified. The Architect/Structural Engineer must receive documented confirmation that all of the Contractor's personnel who install anchors are trained prior to the commencement of installing anchors.
6. Anchor capacity is dependant upon spacing between adjacent anchors and proximity of anchors to edge of concrete. Install anchors in accordance with spacing and edge clearances indicated on the drawings.

7. Existing reinforcing bars in the concrete structure may conflict with specific anchor locations. Unless noted on the drawings that the bars can be cut, the Contractor shall review the existing structural drawings (if available) and shall undertake to locate the position of the reinforcing bars at the locations of the concrete anchors, by Hilti Ferrosan, GPR, X-Ray, chipping or other means.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

### **3.2 INSTALLATION**

- A. General
  1. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.
  2. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plus, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry or similar construction.
  3. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.
  4. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.
- B. Setting Loose Lintels and Plates:
  1. Clean concrete and masonry bearing surfaces of any bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.
  2. Set Loose Lintels, leveling and bearing plates on wedges, or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut-off flush with the edge of the bearing plate before packing with grout. Use metallic non-shrink grout in concealed locations where not exposed to moisture; use non-metallic non-shrink grout

in exposed locations, unless otherwise indicated.

3. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

### **3.3 PIPE RAILINGS AND HANDRAILS**

- A. Adjust railing prior to anchoring to ensure matching alignment at abutting joints. Space posts at spacing indicated, or if not indicated, as required by design loadings. Plumb posts in each direction. Secure posts and railing ends to building construction as follows:
  1. Leave anchorage joint exposed; wipe off excess grout and leave 1/8 inch build-up, sloped away from post. For installation exposed on exterior or to flow of water, seal grout to comply with grout manufacturer's directions.
- B. Anchor posts in concrete by means of sleeves preset and anchored into concrete. After posts have been inserted into sleeves, fill annular space between post and sleeve solid with non-shrink, non-metallic grout, mixed and placed to comply with grout manufacturer's directions.
  1. Leave anchorage joint exposed; wipe off excess grout and leave 1/8 inch build-up, sloped away from post. For installation exposed on exterior or to flow of water, seal grout to comply with grout manufacturer's directions.
- C. Anchor rail ends into concrete and masonry with steel round flanges welded to rail ends and anchored into wall construction with lead expansion shields and bolts.
- D. Anchor rail ends to steel with aluminum oval or round flanges welded to rail ends and bolted to structural steel members, unless otherwise indicated.
- E. Secure handrails to wall with wall brackets and end fittings. Provide bracket with not less than 1-1/2" clearance from inside face of handrail and finished wall surface. Locate brackets as indicated, or if not indicated, at spacing required for design loading. Secure wall brackets and wall return fittings to building construction as follows:
  1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.
- F. For concrete and solid masonry anchorage, use drilled-in expansion shield and either concealed hanger bolt or exposed lag bolt, as applicable.
- G. For hollow masonry anchorage, use toggle bolts having square heads.

### **3.4 ADJUST AND CLEAN**

- A. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.8 mils.
- B. For galvanize surfaces: Clean field welds, bolted connections and abraded areas and apply galvanizing repair paint.

**END OF SECTION 05500**

## **SECTION 06100 - CARPENTRY**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Type of work in this section includes rough carpentry for wood nailers and blocking.

#### **1.3 SUBMITTALS**

- A. Material Certificates: Where dimensional lumber is provided to comply with minimum allowable unit stresses, submit listing of species and grade selected for each use, and submit evidence of compliance with specified requirements. Compliance may be in form of a signed copy of applicable portion of lumber producer's grading rules showing design values for selected species and grade. Design values shall be as approved by the Board of Review of American Lumber Standards Committee.
- B. Wood Treatment Data: Submit chemical treatment manufacturer's instructions for handling, storing, installation and finishing of treated material.
- C. Fire-Retardant Treatment: Include certification by treating plant that treated material complies with specified standard and other requirements.

#### **1.4 PRODUCT HANDLING**

- A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.
- B. Do not deliver finish carpentry materials, until painting, wet work, grinding and similar operations which could damage, soil or deteriorate woodwork have been completed in installation areas. If, due to unforeseen circumstances, finish carpentry materials must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

#### **1.5 PROJECT CONDITIONS**

- A. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other work.
- B. Maintain temperature and humidity in installation areas as required to maintain moisture content of installed finish carpentry within a 1.0 percent tolerance of optimum moisture content, from date of installation through remainder of construction period. The fabricator of woodwork shall determine optimum moisture content and required temperature and humidity conditions.



## **PART 2 - PRODUCTS**

### **2.1 LUMBER, GENERAL**

- A. Lumber Standards: Manufacture lumber to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Inspection Agencies: Inspection agencies and the abbreviations used to reference with lumber grades and species include the following:  
  
WWPA - Western Wood Products Association.
- C. Factory-mark each piece of lumber with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.
- D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
- E. Provide dressed lumber, S4S, unless otherwise indicated.
- F. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing.

### **2.2 MISCELLANEOUS LUMBER**

- A. Provide wood for support or attachment of other work including nailers, blocking, and similar members. Provide lumber of sizes indicated or required, worked into shapes shown, and as follows:
  - 1. Moisture content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.
  - 2. Grade: Construction Grade light framing size lumber of any species or board size lumber as required. Provide construction grade boards or No. 2 Boards.

### **2.3 MISCELLANEOUS MATERIALS**

- A. Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommended nails.
- B. Where rough carpentry work is exposed to weather, in area of high relative humidity, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A 153).
- C. Building Paper: ASTM D 226, Type I; asphalt saturated felt, non-perforated, 15-lb. type.

### **2.4 WOOD TREATMENT BY PRESSURE PROCESS**

- A. Fire-Retardant Treatment: Where fire-retardant treated wood ("FRT") is indicated or required, pressure impregnate lumber and plywood with fire-retardant chemicals to comply with

AWPA C20 and C27, respectively, identify "FRT" lumber with appropriate classification marking of Underwriters Laboratories, Inc., U.S. Testing, Timber Products Inspection or other testing and inspecting agency acceptable to authorities having jurisdiction.

1. Fire treated wood shall have a flame spread of 25 or less and shall be dried to 19% moisture content for lumber and 15% for plywood. Exposed wood or wood subject to high humidity conditions shall be identified that the moisture content shall not exceed 28% when tested at 92% relative humidity in accordance with ASTM D3201.
2. Treatment products: The following products, provided they comply with requirements of the contract documents will be among those considered acceptable:
  - a. "Dricon"; Hickson Corporation.
  - b. "Flame Proof LHC"; Osmose Wood Preserving, Inc.
  - c. "Pyro-Guard"; Hoover Treated Wood Products, Inc.
  - d. Or approved equal.
3. Treat members shown on drawings and/or as required to meet the all State and Local Codes and Regulations.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION, GENERAL**

- A. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
- B. Set carpentry work to required levels and lines, with members plumb and true to line and cut and fitted.
- C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards.
- D. Countersink nail heads on exposed carpentry work and fill holes.
- E. Use common wire nails, except as otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

### **3.2 WOOD NAILERS AND BLOCKING**

- A. Provide wherever shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
- B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated.

**END OF SECTION 06100**

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## SECTION 06650 - SOLID POLYMER FABRICATIONS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

1. Countertops.
2. Wall caps.

#### 1.3 SUBMITTALS

- A. Product Data: Written technical information for unit specified. Indicate product description, fabrication information and compliance with specified performance requirements.
- B. Shop Drawings:
  1. Submit rough-in drawings. Include the following details and all other information necessary to demonstrate compliance with contract documents:
    - a. Dimensions.
    - b. Required clearances.
    - c. Methods of assembling components.
    - d. Anchorages.
    - e. Coordination requirements with adjacent work.
- C. Samples: Submit minimum 2 inch by 2 inch samples. Indicate full range of colors and pattern variation. Approved samples will be retained as a standard for work.
- D. Certificates: Submit certification that work complies with requirements of contract documents.
- E. Manufacturer's Instructions: Submit for each product specified in this section.
  1. Include installation instructions and instructions for examination, preparation, and protection of adjacent work.
- F. Maintenance Data: Submit manufacturer's care and maintenance data, including care, repair and cleaning instructions and maintenance video.
  1. **Provide maintenance kit for indicated finishes. Include in project close-out documents.**

#### 1.4 DELIVERY, STORAGE AND HANDLING:

- A. Deliver no components to project site until areas are ready for installation. Store indoors.

- B. Handle materials to prevent damage to finished surfaces. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

**1.5 QUALITY ASSURANCE:**

- A. Allowable Tolerances: Variation in component size:  $\pm 1/8$  inch.

**1.6 WARRANTY:**

- A. Provide manufacturer's warranty against defects in materials, fabrication and installation, excluding damages caused by physical or chemical abuse or excessive heat. Warranty shall provide for replacement or repair of material and labor for a period of **ten (10) years**, beginning at Date of Substantial Completion.
  - 1. For fabrications with installed warranty coverage, identify by affixing manufacturer's fabrication/installation source plate.

**PART 2 - PRODUCTS**

**2.1 SOLID POLYMER FABRICATIONS:**

- A. Basis of Design: Corian Surfaces as manufactured by Du Pont De Nemours & Co., Inc.; or approved equal.
- B. Subject to compliance with indicated requirements manufacturers offering products which may be incorporated in the work include the following:
  - 1. Meganite Inc.: Manufacturer's Rep: Richelieu Hardware,
  - 2. LG Solid Surfaces,
  - 3. Wilsonart: Manufacturer's Rep: Fessenden Hall Inc.,
  - 4. Avonite Surfaces,
  - 5. Or approved equal.
- C. Material: Cast, filled, acrylic; not coated, laminated or of composite construction, meeting ANSI Z124 1980, Type Six, and FS WW-P-541E/GEN dated August 1, 1980.

**2.2 PERFORMANCE CHARACTERISTICS:**

<u>PROPERTY</u>	<u>REQUIREMENT</u> (min/max)	<u>TEST PROCEDURE</u>
Tensile Strength	5000 psi min	ASTM D638
Tensile Modulus	$1.0 \times 10^6$ psi min	ASTM D638
Flexural Strength	7000 psi min	ASTM D790
Flexural Modulus	$1.0 \times 10^6$	ASTM D790
Elongation	0.3% min.	ASTM D638
Strain at Break	0.8% min.	ASTM D638

Hardness	90-Rockwell "M" scale 52-Barcol Impressor min.	ASTM D758
Thermal Expansion	3.5 x 10 <sup>-6</sup> in/in/deg C max 1.95 x 10 <sup>-6</sup> in/in/deg F max	ASTM D696
Color Stability	No change, min. 100 hours	NEMA LD3-3.10
Wear and Cleanability	Passes	ANSI Z124.3
Abrasion Resistance	No loss of pattern Weight loss (1000 cycles)=0.9 g. max.	NEMA LD3-3.01 ANSI Z124.3
Boiling water Surface Resistance	No Change	NEMA LD3-3.05
High Temperature Resistance	No Change	NEMA LD3-3.06
Conductive Heat Resistance	No Change	NEMA LD3-3.08
Impact Resistance Notched Izod	0.24 ft.-lbs./in. of notch min.	ASTM D256, Method A
Gardner	9.0 ft-lbs min.	ASTM D3029
Ball drop 1/4" sheet	36" min. with 1/2 lb ball, no failure	NEMA LD3-303
1/2" sheet	140" min. with 1/2 lb ball, no failure	
3/4" sheet	200" min. with 1/2 lb ball, no failure	
Stain Resistance	Passes	ANSI Z124.3
Weatherability	No change, min. 1000 hours	ASTM D1499-84
Fungi and Bacteria	No Attack	ASTM G21, ASTM G22
Specific Gravity	1.6 min.	

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Water Absorption Weight (% max.)	<b>24 hrs.</b> 0.05 (1/4") max. 0.10 (3/4") max.	<b>Long Term</b> 0.50 (1/4") max. 0.90 (3/4") max.	ASTM D570
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Flammability ASTM E84

	<b>Solid Colors</b>		
	<b>1/4"</b>	<b>1/2"</b>	<b>3/4"</b>
Flame spread	25 max	25 max	25 max
Smoke Developed	30 max	30 max	30 max
Class	1	1	1

**Particulate Patterns**

	<b>1/4"</b>	<b>1/2"</b>	<b>3/4"</b>
Flame spread	25 max	25 max	25 max
Smoke Developed	30 max	30 max	30 max
Class	1	1	1

Pittsburgh Protocol Toxicity (as used by NY state)	solids-80 grams min. particulate patterns-65 grams min.	"LC50" Test
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**2.3 ACCESSORY PRODUCTS**

- A. Joint Adhesive: Manufacturer's standard two-part adhesive kit to create inconspicuous, non-porous joints by chemical bond.
- B. Panel Adhesive: Manufacturer's standard neoprene-based panel adhesive complying with ANSI A136.1-1967, UL listed.
- C. Sealant: Manufacturer's standard mildew-resistant, FDA, UL listed silicone sealant in colors matching components.

**2.4 FABRICATION:**

- A. Factory fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed Instructions and technical bulletins.

- B. Form joints between components using manufacturer's standard joint adhesive; without conspicuous joints. Reinforce with strip of solid polymer material, 2" wide.
- C. Rout and finish component edges with clean, sharp returns. Rout cutouts, radii and contours to template. Smooth edges. Repair or reject defective and inaccurate work.
- D. Countertops: ½-inch thick solid polymer material, adhesively joined with inconspicuous seams, edge as indicated on the drawings, unless otherwise shown on the Drawings.
  - 1. Provide surfaces with a uniform finish, Matte, Gloss range of 5-20. Color to be selected from manufacturer's Color Group - 1 - 7.
- E. Wall Caps: 1-inch thick solid polymer material, adhesively joined with inconspicuous seams, edge as indicated on the drawings, unless otherwise shown on the Drawings.
  - 1. Provide surfaces with a uniform finish, Matte, Gloss range of 5-20. Color to be selected from manufacturer's Color Group - 1 - 7.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL REQUIREMENTS**

- A. Prior to final approval of shop drawings, erect at project site one full size mock-up of each component required, for Architect's review.
- B. Should mock-up not be approved, re-fabricate and reinstall until approval is secured. Remove rejected units from project site.
- C. Approved mock-ups may remain as part of finished work.

#### **3.2 INSTALLATION**

- A. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
- B. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Reinforce joints as required.
- C. Perform installation in accordance with manufacturer's instructions, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.

#### **3.3 CLEANING**

- A. Clean shop finished surfaces, touch-up as required, and remove or refinish damaged or soiled areas, as acceptable to Architect.

#### **3.4 PROTECTION**

- A. Contractor to take all precautions as recommended by the manufacturer for protection of installed window stools and other solid plastic products from damage by work of other trades.

**END OF SECTION 06650**

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**2:06650-5**

## **SECTION 07070 - SELECTIVE ROOF DEMOLITION**

### **PART 1- GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 GENERAL**

- A. The Contractor will be responsible for the removal and disposal of all materials generated from work of this contract.
- B. Provide all labor, material, equipment, and tools as required to prepare the existing roof section for selective demolition work and installation of new RTU curbs, vents, etc. as specified in this Section and other Division 7 Sections.
- C. Provide for the proper disposal of all existing materials designated to be removed. Use approved trash receptacles in areas designated by the Owner's Representative.
- D. Coordinate work, in such a manner as to keep the new insulation and roofing materials, building, and building interior absolutely clean, dry and watertight.
- E. Contractor is to maintain the building roof in a watertight condition at the completion of each day's work and ensure that no water enters into the building. Roof areas are to be "watertight at night" at all times during the job. Failure to do so is grounds for dismissal. Contractor will reimburse Owner the cost to repair interior damages resulting from roof leaks during construction.
- F. Contractor is to maintain the building and site in a neat and orderly fashion at all times. Completely remove all scrap and debris on a daily basis. Failure to do so is grounds for dismissal.

#### **1.3 SUBMITTALS**

- A. Proposed Selective Demolition Activities:
  - 1. Submit proposed schedule of demolition activities. Indicate:
    - a. Starting and ending dates for each activity as appropriate.
    - b. Interruption and restoration of utility services.
  - 2. Submit proposed methods of operations.
- B. Project Record Documents:
  - 1. Indicate unanticipated structural, electrical, or mechanical conditions.
- C. Photographs: Before starting work, file with the Architect photographs documenting existing conditions that later could be mistaken for damage caused by demolition operations.



## **1.4 PROJECT CONDITIONS**

- A. Occupancy:
  - 1. The Owner will continue to occupy portions of the existing building.
- B. Unforeseen Conditions:
  - 1. Should unforeseen conditions be encountered that affect design or function of project, investigate fully and submit an accurate, detailed, written report to the Owner / Architect. While awaiting the Owner / Architect's response, reschedule operations if necessary to avoid delay of overall project.

## **PART 2**

### **2.1 EQUIPMENT**

- A. Demolition equipment and materials are provided by the Contractor.

## **PART 3**

### **3.1 EXECUTION**

- A. Contractor shall take all necessary precautions during roof preparation work to protect the building exterior, building interior, and adjacent surfaces from being soiled or damaged.
- B. When weather threatens, cease work under this Section and return roof to a watertight condition.
- C. Contractor shall restore to original condition any damages caused during work on this project. Damages found on this project prior to start of work must be documented by contractor and brought to Owner's attention prior to start of work.
- D. All roof drains are assumed to be in good operating condition. Contractor is to verify good operating condition of roof drains prior to start of work on this project. Damaged, clogged or partially clogged drains must be documented by Contractor and brought to Owner's attention prior to start of work on this project.
- E. Return all roof drains to operating condition at the end of each working day.
- F. Immediately prior to insulation attachment, sweep the deck surface. Do not allow foreign objects to become trapped under the insulation board by being left on the deck surface.
- G. If, during observation of the prepared surface, the Architect or the manufacturer's representative determined the deck surface was not prepared properly, Contractor shall re-prepare the surface to the satisfaction of the Architect or manufacturer's representative.
- H. Properly dispose of all debris from roof preparation on a daily basis.
- I. Do not store debris on roof. Contractor shall take care not to over stress roof deck.

- J. Provide closed trash chutes or other approved means for removal of debris.
- K. Construct all necessary barricades, fencing, warning sign, scaffolding, etc., required to protect personnel and property.
- L. Prior to the completion of the work, remove from the job site all tools, equipment, debris and waste.

**END OF SECTION 07070**

## **SECTION 07500 - ROOFING REPAIRS, GENERAL**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- A. The requirements of this section apply to the work specified in the following sections:
  - 1. Section 06100 - Carpentry,
  - 2. Section 07070 - Selective Roof Demolition,
  - 3. Section 07535 - Repairs to Modified Bitumen Roofing System,
  - 4. Section 07600 - Flashing and Sheet Metal,
- B. This section includes alterations and tie-ins to existing roofing system and as shown on the drawings.

#### **1.2 QUALITY ASSURANCE**

- A. Roofing repair work, including work of all sections listed in 1.1 above, must be included in a single subcontract, so that there will be undivided responsibility for the specified performance of all component parts.
- B. Installer Prequalification: Installer must be a recognized Roofing Contractor, skilled and experienced in the types of work required, and equipped to perform workmanship in accordance with recognized standards.
  - 1. Minimum Experience: Not less than a recommended five (5) years experience in applications for indicated roofing systems, and in roofing projects of magnitude equivalent to the required work.
  - 2. Maintenance Proximity: Recommended location of not more than two hours normal travel time from Installer's maintenance plant to project site.
    - a. Optional Proximity: At Contractor's option, and with Owner's prior acceptance of Installer's certification that work of the Maintenance Agreement will be performed by a designated roofing contractor whose plant is located not more than two hours normal travel time from project site, the above requirements will be waived.
- C. Product Bid: The product bid must have past performance of installation on a roof in the state where project is located for a recommended minimum of five (5) years, under the same name of manufacturer as bid.
- D. Alterations to existing roof: Contractor shall make necessary tie ins and alterations to existing roof in accordance with details indicated and "Basis of Design" product requirements so as to maintain original warranty on existing roof and/or achieve complete weather tight conditions.

#### **1.3 SUBMITTALS**

- A. Submit certification that the roof materials furnished for roof alterations and tie-ins is Tested

and Approved by Factory Mutual as a Class 1-SH roof system with 1-90 Wind Uplift Requirements, or Listed by Underwriters Laboratories or Warnock Hersey for external fire tests of ASTM E - 108 Class A.

- B. Product Data for each type of product specified include manufacturer's technical product data, installation instructions, and recommendations for each type of roofing product required. Include data substantiating that materials comply with specified requirements.
- C. For all modified bituminous sheet roofing include independent test data according to ASTM designation D-5147-91 "Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material" substantiating that materials comply with specified requirements. A separate Certificate of Analysis for each production run of material shall indicate the following information:
  - 1. Material type.
  - 2. Lot number.
  - 3. Production dates.
  - 4. Dimension and Mass.
  - 5. Physical and Mechanical Properties.
- D. Shop Drawings: Submit roofing membrane layout drawings showing the outline of existing roof and locations of flashings and tie-ins, seam locations, specific roofing repair details illustrating relationships with adjacent construction, and flashing details at indicated tie-in conditions.
  - 1. Submit shop drawings of manufactured and/or fabricated sheetmetal work.
  - 2. Contract Drawing Detail Approval: If the roofing manufacturer takes exception to the contract document details, the manufacturer shall provide the roofing contractor with acceptable details to be submitted to the Architect for approval. This Project must receive Architect's approval through this process prior to shipment of materials to the project site. All roofing work required by the roofing system manufacturer shall be included in the contract at no additional cost to the Owner.
- E. Samples: Samples of each material specified, properly labeled.
  - 1. Roof membrane: For project records, submit 8- by 10-inch samples of membrane cut from rolls of each type of material used on the project.
  - 2. Flashing membrane: Submit 12-inch-square samples of sheet material to be used for base flashings.
  - 3. Fasteners: Submit (2) of each type.
  - 4. Adhesives: Submit samples for each type to be used.

#### **1.4 JOB CONDITIONS**

- A. Roofing Conference: Prior to the installation of the roofing repair and associated work, meet at the project site with the Installer, the Installers of each component of associated work, and the Architect and other representatives directly concerned with performance of the work,

including, where applicable, product manufacturers and the Owner. Record (by Contractor) the discussions of the conference and the decisions and agreements, or disagreements reached, and furnish a copy of the record to each party attending. Review foreseeable methods and procedures related to the roofing work including, but not necessarily limited to, the following:

1. Review Project requirements (drawings, specifications and other contract documents).
2. Review status of existing conditions and substrate (by the Roofing Installer), including extent of moisture penetration in existing work, drying and similar considerations.
3. Review availability of materials, tradesmen, equipment and facilities needed to make progress and avoid delays.
4. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions.
5. Review regulations concerning Code compliance, environmental protection, health, safety, fire and similar considerations.
6. Establish units of work, including preparation, such that each unit may be completed prior to end of each day's work.

B. Weather Condition Limitations:

1. During periods of inclement weather, Contractor shall use wet power vacuums, on the day following each rain, to remove standing water so as not to delay his operations.
2. Proceed with roofing and associated work only when weather conditions will permit unrestricted use of materials and quality control of the work being installed, complying with the requirements and the recommendations of the roofing materials manufacturers.
3. Proceed only when the Contractor is willing to guarantee the work as required and without additional reservations and restrictions.
4. Protect existing work and property from damage during the course of the work. Be prepared for all weather and other contingencies as prudence may dictate. Maintain on the site at all times sufficient and proper materials for temporary roofing and other protection when weather conditions prevent continuance of work and do not permit completion of each unit of work prior to the end of each working day. Temporary protection and roofing work must be provided at no additional cost to the Owner.
5. Remove and discard materials which have been used for temporary roofs, protection, water seals, and related work. Do not incorporate used materials into the work.

C. Storage of Materials and Property: Do not overstress roof decks and supporting structures. Avoid placing loads at midspans of framing. All superimposed loads shall be well distributed. Do not store more material on roofs than can be installed in one and one-half working days. Store materials, except membrane, in dry area and protect from water and direct sunlight.

Damaged materials shall be replaced at Contractor's expense. Protect adjacent work from damage due to roofing operations and related work. Provide temporary protection against walls adjacent to roofing work; remove protection upon completion.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL ROOFING MATERIALS**

- A. Refer to other sections for new roofing work and all requirements of roofing materials, products and systems.
- B. Alterations and Tie-ins to Existing Roofs**
  - 1. Provide Roofing materials, flashings, primers, adhesives and all other required accessories to meet or exceed the following "Basis of Design" minimum performance requirements. All roofing materials shall be UL Class A, FM Class 1-SH listed and shall comply with the International Building Code, and CGSB 37-GP-56M standards.
  - 2. Wood Cants and Curbs: Lumber; #2 grade free from warping and visible decay; fire retardant treated, and marked.
  - 3. Mechanical Fasteners: Manufacturer's standard FM approved fasteners for this type of application.
  - 4. Other Materials and Accessories: Manufacturer's standard and/or approved products for indicated applications.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION, GENERAL**

- A. Contractor shall prepare a plan and submit it to the Architect for which identifies how the roofing repairs and all associated work will be performed so as to prevent foot traffic on the newly installed roofing system.
- B. Coordinate the installation of roofing repair materials and associated work so as to provide a complete system complying with the combined recommendations of manufacturers and installers involved in the work.
- C. Protect other work from spillage of roofing materials, and prevent materials from entering and clogging drains and conductors. Replace or restore other work which is soiled or otherwise damaged by the performance of the roofing and associated work.

### **3.2 PERFORMANCE REQUIREMENTS**

- A. Initial Weather Resistance: It is required that the roofing and associated work be durable in normal weather exposure and not leak water during rainstorms. After completion of the roofing and associated work, and either during or immediately after a rainstorm, (and just before final acceptance of the work) the Installer shall meet with the Contractor at the project and inspect the building for evidence of leaks in the roofing and associated work. Prepare

a written report without delay (by Contractor) covering the inspection, and submit to Owner (with copy to Architect). Should no rain occur between the time the roof is completed and when all punch list items have been corrected, this requirement shall be waived.

B. Repair or replace roofing and associated work as required to eliminate leaks or other inability of roofing to initially withstand normal weather exposure.

1. Abnormal weather exposure is recognized to include hailstorms, lightning strikes, hurricane and tornadic winds, and other unusual phenomena of the weather as frequently covered by building insurance.

**C. Alterations and Tie-ins to Existing Roofs**

1. Examine substrate surfaces to receive roofing system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to Installer.
2. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane.
3. Cooperate with inspection and test agencies engaged or required to perform services in connection with roofing system installation.
4. Insurance/Code Compliance: Install roofing and flashing work (and test where required to show) compliance with governing regulations.
5. Coordinate the installation of roofing sheets, flashings, stripping, coatings and surfacing, so that felts are not exposed to precipitation nor exposed overnights. Provide cut-offs at the end of each day's work, to cover exposed felts and insulation with a course of coated felt with joints and edges sealed with roofing cement. Remove cut-offs immediately before resuming work. Glaze coats installed ply-sheet courses at the end of each day's work where final surfacing has not been installed.
6. Substrate Joint Penetrations: Do not allow adhesive to penetrate substrate joints and enter building or damage existing or new insulation, vapor barriers (retarders) or other construction.
7. General Requirements: Apply roofing membrane in accordance with roofing material manufacturer's instructions. Application of roofing shall immediately follow application of base sheet and/or insulation as a continuous operation.

D. Agreement to Maintain Roofing: See Part 1, Section 01900 - Guarantees and Warranties.

**END OF SECTION 07500**

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## **SECTION 07535 - REPAIRS TO MODIFIED BITUMEN ROOFING SYSTEM - COLD APPLIED**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. The requirements of this section apply to the work specified in all roofing sections work and include also the following work:
  - 1. Roofing alterations and repair work to an existing warranted Siplast SBS modified bitumen roofing system.
- B. Related Sections:
  - 1. Section 04200 - Unit Masonry.
  - 2. Section 06100 - Carpentry for wood blocking and nailers.
  - 3. Section 07500 - Roofing, General.
  - 4. Section 07600 - Flashing, Sheet Metal and Roof Accessories.
  - 5. Section 07900 - Joint Sealer Assemblies.
- C. Furnish all labor, materials and incidentals required to complete roofing repair work of the Siplast, 2-Ply Modified Bitumen Roof Membrane System, SBS Adhesive, flashing torch applied, insulation, thermal barrier boards, and all other re-roofing components supplied by the roofing membrane manufacturer and as shown on the drawings and/or specified herein.

#### **1.3 QUALITY ASSURANCE**

- A. Roofing and associated work must be performed by a single firm, called the "Installer" in this section, so that there will be undivided responsibility for the specified performance of all component parts.
- B. Installer: The roofing contract shall be carried out only by an installer who is franchised or otherwise accepted in writing by the roofing materials manufacturer for installation of a fully guaranteed roof in accordance with the manufacturer of the roofing membrane system requirements.
- C. Roofing Contractor: The roofing contractor shall have a recommended minimum of five (5) years experience in the installation of the specified roofing system, with roofing projects of magnitude equivalent to the required work. Foreman employed for this project must submit evidence of having been trained by the roofing manufacturer.



1. Minimum experience: Not less than a recommended five (5) year's experience with roofing projects of magnitude equivalent to the required work.
  2. Maintenance Proximity: Recommended location of not more than two hours normal travel time from Installer's maintenance plant to project site.
- D. Manufacturer of Roofing Materials: Obtain primary roofing materials from a single manufacturer, who has published complete information on the required roofing system, and offers to guarantee the completed roofing installation as required. Obtain secondary materials from sources acceptable to the manufacturer of the primary roofing materials.
1. Manufacturer of Roofing System is further limited to one who will fulfill the following requirements:
    - a. Participates in a pre-roofing conference.
    - b. Shows a record of continued production of the specified materials for a recommended twenty (20) years.
    - c. Provides a list of executed projects in the State of New Jersey.
    - d. Provides complete manufacturer's produced printed manuals describing the roofing membrane and accessory materials, technical specifications, method of installation, including manufacturer's standard detailed drawings.
- E. Inspection: Upon completion of the installation, an inspection shall be made by a technical representative of the roofing manufacturer to ascertain that the roofing system has been installed according to roofing manufacturer's latest published specifications and details.
1. There shall be no deviation made from this specification without prior written approval by the manufacturer and the Architect.
- F. Insurance Certification: Assist the Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.
- G. UL Listing: Provide roofing system and component materials which have been tested for application and slopes indicated and are listed by Underwriters Laboratories, Inc. (UL) for Class A external fire exposure.
1. Provide roof covering materials bearing UL Classification Marking on bundle, package or container indicating that materials have been produced under UL's Classification and Follow-up Service.
- H. FM Listing: Provide built-up roofing system and component materials which have been evaluated by Factory Mutual System for fire spread, wind-uplift, and hail damage and are listed in "Factory Mutual Approval Guide" for I-90 Wind Uplift. Roof system must be a Class 1A rate roof system.
1. Provide roof covering materials bearing FM approval marking on bundle, package or container, indicating that material has been subjected to FM's examination and follow-up inspection service.

I. Roof Code Requirements:

1. Code Compliance: Modified Bitumen Roof Covering System shall comply with the International Building Code.
2. Roofing System Design to meet roof covering wind resistance and wind test standards as described in Section 1504 of the IBC and shall be tested in accordance FM 4474, UL 580 or UL 1897.
  - a. Basic wind speed for this project as per the IBC and must be used to determine the basic Velocity Pressure (Pv) and the building minimum design wind and wind resistance standards required by code (and comply with Table 1504.8).
3. Roofing assemblies shall meet UL for external fire exposure using UL Test No. 790 (ASTM E 108) Class A, as described in Section 1505, of the IBC.
4. Material Standards. As described in Section 1507.11.2, of the IBC. Modified Bitumen roof coverings shall comply with CGSB 37-GP-56M, ASTM D 6162, ASTM 6163, ASTM D 6164, ASTM D 6222, ASTM D 6223 ASTM 6298 and ASTM D 6509.
5. Roofing Insulation. Above-deck thermal insulation board shall comply with the standards in Table 1508.2, Polyisocyanurate board ASTM C 1289, Type I or Type II.

**1.4 REFERENCE STANDARDS**

A. References in these specifications to standards, test methods, codes etc., are implied to mean the latest edition of each such standard adopted. The following is an abbreviated list of associations, institutions, and societies which may be used as references throughout these specifications.

1. ASTM American Society for Testing and Materials, Philadelphia, PA
2. FM Factory Mutual Engineering and Research, Norwood, MA
3. NRCA National Roofing Contractors Association, Rosemont, IL
4. OSHA Occupational Safety and Health Administration, Washington, DC
5. SMACNA Sheet Metal and Air Conditioning Contractors National Association, Chantilly, VA
6. UL Underwriters Laboratories, Northbrook, IL
7. IBC International Building Code, Washington, DC

**1.5 PROJECT CONDITIONS**

A. Weather Condition Limitations: Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturers' recommendations and warranty requirements.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle roofing materials in a manner which will ensure that there is no possibility of significant moisture pick-up. Store in a dry, well ventilated, weather-tight place. Unless protected from weather or other moisture sources, do not leave unused felts on the roof overnight or when roofing work is not in progress. Store rolls of felt and other sheet materials on end on pallets or other raised surface. Handle and store materials or equipment in a manner to avoid significant or permanent deflection of deck.

## 1.7 WARRANTY

- A. Agreement to Maintain Roofing:
  - 1. Provide Roofing subcontractor's agreement to maintain the roof systems and related roof sheet metal work in a weathertight and watertight condition for a period of **two (2) years** starting from the date of approved substantial completion date and in accordance with special Maintenance Contract outlined herein.
    - a. During the Maintenance Period, the Roofing subcontractor agrees that within 24 hours of receipt of notice from the Owner he will inspect and make immediate emergency repairs to defects or to leaks in the roof systems and related flashing work. He further agrees that within a reasonable time, he will restore the affected items to the standard of the original specifications and without voiding the Manufacturer guarantee. All emergency and permanent work during the life of the agreements to maintain the roof systems will be done without cost to the Owner, except in the event it is determined that such leaks were caused by abuse, lightning, hurricanes, tornado, hailstorm, other unusual climatic phenomena of the elements, or failure of related work (except related roof sheet metal work included under the Agreement) installed by other parties.
    - b. Agreement to maintain roofing system shall be in a written form acceptable to the Architect/Owner and before final payment is released for the project.
    - c. If, 48 hours after notification of roof leakage, Contractor has not responded, Owner shall have the right, without invalidating his warranties and at the expense of the Contractor, to make any emergency temporary repairs that are required in order to protect the building and its contents from damage due to roof leakage.

## 1.8 SUBMITTALS

- A. Submit certification that the roof system furnished is Tested and Approved by Factory Mutual as a Class 1A roof system with 1-90 Wind Uplift Requirements, or Listed by Underwriters Laboratories or Warnock Hersey for external fire tests of ASTM E - 108 Class A and the following:
  - 1. Evidence of Factory Mutual Approval Standard 4470 for the proposed membrane system.
  - 2. Underwriters' Laboratories Class A acceptance of the proposed roofing system shall include cold adhesive without additional requirements for gravel or coatings. No other testing agency approvals will be accepted.

3. The roof configuration (including fastening of base sheet or insulation) shall be approved by FM for minimum 1-90 windstorm construction.
  4. The roof membrane configuration shall be approved by FM for Class 1-SH (severe hail) exposure.
- B. Submit product data for each type of product which is part of the roofing assembly, including sheet roofing plies, flashings, roofing boards, sheet metal work, with manufacturer's technical product data, test data and Physical Properties and Performance. Include typical details, installation instructions, and recommendations for each type of roofing product required. Include data substantiating that materials comply with specified requirements.
- C. Shop Drawings: Submit specific roofing details illustrating relationships with adjacent construction, flashing details and roof penetrations.
1. Submit shop drawings of manufactured and/or fabricated sheet metal work.
  2. Contract Drawing Detail Approval: If the roofing manufacturer takes exception to the contract document details, the manufacturer shall provide the roofing contractor with acceptable details to be submitted to the Architect for approval.
    - a. This Project must receive the Architect's approval through this process prior to shipment of materials to the project site.
    - b. All roofing work required by the roofing system manufacturer shall be included in the contract at no additional cost to the Using Agency.
    - c. Locations or rates of bead adhesives and mopping asphalt for securing roofing boards.
- D. Samples: Samples of each material specified, properly labeled.
1. Roof membrane: For project record, submit 8- by 10-inch samples of membrane cut from rolls of each type of material used on project.
  2. Flashing membrane: Submit 12-inch-square samples of sheet material to be used for base flashings.
  3. Fasteners: Submit (2) of each type.
  4. Coatings and adhesives: Submit samples for each type to be used.
- E. Submit independent test data according to ASTM designation D-5147-91 "Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material" substantiating that materials comply with specified requirements.
- F. Submit evidence and description of manufacturer's quality control/quality assurance program for the primary roofing products supplied. The quality assurance program description shall include all methods of testing for physical and mechanical property values. Provide confirmation of manufacturer's certificate of analysis for reporting the tested values of the actual material being supplied for the project prior to issuance of the specified guarantee.

- G. Submit a letter from the primary roofing manufacturer confirming that proposed membrane manufacturer has been producing SBS products in the United States for a recommended minimum of five (5) years without a change in the basic product design, physical and mechanical properties, or SBS modified bitumen blend, polymer specification, asphalt and filler formulation.
1. Letter shall confirm the number of years it has directly manufactured the proposed primary roofing system under the trade name and/or trademarks as proposed.
  2. Letter shall confirm that a phased roof application, with only the modified bitumen base ply in place for a period of up to 10 weeks, is acceptable and approved for this project.
  3. Letter shall include a recommended list of five (5) of the proposed primary roofing manufacturer's projects, located in the United States, of equal size and degree of difficulty which have been performing successfully for a period of at least 5 years.
  4. Letter shall confirm that the filler content in the elastomeric blend of the proposed roof membrane and flashing components does not exceed 35% in weight.
  5. Letter shall include a complete list of material physical and mechanical properties for each sheet including: weights and thicknesses; low temperature flexibility; maximum load; elongation @ 5% maximum load (ultimate elongation); dimensional stability; high temperature stability; granule embedment and resistance to thermal shock (foil faced products).
  6. Letter shall confirm that the proposed roof membrane and flashing components meet or exceed the physical and mechanical requirements listed in Part 2 of this specification.
  7. Letter shall confirm that the proposed roof membrane system meets the requirements of ASTM D 5849 Resistance to Cyclic Joint Displacement (fatigue) at 14 F (-10C). Passing results shall show no signs of membrane cracking or interply delamination after 500 cycles in an unaged specimen and 200 cycles in a specimen after heat conditioning.
- H. Submit a sample of unexecuted Manufacturer's warranty. Include separate supplement as required to comply with special warranty requirements indicated in this specifications.
- I. Certifications: The Contractor / Installer / Manufacturer (grantor) shall submit certifications to the Architect that the contract documents including the materials, methods and details of work provided for therein, are adequate to accomplish the specified results.
1. Contractor shall provide manufacturer's "Roof Assembly Letter" confirming each proposed roof system and decking description as follows:
    - a. Assembly,
    - b. Construction Type,
    - c. Maximum Slope,
    - d. Deck Type,
    - e. Insulation - Layer (1),
    - f. Insulation Fastening,

- g. Insulation Attachment Requirements; Field, Perimeter, Corners,
- h. Insulation - Layer (2),
- i. Insulation Attachment; Adhesive,
- j. Membrane.

## PART 2 - PRODUCTS

### 2.1 ROOFING MATERIALS

- A. Existing Roofing System: "Paradiene 20/30 FR Roofing System"; Siplast Inc.

### 2.2 ROOFING MATERIALS

- A. Existing Warranted Roofing System: All roofing system materials and components as specified herein are based upon the existing roofing system, as manufactured by Siplast Incorporated.
- B. Roofing Membrane Assembly: A roof membrane assembly consisting of two plies of a prefabricated, reinforced, homogeneous Styrene-Butadiene-Styrene (SBS) block copolymer modified asphalt membrane, applied over a prepared substrate.
  - 1. Both reinforcement mats shall be impregnated/saturated and coated each side with an SBS modified bitumen blend.
  - 2. The roof system shall pass 500 cycles of ASTM D 5849 Resistance to Cyclic Joint Displacement (fatigue) at 14°F (-10°C).
  - 3. Passing results shall show no signs of membrane cracking or interply delamination after 500 cycles.
  - 4. The roof system shall pass 200 cycles of ASTM D 5849 after heat conditioning performed in accordance with ASTM D 5147. The assembly shall possess waterproofing capability, such that a phased roof application, with only the modified bitumen base ply in place, can be achieved for prolonged periods of time without detriment to the watertight integrity of the entire roof system.
- C. Roofing Materials and Accessories:
  - 1. Modified Membrane Sheets: Manufacturer's standard and as following:
    - a. **"Siplast Paradiene 20"; Modified Bitumen Base, Stripping, and Flashing Reinforcing Ply:**
      - 1) Thickness (avg): 91 mils (2.3 mm) (ASTM D 5147)
      - 2) Thickness (min): 87 mils (2.2 mm) (ASTM D 5147)
      - 3) Weight (min per 100 ft<sup>2</sup> of coverage): 62 lb (3.0 kg/m<sup>2</sup>)
      - 4) Maximum filler content in elastomeric blend - 35% by weight
      - 5) Low temperature flexibility @ -13°F (-25°C): PASS (ASTM D 5147)
      - 6) Maximum Load (avg) @ 73°F (23°C): 30 lbf/inch (5.3 kN/m) (ASTM D 5147)
      - 7) Maximum Load (avg) @ 0°F (-18°C): 70 lbf/inch (12.3 kN/m) (ASTM D 5147)

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- 8) Elongation @ 5% Maximum Load (avg.) @ 73°F (23°C): 50% (ASTM D 5147)
  - 9) Dimensional Stability (max): 0.1% (ASTM D 5147)
  - 10) High Temperature Stability (min): 250°F (121°C) (ASTM D 5147)
  - 11) Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
  - 12) Reinforcement: fiberglass mat or other meeting the performance and dimensional stability criteria
- b. **“Siplast Paradiene 30 FR”; Modified Bitumen Finish Ply:**
- 1) Thickness (avg): 130 mils (3.3 mm) (ASTM D 5147)
  - 2) Thickness at selvage (coating thickness) (avg): 98 mils (2.5 mm) (ASTM D 5147)
  - 3) Thickness at selvage (coating thickness) (min): 94 mils (2.4 mm) (ASTM D 5147)
  - 4) Weight (min per 100 ft<sup>2</sup> of coverage): 90 lb (4.4 kg/m<sup>2</sup>)
  - 5) Maximum filler content in elastomeric blend: 35% by weight
  - 6) Low temperature flexibility @ -13° F (-25° C): PASS (ASTM D 5147)
  - 7) Maximum Load (avg) @ 73°F (23°C): 30 lbf/inch (5.3 kN/m) (ASTM D 5147)
  - 8) Maximum Load (avg) @ 0°F (-18°C): 75 lbf/inch (13.2 kN/m) (ASTM D 5147)
  - 9) Elongation @ 5% Maximum Load (avg.) @ 73°F (23°C): 55% (ASTM D 5147)
  - 10) Dimensional Stability (max): 0.1% (ASTM D 5147)
  - 11) High Temperature Stability (min): 250°F (121° C) (ASTM D 5147)
  - 12) Granule Embedment (max loss): 2.0 grams per sample (ASTM D 5147)
  13. Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
  - 14) Reinforcement: Fiberglass mat or other meeting the performance and dimensional stability criteria
  - 15) Surfacing: Ceramic granules
- c. **Flashing Sheets:**
- 1) **“Siplast, Veral Flashing System”:**
    - a) 134 mil SBS Fiberglass reinforced with fiberglass scrim composite, homogeneous (Styrene-Butadiene-Styrene) block copolymer modified asphalt membrane, UL Class listed, FM approved (products shall bear seals of approval).
    - b) Weight: 90 lbs. Average per 100 square foot of coverage.
    - c) Low Temperature Flexibility: Passes @ - 0°F (-18°C),(ASTM D-5147).
    - d) Breaking Load : 85 lbf/inch @ 73 °F, (ASTM D-5147).
    - e) Elongation : 45 % @ 73.0°F, (ASTM D-5147).
    - f) Compound Stability: -230°F (-110°C
    - g) Surfacing : Aluminum metal foil.
- d. **“Parapro 123 Flashing System by Siplast”; Catalyzed Acrylic Resin Flashing System:** A specialty flashing system consisting of a liquid-applied, fully reinforced, multi-component acrylic membrane installed over a prepared or primed substrate. The flashing system consists of a catalyzed acrylic resin primer, basecoat and topcoat, combined with a non-woven polyester fleece. The resin and catalyst are pre-mixed immediately prior to installation. The use of the specialty flashing system shall be specifically approved in advance by the membrane manufacturer for each application.
- 1) Concrete and masonry surfaces to receive Parapro must be cleaned and wire brushed down to a new surface and primed with Pro Primer W.

NOTE: Parapro is not compatible with the solvents in PA-311 M cold adhesive used to install the 20/30 system. Hold back the PA-311 M twelve (12) inches from the Parapro. Use SFT adhesive (solvent free technology) or PS-304 elastomeric sealant to adhere the 20/30 membrane adjacent to and underneath the Parapro. Use SFT flashing cement or PS-304 to adhere the stripping ply on the vertical surface. Priming is not required.

2. Membrane Cold Adhesive: An asphalt, solvent blend conforming to ASTM D 4479, Type II requirements.
  - a. Siplast PA-311 M Cold Adhesive by Siplast;
3. Flashing Adhesive: A slump resistant, asphalt cutback flashing adhesive, reinforced with non-asbestos fibers, conforming to ASTM D 4586 Type II requirements.
  - a. Siplast PA-828 Flashing Cement.
4. Rigid Roofing Boards: Types which provided or approved by the roofing system manufacturer which include but are not limited to the following
  - a. ROOF INSULATION BOARD: Provide "Paratherm"0; Siplast Inc; polyisocyanurate board for Uniform and Tapered Insulation:
    - 1) Board Size: 4' x 4' only.
    - 2) Thickness (Uniform): As necessary to achieve the required "R" value. See also minimum thickness indicated on drawings and tapered areas.
      - a) Bottom layers on existing flat concrete decking shall be a minimum of 3½" thick, two layers of 1½" thick with staggered joints plus ½" minimum of tapered insulation at the low point, as indicated.
        - (i) Tapered insulation; 1/4" to the foot slope for the roof area; and ½" to the foot slope for gussets/crickets. Stagger all joints between layers.
    - 3) R-Value (Uniform): Match thickness of adjacent existing insulation to remain.
    - 4) Compressive Strength: 25 psi, minimum, Grade 3.
    - 5) Density: 1.5 pcf.
    - 6) Surface - Burning Characteristics: Tested in accordance with ASTM E 84;
      - a) Flame Spread: Not more than 25
      - b) Smoke - developed: Not more than 200
    - 7) FM approved for Wind Uplift, tested for 90 psf.
  - b. Top Over laying Board:
    - 1) THERMAL BARRIER BOARD
      - a) Basis of Design: "Securerock Gypsum-Fiber" Roof Board, as manufactured by USG; or approved equal.
        - (1) Water-resistant and silicone-treated gypsum core board, UL 790 Class A listing as a barrier board, and tested in accordance with ASTM E-84:
          - (a) Flame Spread: 0
          - (b) Smoke developed: 0
        - (2) Board Size: 4' x 4'.
        - (3) Thickness (Uniform): 1/2", R-Value per ASTM C518 = R.5.
        - (4) FM approved for Wind Uplift, tested for 90 psf.
        - (5) Stagger all joints with bottom layer.



5. Sealant: A moisture-curing, non-slump elastomeric sealant designed for roofing applications. The sealant shall be approved by the roof membrane manufacturer for use in conjunction with the roof membrane materials. Acceptable types are as follows:
  - a. Siplast PS-209 Elastomeric Sealant by Siplast.
6. Ceramic Granules: No. 11 grade specification ceramic granules of color scheme matching the granule surfacing of the finish ply.
7. Perlite Cant Strips: A cant strip composed of expanded volcanic minerals combined with waterproofing binders. The top surface shall be pre-treated with an asphalt based coating. The face of the cant shall have a nominal 4 inch dimension.
8. Bituminous Cutback Material:
  - a. Primer: A high flash, quick drying, asphalt solvent blend which exceeds ASTM D 41-85 requirements; PA-917 LS Asphalt Primer; Siplast.
  - b. Mastics: Asphalt cutback mastic, reinforced with non-asbestos fibers, conforming to ASTM D 4586-86 Type II requirements; PA-1021 Plastic Cement; Siplast.
9. Metal Roof Edge and Copings: Manufacturer's standard; "Paraguard Formed Aluminum, .050" thick, prefinished Kynar 500, with preformed mitered corners.
  - a. Color to be selected by the Architect / Owner after award of contract. See Section 07600 for additional information.
10. Metal Roof Edge: Manufacturer's standard; "Paraguard Extruded Edge TE - Custom Sizes", .050" thick, prefinished Kynar 500, with preformed mitered corners.
  - a. Color to be selected by the Architect / Owner after award of contract. See Section 07600 for additional information.
11. Wood Blocking & Curbs: Lumber; #2 grade free from warping and visible decay; fire retardant treated (FRT) to meet AWWPA C20 (lumber), and marked and in accordance with requirements indicated in Section 06100.
12. Mechanical Fasteners: Manufacturer's standard approved fasteners for this type of application.
  - a. Nails and Fasteners: Non-ferrous metal or galvanized steel, except that hard copper nails shall be used with copper; aluminum or stainless steel nails shall be used with aluminum; and stainless steel nails shall be used with stainless steel. Nails and fasteners shall be flush-driven through flat metal discs of not less than 1-inch diameter. Metal discs may be omitted when one piece composite nails or fasteners with heads not less than 1-inch diameter are used.
13. Metal Discs: Flat discs or caps of zinc-coated sheet metal not lighter than 28 gauge and not less than 1-inch in diameter. Discs shall be formed to prevent dishing. Bell or cup-shaped caps are not acceptable.

## **PART 3 - EXECUTION**

### **3.1 INSPECTION EXISTING SUBSTRATE**

- A. Immediately after limited removal of existing roofing materials to facilitate installation of new

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work and exposing existing decking, the Contractor shall schedule on-site field visit with manufacturer's representatives to determine suitability of existing decking. Contractor shall notify the Professional for the date and time of the field visit.

1. Correct, repair and patch any damage and/or defects to existing roof decking prior to start of installation of new roofing system.

### **3.2 PREPARATION OF SUBSTRATES**

- A. Roof substrate shall be dry and free of foreign materials. Remove nails, nail heads and other protrusions from existing deck.
  1. Roof substrate shall be free of ponded water, ice, or snow to eliminate future condensation problems.
  2. Preparations, repair and patching of existing roof decking shall be completed prior to start of any new roofing / flashing work.

### **3.3 INSTALLATION - GENERAL REQUIREMENTS**

- A. Comply with instructions of the primary roofing materials manufacturer, and comply with the requirements for (20) Years Total Roofing System Warranty.
- B. Coordinate with all roof mounted items to facilitate roofing installation.
- C. Coordinate with the installation of all metal flashing and sheet metal work.
- D. Confinement of Materials: Do not allow fluid and plastic to spill or migrate beyond surfaces of intended application.
  1. Contractor to clean all migrated materials exposed to view.
- E. Performance: It is required that roofing work be water-tight for normal weather exposure and not deteriorate in excess of normal weathering.
- F. Clean site of all debris and contractor materials; restore damaged site work, i.e.; shrubs, turf, curbs, etc. to conditions prior to start of this work.
- G. Install accessories as shown and as recommended by the prime materials manufacturer.
- H. Insulation Under Roofing: Do not advance the installation of new roof insulation excessively ahead of roofing. Do not install roofing or new insulation over wet insulation; remove and replace with dry insulation before proceeding.
- I. Coordinate Roofing with flashing and other adjoining work to ensure proper sequencing of entire work.
- J. Cooperate with inspection and test agencies engaged or required to perform services in connection with roofing system installation.

- K. Protect other work from spillage of roofing materials, and prevent liquid materials from entering or clogging drains and conductors. Replace/restore other work damaged by installation of roofing system work.
- L. Insurance/Code Compliance: Install roofing system for (and test where required to show) compliance with governing regulations.
- M. Coordinate the installation of insulation, roofing sheets, flashings, stripping, coatings and surfacing, so that insulation and felts are not exposed to precipitation nor exposed overnight. Provide cut-offs at end of each day's work, to cover exposed felts and insulation with a course of coated felt with joints and edges sealed with roofing cement. Remove cut-offs immediately before resuming work. Glaze coat installed ply-sheet courses at end of each day's work where final surfacing has not been installed.
- N. Substrate Joint Penetrations: Do not allow adhesive to penetrate substrate joints and enter building or damage insulation or other construction.

### **3.4 PROTECTION**

- A. Contractor shall provide protection for roofing during construction period, so that the work will be without damage or deterioration except for normal weathering at time of acceptance.

### **3.5 INSTALLATION OF THE INSULATION / ROOFING BOARDS**

- A. Each 4'x4' insulation board of the base layer of insulation must be mechanically fastened to the roof deck with at least one (1) fastener every two (2) square feet. Fastening pattern may be reduced by Factory Mutual, the insulation manufacturer, and the roofing materials' manufacturer.
- B. Secure subsequent layers and the top cover board to bottom insulation layers using manufacturer's approved adhesive as indicated.
  - 1. Insulation boards will have joints staggered. Gaps between panels of insulation will not exceed 1/4" at wood blocking and joints in the field of insulation will be tight. Panels with broken corners, damaged faces or wet panels of insulation will not be used. Where joints in field in insulation are not tight, joints will be taped with six (6) inch fiberglass tape adhered to insulation in approved adhesive.
- C. Install top laying thermal board in cold adhesive and in accordance with manufacturers' requirements. Stagger all joints with bottom insulation layer.
- D. Install only that amount of insulation that can be covered the same day with new roof system. No phased roofing will be accepted unless pre-approved by the roofing manufacturer.

### **3.6 WATER CUT-OFF**

- A. At end of day's work, or when precipitation is imminent, construct a water cut-off at all open edges. Cut-offs can be built using asphalt or plastic cement and roofing felts, constructed to withstand protracted periods of service. Cut-offs must be completely removed prior to the resumption of roofing.

### **3.7 GRANULE EMBEDMENT**

- A. Broadcast mineral granules over all bitumen overruns on the finish ply surface, while the bitumen is still hot or the adhesive is soft, to ensure a monolithic surface color.

### **3.8 FIELD QUALITY CONTROL AND INSPECTIONS**

- A. Site Condition: Leave all areas around job site free of debris, roofing materials, equipment and related items after completion of job.
- B. Notification of Completion: Notify the manufacturer by means of manufacturer's printed Notification of Completion form of job completion in order to schedule a final inspection date.
- C. Final Inspection
  - 1. Post-Installation Meeting: Hold a meeting at the completion of the project, attended by all parties that were present at the pre-job conference. A punch list of items required for completion shall be compiled by the Contractor and the manufacturer's representative. Complete, sign, and mail the punch list form to the manufacturer's headquarters.
- D. Issuance of the Guarantee: Complete all post installation procedures and meet the manufacturer's final endorsement for issuance of the specified guarantee.

**END OF SECTION 07535**

## **SECTION 07600 - FLASHING, SHEET METAL AND ROOF ACCESSORIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Pre-manufactured metal flashing and counterflashing.
  - 2. Miscellaneous sheet metal accessories.
  - 3. Exposed metal field and shop fabricated sheet trim, where indicated.
  - 4. Pipe curb assembly.
- B. Related Sections:
  - 1. Wood nailers and blocking: Section 06100.
  - 2. Roofing Materials: Elsewhere in Division 7.
  - 3. Roof Specialties and Accessories: Section 07800.
  - 4. Joint Sealer Assemblies: Section 07900.

#### **1.3 PERFORMANCE REQUIREMENTS**

- A. Structural Requirements: Design and install work of this section, including attachment to the structure, to safely withstand dead, live and wind loads prescribed by the International Building Code.
- B. Environmental Requirements: Provide for expansion and contraction of system components due to air temperature and solar heat gain. Provide systems which will accommodate movement due to temperature change without buckling, failure of seals, undue stress on structural elements, reduction of performance, or other detrimental effects.
  - 1. Anticipated air temperature range: Minus 10°F to +105°F.

#### **1.4 REFERENCES**

- A. Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).
- B. ASTM B 32; Standard Specification for Solder Metal.
- C. ASTM B 209; Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- D. ASTM B 101; Standard Specifications for Coated Copper Sheets and ASTM B 370; for Standard Specifications for Copper Sheets.
- E. Revere's "Copper and Common Sense", latest Edition.

- F. Aluminum Association, Design System for Aluminum Finishes (AA).
- G. American Architectural Manufacturers Association (AMMA), standards as referenced herein.
- H. ANSI/SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roof Systems.

## **1.5 SUBMITTALS**

- A. Product Data: Manufacturer's specifications, standard details, and installation recommendations.
- B. Shop Drawings: Submit manufacturer's shop drawings showing material types, thickness, sizes, shapes, connections, layout, joining, profiles and anchorage of fabricated work and relation to adjacent work. edited product data or shop drawings, or a combination thereof, as required to accurately describe products to be provided. Show elevations, field measurements, reinforcement, expansion provisions, installation accessories, and detail sections of composite members. Draw layouts at scale of 1/4 inch per foot, details at scale of 3 inches per foot.
  - 1. **Provide shop drawings for, but not limited to, the following:**
    - a. Base flashing and counterflashing.
    - b. Flashing for roof penetrations.
    - cj. All other sheet metal work requiring fabrication.
    - d. Details of all joints for above.
  - 2. Sheet metal shop drawings shall be prepared to reflect SMACNA detail standards and in accordance with ANSI/SPRI ES-1 Test Protocols.
- C. Samples for Color Selection of Coated Finishes: Coating manufacturer's color selection data.
- D. Samples for Color Verification of Coated Finishes: For each type and color of coated finish submit 12-inch-long sections of extrusions and formed sections and 6-inch-square sheets.
- E. Pre-engineered fabricated and pre-finished sheet metal manufacturer's product literature, finish specification and sample finish warranty.
- F. Sheet metal fabricators and installers qualifications.
- G. Warranty Documentation: Submit manufacturer's standard warranty.

## **1.6 QUALITY ASSURANCE**

- A. Listing - Roof Perimeter Flashing System: Provide system listed in Factory Mutual System's "Approval Guide," classified for Zone 2 (I-90 windstorm resistance).
- B. Fabricator / Installer: A firm having a recommended minimum of 5 years of successful experience in fabrication and installation of sheet metal work of type and scope equivalent, to work of this section.

- C. Pre-engineered and Contractor: Fabricate and install sheet metal work in accordance with indicated reference standards.

## **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials off ground, under cover. Protect from damage and deterioration.
- B. Handle materials to prevent damage to surfaces, edges and ends of sheet metal items. Damaged material shall be rejected and removed from the site.

## **1.8 WARRANTY**

- A. Warrant gravel stop/fascia, coping, gutters, downspouts, scuppers system work to be free of defects in materials and workmanship, to resist blow-off and to be leak tight, due to conditions within stated design limits.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide pre-engineered manufactured products approved by the roofing system manufacturer(s) which may include but not limited to the following:
  - 1. Formed-Aluminum Gravel Stops, Metal Edging, Copings and Fascia:
    - a. Hickman: W.P. Hickman Co.,
    - b. Imetco, an ESOP Company.
    - c. Metal-Era, Inc.,
    - d. Southern Aluminum Finishing Co.,
    - e. or approved equal.

### **2.2 METALS**

- A. Type "C"; Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated and with not less than the strength and durability of alloy and temper designated below:
  - 1. Type "C-3"; Anodized Aluminum Sheet: ASTM B 209, 5005-H14, with a minimum thickness of 0.050 inch.
- B. Type "G"; Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792, Class AZ-50 coating, Grade 40 or to suit project conditions, with 55% aluminum, not less than 0.0396 inch thick, unless otherwise indicated.
- C. Type "I"; Pure Lead Sheet: 2½# pure lead sheets, ASTM B 749 and Federal Specification QQ-L-201f, unless otherwise indicated.

### **2.3 COUNTERFLASHING**

- A. Provide springlok counterflashing by Fry Reglet Corp.; Metal-Era; Xtreme Trim; or approved equal.

1. 0.040" thick aluminum, as indicated on the drawings.
2. 0.020" thick, type 304 stainless steel, as indicated on the drawings.
3. 24 ga. galvanized steel.
4. Provide inside and outside corners including special angle where required.

## **2.4 MISCELLANEOUS MATERIALS AND ACCESSORIES**

### **A. GENERAL REQUIREMENTS:**

1. All miscellaneous materials, accessories or other items essential to the completion of sheet metal installation, though not specifically shown or specified, must be provided.
  2. All such items, unless otherwise indicated on drawings or specified herein, shall be applied using sheet metal gauges which conform to recognized industry standards of sheet metal practices and without additional cost to the Owner. For sheet metal and pre-manufactured units, provide type of solder, ASTM B23, and corrosion-resistant metal as recommended by the producer of the metal sheets for fabrication and installation.
  3. Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size and gauge required for performance.
- B. Fasteners: Same metal as flashing/sheet metal, as indicated or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
- C. Bituminous Coating: FS TT-C-494 or SSPC - Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
- D. Mastic Sealant: Polyisobutylene; non-hardening, non-skinning, non-drying, non-migrating sealant.
- E. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed; comply with FS TT-S-00227, TT-S-00230, or TT-S-001543.
- F. Epoxy Seam Sealer: 2-part non-corrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior non-moving joints including riveted joints.
- G. Paper Slip Sheet: 15-lb. rosin-sized building paper.
- H. Polyethylene Underlayment: 6-mil carbonated polyethylene film; FS L-P-512.
- I. Prefabricated Accessories: Provide prefabricated accessories by Metal-Era, Roof Edge Systems, or approved equal.



1. Exposed Termination Bar: 0.05 x 1/2" x 1 1/2" x 1/2" aluminum channel or 1" x 3/16" aluminum bar as manufactured by Metal-Era Inc.; or approved equal. Provide fastening at 8" o.c.

J. Pipe Curb Assembly:

1. Manufacturer: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
  - a. Roof Penetration Housings, LLC,
  - b. Pipe Portal Systems as manufactured by Portals Plus, Inc.,
  - c. The Pate Company,
  - d. ThyCurb,
  - e. Or approved equal.

## 2.10 FABRICATION, GENERAL

- A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.
- B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
  1. Seams (Metal other than Aluminum): Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
  2. Seams (Aluminum): Fabricate nonmoving seams in aluminum with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
  3. Expansion Provisions: Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
  4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
  5. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.
  6. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.

7. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.
  - A. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

D. SHEET METAL FABRICATIONS

1. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements.

**2.11 ALUMINUM FINISHES**

- A. General: Comply with Aluminum Association's (AA) "Designation System for Aluminum Finishes" for finish designations and application recommendations.
- B. Class I, Clear Anodic Finish: AA-C22A41 (Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 607.1.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence.
- B. Verify that substrates and openings are rigidly set, at proper lines and elevation, properly sized, and ready to receive units.
- C. Do not proceed with installation until conditions detrimental to proper installation have been corrected.
- D. Coordinate installation with roofing work and other adjacent elements of building envelope to ensure watertight construction.

**3.2 PREPARATION**

- A. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- B. Isolate all dissimilar metals by means of a heavy bituminous coating, approved paint coating, adhered polyethylene sheet, or other means recommended by SMACNA.

**3.3 INSTALLATION**

- A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual." Anchor units of work securely in place by methods indicated, providing for thermal expansion in metal units. Set units true to line and level indicated. Install work with laps, joints, and seams permanently weatherproof and watertight.

- B. Sealed Joints: Form minimum 1-inch hooked joints and embed flange into sealant or adhesive. Form metal to completely conceal sealant or adhesive.
1. Use joint adhesive for nonmoving joints specified not to be soldered.
  2. Moving Joints: When ambient temperature is moderate (40-70°F) at time of installation, set joined members for 50% movement either way. Adjust setting position of joined members proportionally for temperatures above 70°F. Do not install sealant at temperatures below 40°F. Refer to section on sealants elsewhere in Division 7 for handling and installation requirements for joint sealers.
- C. Workmanship: Install sheet metal work with lines, arises, and angles sharp and true. Exposed surfaces shall be free from visible waive, warp, buckle, and tool marks. Exposed edges shall be folded back neatly to form a ½-inch hem on the concealed side. Sheet metal exposed to the weather shall be watertight with provisions for expansion and contraction.
- D. Nailing: Nailing of sheet metal shall be confined generally to sheet metal having a maximum width of 18 inches. Nailing of flashings shall be confined to one edge only. Nails shall be evenly spaced not over 3 inches on centers and approximately ½-inch from edge unless otherwise specified or indicated. Face nailing will not be permitted. Where sheet metal is applied to other than wood surfaces, detailed shop drawings shall include locations for sleepers and nailing strips required to properly secure the work.
- E. Cleats: Provide cleats for sheet metal 18 inches and over in width. Space cleats evenly not over 12 inches on centers unless otherwise specified or indicated. Unless otherwise specified, cleats shall be not less than 2 inches wide by 3 inches long, and of the same material and thickness as the sheet metal being installed. One end of the cleat shall be secured with two nails and the cleat folded back over the nailheads. The other end shall be folded back over the nailheads. The other end shall be locked into the seam. Cleats for soldered seams shall be pretinned.
- F. Bolts, Rivets and Screws: Install bolts, rivets, and screws where indicated or required. Provide compatible washers where required to protect surface of sheet metal and to provide a watertight connection.
- G. Seams; General: Comply with SMACNA, Figures 3-2 & 3-3, Tables 2-1 & 3-1R, and other applicable designs to specific installation.
1. Seams: straight and uniform in width and height with no solder showing on the face.
  2. Flat-lock Seams for All Non-Moving Seams; Finish not less than ¾-inch wide.
  3. Loose-lock Expansion Seams: Not less than 3 inches wide, and shall provide minimum one-inch movement within the joint. Joint shall be completely filled with the specified sealant, applied at no less than 1/8 inch thick bed. Sealants are specified in Section 07900 - Joint Sealer Assemblies and shall be completely concealed.
  4. Flat Seams: Make seams in the direction of the flow.

- H. Soldering, Welding, and Mechanical Fastening: Where soldering is specified herein, it shall apply to copper and lead coated copper and galvanized metal items.
1. Soldering: Cretin edges of sheet metals, except lead coated material, before soldering is begun. Soldering shall be done slowly with well heated soldering irons, so as to thoroughly heat the seams and completely sweat the solder through the full width of the seam. Edges of lead-coated material to be soldered shall be scraped or wire-brushes to produce a bright surface, and seams shall have a liberal amount of flux brushed in before soldering is begun.
- I. Counterflashing: Except where indicated or specified otherwise, insert counterflashing receiver in horizontal saw cut joints locations as indicated. Snap counterflashing in receiver and extend down vertical surfaces over upturned vertical leg or base flashings not less than 4 inches. Exposed edges of counterflashing shall be folded 1/2-inch. End laps in counterflashings shall be overlapped 6", and shall be made weathertight with sealant.
1. Lengths of metal counterflashings shall not exceed 10 feet. The flashings shall be formed to the required shapes before installation. Corners shall be factory-formed with joints not less than 24 inches from the angle.
  2. Flashing receivers shall be secured in the horizontal joint with lead wedges spaced not to exceed 12 inches apart; on short runs, wedges shall be placed closer together.
  3. Counterflashing receiver joints shall be filled with caulking compound. Caulking is covered in Section 07900 - Joint Sealer Assemblies.
- J. Metal Flashing Installation
1. General: Install metal flashings and other sheet metal to comply with requirements in Section 07600 "Sheet Metal Flashing and Trim."
    - a. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
  2. Rake Drip Edges: Install rake drip-edge flashings over underlayment and fasten to roof deck.
  3. Eave Drip Edges: Install eave drip-edge flashings below underlayment and fasten to roof sheathing.

### **3.4 PROTECTION FROM CONTACT OF DISSIMILAR MATERIAL**

- A. Copper or Copper-Bearing Alloys: Surfaces in contact with dissimilar metal shall be painted with heavy bodied bituminous paint, or shall be separated by means of moisture-proof building felts.
- B. Aluminum: Surfaces shall not contact other metals except stainless steel, zinc, or zinc coating. Where aluminum contacts another metal, the dissimilar metal shall be painted with a primer followed by two coats of aluminum paint.

- C. All Metal: Surfaces in contact with mortar, concrete, or other masonry materials shall be painted with alkali-resistant coatings such as heavy-bodied bituminous paint.
- D. Wood or Other Absorptive Materials: Surfaces that may become repeatedly wet and in contact with metal shall be painted with two coats of aluminum paint or a coat of heavy-bodied bituminous paint.
- E. Dissimilar Metal: Paint with a non-lead pigmented paint if drainage from it passes over aluminum.
- F. All fasteners shall be compatible with the metal with which it is connected.

### **3.5 PROTECTION OF ROOFING**

- A. Protection of Applied Insulation: Completely cover each day's installation with finished roofing specified. Protect open spaces between insulation and parapets or other walls and spaces at curbs, scuttles, and expansion joints, until permanent roofing and flashing is applied. Storing, walking, wheeling, or trucking will not be permitted directly on insulation or on roofed surfaces. Provide smooth, clean board or plank walkways, runways, and platforms near supports, as necessary to distribute weight to conform to indicated live load limits of roof construction.
- B. Upon completion of roofing work (including associated work) Installer shall advise Contractor of recommended procedures for surveillance and protection of roofing during remainder of construction period. At end of construction period, or at a time when remaining construction work will in no way affect or endanger roofing (at Contractor's option), Installer shall make a final inspection of roofing and prepare a written report to Contractor with copy to Owner) describing nature and extend of deterioration or damage found in the work.
- C. Installer shall repair or replace (as required) deteriorated or defective work found at time of final inspection. Installer shall be engaged by Contractor to repair damages to roofing which occurred subsequent to roofing installation and prior to final inspection.
- D. Repair or replace the roofing and associated work to a condition free of damage and deterioration at time of substantial completion.

### **3.6 CLEAN-UP**

- A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.
- B. Upon completion of the specified work, remove all waste, debris, unused material and equipment from the site. Remove all misplaced material from nearby surfaces. Leave the job in a clean condition, acceptable to Owner.
- C. Advise Contractors of required procedures for surveillance and protection of flashings and sheet metal work during construction to ensure that work will be without damage or deterioration, other than natural weathering, at time of substantial completion.

**END OF SECTION 07600**

## **SECTION 07840 - THROUGH-PENETRATION FIRESTOP SYSTEMS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes through-penetration firestop systems for penetrations through the following fire-resistance-rated assemblies, including both empty openings and openings containing penetrating items:
  - 1. Walls and partitions.
  - 2. Construction enclosing compartmentalized areas.
- B. Related Sections include the following:
  - 1. Division 7 Section "Building Insulation", for safing insulation and accessories.
  - 3. Division 7 Section "Sprayed Fire-Resistive Materials."
  - 4. Division 15 Sections specifying duct and piping penetrations and firestop systems to be performed by the Plumbing and HVAC work Subcontractors.
  - 5. Division 16 Sections specifying cable and conduit penetrations and firestop systems to be performed by the Electrical Subcontractor.

#### **1.3 PERFORMANCE REQUIREMENTS**

- A. General: For the following constructions, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.
  - 1. Fire-resistance-rated load-bearing walls, including partitions, with fire-protection-rated openings.
  - 2. Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.
- B. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
- C. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, as determined per ASTM E 814, where systems

protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:

1. Penetrations located outside wall cavities.
  2. Penetrations located outside fire-resistive shaft enclosures.
  3. Penetrations located in construction containing fire-protection-rated openings.
  4. Penetrating items larger than 4-inch-diameter nominal pipe or 16 sq. in. in overall cross-sectional area.
- D. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
  2. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- E. For through-penetration firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 450, as determined per ASTM E 84.

#### **1.4 SUBMITTALS**

- A. Product Data: For each type of through-penetration firestop system product indicated.
- B. Shop Drawings: For each through-penetration firestop system, show each kind of construction condition penetrated, relationships to adjoining construction, and kind of penetrating item. Include firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition indicated.
1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.
  2. Where Project conditions require modification of qualified testing and inspecting agency's illustration to suit a particular through-penetration firestop condition, submit illustration, with modifications marked, approved by through-penetration firestop system manufacturer's fire-protection engineer.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architect and Owner, and other information specified.

- D. Product Certificates: Signed by manufacturers of through-penetration firestop system products certifying that products furnished comply with requirements.
- E. Product Test Reports: From a qualified testing agency indicating through-penetration firestop system complies with requirements, based on comprehensive testing of current products.

## **1.5 QUALITY ASSURANCE**

- A. Installer Qualifications: An experienced installer who has completed through-penetration firestop systems similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Installer Qualifications: An experienced installer who is qualified by having the necessary experience, staff, and training to install manufacturer's products per specified requirements. A manufacturer's willingness to sell its through-penetration firestop system products to Contractor or to an installer engaged by Contractor does not in itself confer qualification on buyer.
- C. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, from a single manufacturer.
- D. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in "Performance Requirements" Article:
  - 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
  - 2. Through-penetration firestop systems are identical to those tested per ASTM E 814. Provide rated systems complying with the following requirements:
    - a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
    - b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:
      - 1) UL in "Fire Resistance Directory."
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to Project; curing time; and mixing instructions for multi component materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.



## **1.7 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

## **1.8 COORDINATION**

- A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- C. Notify Contractor's inspecting agency at least seven days in advance of through-penetration firestop system installations; confirm dates and times on days preceding each series of installations.
- D. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until Contractor's inspecting agency and building inspector, if required by authorities having jurisdiction, have examined each installation.

## **PART 2 - PRODUCTS**

### **2.1 PRODUCTS / MANUFACTURERS**

- A. Products: Subject to compliance with requirements, provide one of the through-penetration firestop systems indicated for each application in the Through-Penetration Firestop System Schedule at the end of Part 3 and as shown on drawings and as produced by one of the following manufacturers:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Hilti Construction Chemicals, Inc.
  - 2. Isolatek International.
  - 3. Nelson Firestop Products.
  - 4. 3M Fire Protection Products.
  - 5. Or approved equal.

### **2.2 FIRESTOPPING, GENERAL**

- A. Compatibility: Provide through-penetration firestop systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.

- B. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
1. Permanent forming/damming/backing materials, including the following:
    - a. Slag-/rock-wool-fiber insulation.
    - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
    - c. Fire-rated form board.
    - d. Fillers for sealants.
  2. Temporary forming materials.
  3. Substrate primers.
  4. Collars.
  5. Steel sleeves.

### **2.3 FILL MATERIALS**

- A. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of Part 3 by reference to the types of materials described in this Article. Fill materials are those referred to in directories of the referenced testing and inspecting agencies as fill, void, or cavity materials.
- B. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
- C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
- E. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- G. Mortars: Prepackaged, dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.

- H Pillows/Bags: Reusable, heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.
- J. Silicone Foams: Multi component, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- J. Silicone Sealants: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
  - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping, gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.
  - 2. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.
  - 3. Grade for Vertical Surfaces: Nonsag formulation for openings in vertical and other surfaces.

## **2.4 MIXING**

- A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with written recommendations of firestop system manufacturer and the following requirements:
  - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
  - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems.

Remove loose particles remaining from cleaning operation.

- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

### **3.3 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION**

- A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Article and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
  - 1. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for firestop systems by proven techniques to produce the following results:
  - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
  - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### **3.4 FIELD QUALITY CONTROL**

- A. Inspecting Agency: The Owner will engage a qualified independent inspecting agency to inspect through-penetration firestop systems and to prepare test reports.
  - 1. Inspecting agency will state in each report whether inspected through-penetration firestop systems comply with or deviate from requirements.
- B. Proceed with enclosing through-penetration firestop systems with other construction only after inspection reports are issued.
- C. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.

### **3.5 IDENTIFICATION**

- A. Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:
  - 1. The words: "Warning–Through-Penetration Firestop System–Do Not Disturb. Notify Building Management of Any Damage."
  - 2. Contractor's name, address, and phone number.
  - 3. Through-penetration firestop system designation of applicable testing and inspecting agency.
  - 4. Date of installation.
  - 5. Through-penetration firestop system manufacturer's name.
  - 6. Installer's name.

### **3.6 CLEANING AND PROTECTION**

- A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce through-penetration firestop systems complying with specified requirements.

### **3.7 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE**

- A. Where UL-classified systems are indicated, they refer to the alpha-alpha-numeric designations listed in UL's "Fire Resistance Directory" under product Category XHEZ.
  - 1. Firestop Systems with No Penetrating Items: Comply with the following:
    - a. Latex sealant.
    - b. Silicone sealant.
    - c. Intumescent putty.
    - d. Mortar.

**END OF SECTION 07840**

## **SECTION 07842 - FIRE-RESISTIVE JOINT SYSTEMS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes fire-resistive joint systems for the following:
  - 1. Head-of-wall joints.
  - 2. Wall-to-wall joints..
- B. Related Sections include the following:
  - 1. Division 7 Section 07900 "Joint Sealer Assemblies" for non-fire-resistive joint sealants.

#### **1.3 PERFORMANCE REQUIREMENTS**

- A. General: For joints in the following constructions, provide fire-resistive joint systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly in which fire-resistive joint systems are installed:
  - 1. Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.
- B. Fire Resistance of Joint Systems: Assembly ratings and movement capabilities] indicated, but with assembly ratings not less than that equaling or exceeding fire-resistance rating of constructions in which joints are located, as determined by UL 2079.
  - 1. Load-bearing capabilities as determined by evaluation during the time test.

#### **1.4 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For each fire-resistive joint system, show each kind of construction condition in which joints are installed and relationships to adjoining construction.
  - 1. Include fire-resistive joint system design designation of testing and inspecting agency acceptable to authorities having jurisdiction that demonstrates compliance with requirements for each condition indicated.

2. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each fire-resistive joint system configuration for construction and penetrating items.
- C. Product Certificates: For each type of fire-resistive joint system, signed by product manufacturer.
- D. Qualification Data: For Installer.
- E. Compatibility and Adhesion Test Reports: From fire-resistive joint system manufacturer indicating the following:
  1. Materials forming joint substrates have been tested for compatibility and adhesion with fill materials.
  2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- F. Evaluation Reports: Evidence of fire-resistive joint systems' compliance with ICBO ES AC30, from the ICBO Evaluation Service.
- G. Research/Evaluation Reports: For each type of fire-resistive joint system.

## **1.5 QUALITY ASSURANCE**

- A. Source Limitations: Obtain fire-resistive joint systems for each kind of joint and construction condition indicated through one source from a single manufacturer.
- B. Preconstruction Compatibility and Adhesion Testing: Submit to fire-resistive joint system manufacturers, for testing indicated below, samples of materials that will contact or affect fill materials.
  1. Use manufacturer's standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of fill materials to joint substrates.
    - a. Perform tests under environmental conditions replicating those that will exist during installation.
  2. Submit no fewer than nine pieces of each type of material, including joint substrates, forming materials, and miscellaneous materials.
  3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
  4. For materials failing tests, obtain fire-resistive joint system manufacturer's written instructions for corrective measures, including the use of specially formulated primers.
- C. Fire-Test-Response Characteristics: Provide fire-resistive joint systems that comply with the following requirements and those specified in "Performance Requirements" Article:
  1. Fire-resistance tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL or another agency performing testing and

follow-up inspection services for fire-resistive joint systems acceptable to authorities having jurisdiction.

2. Fire-resistive joint systems are identical to those tested per ICBO ES AC30 and are qualified for types of joints and joint movement capabilities indicated in a current Evaluation Report by the ICBO Evaluation Service.
3. Fire-resistive joint systems are identical to those tested per UL 2079 and ICBO ES AC30 and are qualified for joint movement capabilities indicated in a current ICBO Evaluation Report by the ICBO Evaluation Service. Perimeter fire-containment systems are identical to those tested per both UBC Standard 26-9 and UL 2079. Provide rated systems complying with the following requirements:
  - a. Fire-resistive joint system products bear classification marking of qualified testing and inspecting agency.
  - b. Fire-resistive joint systems correspond to those indicated by referencing system designations listed by the following:
    - 1) UL in its "Fire Resistance Directory."

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver fire-resistive joint system products to Project site in original, unopened containers or packages with qualified testing and inspecting agency's classification marking applicable to Project and with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials for fire-resistive joint systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

## **1.7 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not install fire-resistive joint systems when ambient or substrate temperatures are outside limits permitted by fire-resistive joint system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate fire-resistive joint systems per manufacturer's written instructions by natural means or, if this is inadequate, forced-air circulation.

## **1.8 COORDINATION**

- A. Coordinate construction of joints to ensure that fire-resistive joint systems are installed according to specified requirements.
- B. Coordinate sizing of joints to accommodate fire-resistive joint systems.
- C. Notify Owner's inspecting agency at least seven days in advance of fire-resistive joint system installations; confirm dates and times on days preceding each series of installations.



- D. Do not cover up fire-resistive joint system installations that will become concealed behind other construction until Owner's inspecting agency and building inspector, if required by authorities having jurisdiction, have examined each installation.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
  - 1. Basis-of-Design Products: The design for each fire-resistive joint system is based on products named in Part 2 articles. Subject to compliance with requirements, provide either the named products or comparable products by one of the following:
    - a. Fire-Resistive Joint Systems:
      - 1) A/D Fire Protection Systems Inc.
      - 2) Hilti, Inc.
      - 3) ISOLATEK International.
      - 4) Nelson Firestop Products.
      - 5) 3M Fire Protection Products.
      - 6) Tremco, Inc.
      - 7) United States Gypsum Company.
      - 8) Or approved equal.
    - b. Perimeter Fire-Containment Systems:Hilti, Inc.
      - 1) Specified Technologies Inc.
      - 2) United States Gypsum Company.
      - 3) Or approved equal.

### **2.2 FIRE-RESISTIVE JOINT SYSTEMS, GENERAL**

- A. Compatibility: Provide fire-resistive joint systems that are compatible with joint substrates, under conditions of service and application, as demonstrated by fire-resistive joint system manufacturer based on testing and field experience.
- B. Accessories: Provide components of fire-resistive joint systems, including forming materials, that are needed to install fill materials and to comply with Part 1 "Performance Requirements" Article. Use only components specified by fire-resistive joint system manufacturer and approved by the qualified testing and inspecting agency for systems indicated.

### **2.3 FIRE-RESISTIVE JOINT SYSTEMS**

- A. Where UL-classified fire-resistive joint systems are indicated, they refer to alphanumeric designations listed in UL's "Fire Resistance Directory" under product Category XHBN.
- B. Floor-to-Floor, Fire-Resistive Joint System FRJS #1:
  - 1. Basis-of-Design UL-Classified Product: FF-D-0009.

2. Assembly Rating: 2 hours.
  3. Joint Width: As indicated.
  4. Movement Capabilities: Class II, 14 percent compression or extension.
- C. Floor-to-Floor, Fire-Resistive Joint System FRJS #2:
1. Basis-of-Design UL-Classified Product: FF-D-0023.
  2. Assembly Rating: 3 hours.
  3. Joint Width: As indicated.
  4. Movement Capabilities: Class II, 14 percent compression or extension.
- D. Head-of-Wall, Fire-Resistive Joint System FRJS #1 (CMU Wall to Concrete Deck):
1. Basis-of-Design UL-Classified Product: HW-D-0078.
  2. Assembly Rating: 2 hours.
  3. Joint Width: As indicated.
  4. Movement Capabilities: Class II - 12.5 percent compression or extension.
- E. Head-of-Wall, Fire-Resistive Joint System FRJS #2 (CMU Wall to Metal Deck):
1. Basis-of-Design UL-Classified Product: HW-D-0092.
  2. Assembly Rating: 2 hours.
  3. Joint Width: As indicated.
  4. Movement Capabilities: Class II - 12.5 percent compression or extension.
- F. Head-of-Wall, Fire-Resistive Joint System FRJS #1 (Gypsum Drywall to Concrete Deck):
1. Basis-of-Design UL-Classified Product: HW-D-0016.
  2. Assembly Rating: 2 hours.
  3. Joint Width: As indicated.
  4. Movement Capabilities: Class II - 18.75 percent compression or extension.
- G. Head-of-Wall, Fire-Resistive Joint System FRJS #2 (Gypsum Drywall to Metal Deck):
1. Basis-of-Design UL-Classified Product: HW-D-0091.
  2. Assembly Rating: 2 hours.
  3. Joint Width: As indicated.
  4. Movement Capabilities: Class II - 18.75 percent compression or extension.
- H. Wall-to-Wall, Fire-Resistive Joint System FRJS:
1. Basis-of-Design UL-Classified Product: WW-D-0009.
  2. Assembly Rating: 2 hours.
  3. Joint Width: As indicated.
  4. Movement Capabilities: Class II - 12.5 percent compression or extension.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Surface Cleaning: Clean joints immediately before installing fire-resistive joint systems to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:
  - 1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of fill materials.
  - 2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with fill materials. Remove loose particles remaining from cleaning operation.
  - 3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by fire-resistive joint system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent fill materials of fire-resistive joint system from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from fire-resistive joint system materials. Remove tape as soon as possible without disturbing fire-resistive joint system's seal with substrates.

### **3.3 INSTALLATION**

- A. General: Install fire-resistive joint systems to comply with Part 1 "Performance Requirements" Article and fire-resistive joint system manufacturer's written installation instructions for products and applications indicated.
- B. Install forming/packing/backing materials and other accessories of types required to support fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
- C. Install fill materials for fire-resistive joint systems by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings and forming/packing/backing materials as required to achieve fire-resistance ratings indicated.
2. Apply fill materials so they contact and adhere to substrates formed by joints.
3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### **3.4 FIELD QUALITY CONTROL**

- A. Inspecting Agency: Owner will engage a qualified independent inspecting agency to inspect fire-resistive joint systems and to prepare inspection reports.
  1. Inspecting agency will state in each report whether inspected fire-resistive joint systems comply with or deviate from requirements.
- B. Proceed with enclosing fire-resistive joint systems with other construction only after inspection reports are issued and inspecting agency has approved installed fire-resistive joint systems.
- C. If deficiencies are found, repair or replace fire-resistive joint systems so they comply with requirements.

### **3.5 CLEANING AND PROTECTION**

- A. Clean off excess fill materials adjacent to joints as Work progresses by methods and with cleaning materials that are approved in writing by fire-resistive joint system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure fire-resistive joint systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated fire-resistive joint systems immediately and install new materials to produce fire-resistive joint systems complying with specified requirements.

**END OF SECTION 07842**

## **SECTION 07900 - JOINT SEALER ASSEMBLIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Part 1 through Part 6 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes joint sealant assemblies for the following applications which include performances of materials, installation requirements, as indicated herein in this specification and as specified by cross references in other Parts 1 through 6 specification sections.
- B. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
  - 1. Tile control and expansion joints.
  - 2. Vertical control joints on exposed surfaces of interior unit masonry and concrete walls and partitions.
    - a. Perimeter joints between interior wall surfaces and frames of interior doors, windows, curtainwall systems and elevator entrances.
    - b. Joints between plumbing fixtures and adjoining walls, floors, and counters.
    - c. Other joints, as indicated.
  - 3. Interior joints in the following horizontal traffic surfaces:
    - a. Control and expansion joints in cast-in-place concrete slabs.
    - b. Other joints, as indicated.
- C. Preparation of all joints to be sealed.

#### **1.3 QUALITY ASSURANCE**

- A. Fire Performance Characteristics: Where fire rated joint assemblies are indicated, provide materials and construction which are identical to those of assemblies whose fire endurance has been determined by testing in compliance with the following requirements, tested by a recognized testing and inspecting organization or by another means, as acceptable to authority having jurisdiction.
  - 1. Fire Testing: ASTM E 119/UL 263.
  - 2. Surface Burning Characteristics: ASTM E84/UL 723.
    - a. Flame Spread: 15
    - b. Smoke Developed: 0
  - 3. Through - Penetration Firestopping: ASTM E814/UL 1479.
  - 4. Fire Resistance of Building Joint Systems: UL 2079

- B. VOC Content of Interior Sealants and Sealant Primers: Comply with the following limits when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
1. Sealants: Not more than 250 g/L.
  2. Sealant Primers for Nonporous Substrates: Not more than 250 g/L.
  3. Sealant Primers for Porous Substrates: Not more than 775 g/L.
- C. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
1. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
  2. Preconstruction Compatibility and Adhesion Testing: Submit to joint sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
    - a. Use manufacturers standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
    - b. Testing will not be required if joint sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
    - c. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to joint substrates as follows:
      - (1) Locate test joints where indicated or, if not indicated, as directed by Architect.
      - (2) Conduct field tests for each application indicated below:
        - (a) Each type of elastomeric sealant and joint substrate indicated.
        - (b) Each type of nonelastomeric sealant and joint substrate indicated.
      - (3) Notify Architect seven days in advance of dates and times when test joints will be erected.
      - (4) Sealant Manufacturer Responsibility:
        - (a) Manufacturer shall provide Technical Representative to perform Sealant Joint Field Pull Test. Manufacturer Sales representative is not acceptable to perform Field Pull Test.
        - (b) Technical Representative performing Field Pull Test must be an employee of the Sealant Manufacturer. Outside Sales Agent or Contract Technical Representative is not acceptable to perform Field Pull Test.
      - (5) Test Method: Test joint sealants by hand-pull method described below:
        - (a) Install joint sealants in 60-inch long joints using same materials and methods for joint preparation and joint-sealant installation required for the completed Work. Allow sealants to cure fully before testing.
        - (b) Make knife cuts from one side of joint to the other, followed by two cuts approximately 2 inches long at sides of joint and meeting cross cut at one end. Place a mark 1 inch from cross-cut end of 2-inch piece.

- (c) Use fingers to grasp 2-inch piece of sealant between cross-cut end and 1-inch mark; pull firmly at a 90-degree angle or more in direction of side cuts while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.
      - (d) For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side, and then repeating this procedure for opposite side.
    - (6) Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
    - (7) Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.
- 3. Mockups: Before installing joint sealants, apply elastomeric sealants as follows to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution:
  - a. Joints in mockups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants, which are specified by reference to this Section.
  - b. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."
- 4. PROJECT CONDITIONS
  - a. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
    - (1) When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
    - (2) When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40°F.
    - (3) When joint substrates are wet.
  - b. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
  - c. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

D. Special Project Warrantee and Guarantee:

- 1. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - a. Warranty Period: **Five (5) years** from approved date of Substantial Completion.
- 2. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section

within specified warranty period.

- a. Warranty Period: **Five (5) years** from approved date of Substantial Completion.

#### **1.4 SUBMITTALS**

- A. Product Data from manufacturers for each joint sealer product required, including instructions for joint preparation and joint sealer application, include color samples showing full range of colors available, for each product exposed to view.
  1. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.
- B. Product Test Reports: From a qualified testing agency indicating sealants comply with requirements, based on comprehensive testing of current product formulations.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials to Project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi-component materials.
- B. Store and handle materials in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

#### **1.6 PROJECT CONDITIONS**

- A. Environmental Conditions: Do not proceed with installation of joint sealers under the following conditions:
  1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturers.
  2. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40°F (4.4°C).
  3. When joint substrates are wet due to rain, frost, condensation, or other causes.
- B. Joint Width Conditions: Do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.
- C. Joint Substrate Conditions: Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.

### **PART 2 - PRODUCTS**

#### **2.1 MATERIALS, GENERAL**

- A. Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.



- B. Colors: Provide color of exposed joint sealers indicated or, if not otherwise indicated, as selected by Architect from manufacturer's available full range of standard and optional colors.
- C. Grade of Sealant: For each application, provide the grade of sealant (nonsag, self-leveling, no track, knife grade, etc.) as recommended by the manufacturer for the particular condition of installation (location, joint shape, ambient temperature, and similar conditions) to achieve the best possible overall performance. Grades specified herein are for normal condition of installation.

## 2.2 MISCELLANEOUS MATERIALS

- A. Joint Primer/Sealer: Provide the type of joint primer/sealer recommended by the sealant manufacturer of the joint surfaces to be primed or sealed.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.
- C. Sealant Backer Rod: Provide materials which are in compliance with ASTM D 1056; compressible rod stock of polyethylene foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or other flexible, permanent, durable non-absorptive material as recommended for compatibility with sealant by the sealant manufacturer.
  - 1. Materials shall be capable of remaining resilient at temperatures down to minus 26°F.
- D. Joint Fillers:
  - 1. Joint Fillers for Interior Concrete Slabs: Provide "Ceramar" flexible foam expansion joint, as manufactured by W.R. Meadows, Inc.; or approved equal.
    - a. Flexible foam expansion joint filler composed of a unique synthetic foam of isomeric polymers in a very small, closed-cell structure. Gray in color, Ceramar is a lightweight, flexible, highly resilient material offering recovery qualities of over 99%. The compact, closed-cell structure will absorb almost no water.
    - b. Non-impregnated and will not stain or bleed.
    - c. Non-gassing.
    - a. Complies with:
      - (1) ASTM D 5249, Type 2,
      - (2) ASTM D 1752, Sections 5.1 - 5.4, with compression requirement modified to 10 psi minimum and 25 psi maximum,
      - (3) ASTM D 7174-05.

## 2.3 SEALANTS

- A. **Sealant Type 3:** For all interior joints, provide a one-part, non-sag, moisture-curing polyurethane rubber sealant, complying with ASTM C 920, Type S, Grade NS, Class 25, Use NT, M, A, O and as recommended by manufacturer for general use as an interior exposed building construction conditions sealant including floor tiles in Toilets and Kitchens - Section 09300.

1. Products: Subject to compliance with requirements, provide one of the following:
  - a. "Dynatrol I-XL"; Pecora Corporation.
  - b. "Dymonic or Dymonic FC for cold weather"; Tremco, an RPM Co.
  - c. "Chem-Calk 900 /915/945"; Bostik Inc.
  - d. "Sikaflex 1a or Sikaflex 15LM"; Sika Corporation.
  - e. Or approved equal.
  
- B. **Sealant Type 4:** For all joints at plumbing fixtures, provide one-part, neutral-curing, silicone rubber sanitary sealant, complying with ASTM C920; and containing fungicide for mildew resistance recommended by manufacturer for use at joints for plumbing fixtures; tub and shower, sinks countertops, appliances, etc.
  1. Products: Subject to compliance with requirements, provide one of the following:
    - a. "898 Silicone"; Pecora Corporation.
    - b. "Tremsil 200"; Tremco, an RPM Co.
    - c. "786 Mildew Resistant"; Dow Corning.
    - d. "Sikasil N-Plus"; Sika Corporation.
    - e. Or approved equal.
  
- C. **Sealant Type 6: Hybrid Sealants (Silyl-Terminated Polyether (STPE) Joint Sealants**
  1. **STPE, S, NS, 50, NT:** Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, silyl-terminated polyether joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.
    - a. Uses: Interior and exterior horizontal and vertical joints of door and window perimeters, expansion and control joints, coping and coping to facade joints, EIFS and architectural panels, fiber cement panels, etc.
    - b. Products: Subject to compliance with requirements, provide one of the following:
      - 1) "DynaTrol® I-XL Hybrid" as manufactured by Pecora Corporation. Available in ten (10) colors.
      - 2) "DynaTrol® I-XL Hybrid FTH" as manufactured by Pecora Corporation. Field tintable, available in fifty (50) colors.
      - 3) Equivalent by Tremco, an RPM Co.
      - 4) Equivalent by Sika.
      - 5) Equivalent by Dow Corning.
      - 6) Or approved equal.

## 2.4 FIRE RATED JOINTS

- A. Construction fire rated joint assemblies shall meet indicated fire rating performance requirements. Provide assemblies where required and as indicated on the drawings with the following components:
  1. Joint Filler: Subject to compliance with indicated requirements, provide one of the following:
    - a. "Ultra Block", as manufactured by Backer Rod Manufacturing,
    - b. "Cerablanket"; Tremco,
    - c. ThermaFiber
    - d. Or approved equal.
    - e. Provide fire rated joint filler in thickness and shape as required to fill joints.

2. Joint Sealant: Subject to compliance with requirements, provide one of the following:
  - a. "Dynatrol II"; Pecora Corporation.
  - b. "Tremstop Acrylic"; Tremco, Inc, or "Trimstop IA, Intumescent Acrylic, Tremco, Inc.
  - c. "Sikaflex-2c NS"; Sika Corporation.
  - d. Equivalent by Dow Corning.
  - e. Or approved equal.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine joints indicated to receive joint sealers, with Installer present, compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer-performance. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
- B. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; old joint sealers; oil; grease; waterproofing; water repellants; water; surface dirt; and frost.
- C. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
- D. Remove laitance and form release agents from concrete.
- E. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile; and other nonporous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- F. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.
- G. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
- H. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants

relative to joint widths which allow optimum sealant movement capability.

1. Do not leave gaps between ends of joint fillers.
  2. Do not stretch, twist, puncture, or tear joint fillers.
  3. Remove absorbent joint fillers which have become wet prior to sealant application and replace with dry material.
- I. Install bond breaker tape between sealants and joint fillers, compression seals, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.
  - J. Install compressible seals serving as sealant backings to comply with requirements indicated above for joint fillers.
  - K. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

### **3.3 CLEANING**

- A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

**END OF SECTION 07900**

## **SECTION 08110 - HOLLOW METALWORK**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of hollow metalwork for door frames, side lites and borrow lites is indicated and scheduled on drawings.
- B. Related Sections:
  - 1. Section 04200 - Masonry Work.
  - 2. Section 07900 - Joint Sealer Assemblies.
  - 3. Section 08141 - Attach Resistant Flush Wood Doors.
  - 4. Section 08211 - Wood Doors.
  - 5. Section 08700 - Finish Hardware.
  - 6. Section 08800 - Glass & Glazing.
  - 7. Section 08871 - Security Glazing
  - 8. Section 09250 - Gypsum Drywall
  - 9. Section 09900 - Painting.

#### **1.3 QUALITY ASSURANCE**

- A. Provide frames complying with the following:
  - 1. Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" (SDI-100) and as herein specified.
  - 2. American National Standard Institute:
    - a. ANSI Standards A156 Series for Hardware.
    - b. ANSI A115 Steel Door Preparation Standards.
- B. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated or required, provide fire-rated door and frame assemblies that have been tested, listed, and labeled in accordance with ASTM E 152 "Standard Methods of Fire Tests of Door Assemblies" by a nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction, (i.e., UL, Warnock Hersey).

#### **1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's technical product data substantiating that products comply with requirements.
- B. Shop Drawings: Submit for fabrication and installation of steel frames. Include details of each frame type, conditions at openings, details of construction, location and installation

requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

1. Provide schedule of frames using same reference numbers for details and openings as those on contract drawings.
- C. Samples: Full range of color samples for Architect selection; 2 samples, 6" square min., of each color and texture as selected for factory-finished frames.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Before shipping, label each frame with metal or plastic tags to show its location, size, door swing, and other pertinent information. Deliver hollow metal work cartoned or crated to provide protection during transit and job storage.
- B. Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.
- C. Store frames at building site under cover. Place units on minimum 4" high wood blocking. Avoid use of non-vented plastic or canvas shelters which could create humidity chamber.

## PART 2 - PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering steel frames which may be incorporated in the work include; but are not limited to, the following:
  1. Steelcraft, a Division of Allegion.
  2. Republic Doors and Frames, a Division of Allegion.
  3. Ceco Door Products, a Division of Assa Abloy.
  4. Curries Company, a Division of Assa Abloy.
  5. Or approved equal.
- B. **Substitutions: Substitution of products will only be considered when the Contractor / Door Supplier have submitted, to the Architect, all appropriate documents and in the time frame as outlined in the requirements indicated in AIA A201 and Section 00800.**

### 2.2 MATERIALS

- A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A1008 and ASTM A 568.
- C. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526, with ASTM A 525, G60 zinc coating, mill phosphatized.

- D. Supports and Anchors: Fabricate of not less than 18-gauge galvanized sheet steel.
- E. Inserts, Bolts, and Fasteners: Manufacturer's standard units, except hot-dip galvanize items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable.
- F. Shop Applied Paint:
  - 1. Primer: Rust-inhibitive enamel or paint, either air-drying or baking, capable of passing a 100 hours salt spray and 250 hours humidity test in accordance with ASTM test methods B 117 and D 3322 and shall be suitable as a base for specified finish paints indicated in specification section 09900.

### **2.3 ACCESSORIES**

- A. Inserts: For required anchorage into concrete work, furnish inserts of cast iron, malleable iron or 12 gauge steel hot-dip galvanized after fabrication.
- B. Expansion Anchor Devices: Lead-shield or toothed-steel, drilled in, expansion bolt anchors.

### **2.4 FABRICATION, GENERAL**

- A. Fabricate frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at project site.
- B. Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel (at fabricator's option).
- C. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.
- D. Finish Hardware Preparation: Prepare frames to receive finish hardware in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 series specifications for door and frame preparation for hardware.
- E. Reinforce frames to receive surface-applied hardware. Drilling and tapping for surface-applied finish hardware may be done at project site.
- F. Locate finish hardware as indicated on final shop drawings or, if not indicated, in accordance with "Recommended Locations for Builder's Hardware", published by Door and Hardware Institute.

### **2.5 STANDARD STEEL FRAMES**

- A. Provide metal frames for doors, transoms, sidelights, borrowed lights, transom windows and other openings, of types and styles as shown on drawings and schedules. Conceal fastenings, unless otherwise indicated.

1. Fabricate frames of minimum 16-gauge cold-rolled furniture steel at interior locations and 14 gauge galvanized cold-rolled furniture steel at exterior locations.
    - a. **Frames for 90 minute fire-rated doors shall be 14-gauge cold-rolled furniture steel.**
  2. Fabricate frames with mitered and ( face welded / full profile welded ).
  3. Fabricate "Knock-Down" frames.
- B. Hardware reinforcing shall be as follows:
1. All frames are to be mortised reinforced, drilled and tapped in factory for all template mortise hardware, in accordance with "Approved" Finish Hardware Schedule and templates as provided by the Hardware Supplier. Where surface mounted hardware is to be applied, all frames shall have reinforcing plates.
  2. Reinforcement plates shall be as follows:
    - a. Hinge Preps:
      - 1) Masonry: For "F" Series: 7 gauge, minimum.
      - 2) Metal Stud/Drywall: For "DW" Series: 7 gauge, minimum.
    - b. Strike Preps:
      - 1) Masonry: For "F" Series: 12 gauge, minimum.
      - 2) Metal Stud/Drywall: For "DW" Series: 12 gauge, minimum.
    - c. Closure Reinforcement: All Series - 12 gauge, minimum.
    - d. Surface mounted hardware: All Series - 12 gauge, minimum.
  3. Base anchors for frames to be installed in masonry and drywall wall and partition assemblies, shall be adjustable type, shipped loose and to be 14 gauge, minimum.
  4. Jamb Anchors:
    - a. For "F" Series frames in masonry walls provide adjustable wire type anchors (0.156" dia.), or strap type anchors (16 gauge), and "DW" Series frames in metal stud / drywall walls field adjustable compression anchors, provide quantities as follows:
      - 1) Frames up to 7'-6" in height: 3 per jamb.
      - 2) Frames over 7'-6" to 12'-0" in height: 4 per jamb.
      - 3) and one (1) adjustable base anchor per jamb.
    - b. At existing masonry wall opening to remain, provide "Butterfly Existing Wall Anchors", 18 gauge galvanized steel, provide quantities as follows:
      - 1) Frames up to 7'-6" in height: 3 per jamb.
      - 2) Frames over 7'-6" to 12'-0" in height: 4 per jamb.
      - 3) and one (1) adjustable base anchor per jamb.
  5. Reinforce heads and jambs where indicated on drawings with 10 gauge channel, continuously welded to frame.



## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Install standard steel frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.
- B. Placing Frames: Comply with provisions of SDI-105 "Recommended Erection Instructions For Steel Frames", unless otherwise indicated.
- C. **Place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position so that the head and jambs of the frame are square, plumb, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.**
- D. In masonry construction, locate 3 wall anchors per jamb at hinge and strike levels.
- E. At in-place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.
- F. Install fire-rated frames in accordance with NFPA Std. No. 80.
- G. In metal stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels, or as indicated. In open steel stud partitions, place studs in wall anchor notches and wire tie. In closed steel stud partitions, attach wall anchors to studs with tapping screws. Use indicated anchors and as per manufacturer's recommendations.
- H. Door Installation:
  - 1. Place fire-rated doors with clearances as specified in NFPA Standard No. 80.

### 3.2 ADJUST AND CLEAN

- A. Prime Coat Touch-up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
- B. Check and re-adjust operating Finish Hardware items, without causing any damage to frames. Provide complete work for frames, leave clean and in proper operating conditions.

END OF SECTION 08110

## **SECTION 08141 – ATTACK RESISTANT FLUSH WOOD DOORS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Solid-core doors with Veneer
  - 2. Factory fitting flush wood doors to frames and factory machining for hardware.
  - 3. Factory installed glazing
- B. Related Requirements:
  - 1. Section 08110 - Hollow Metal Work for minimum 16 ga. metal frames
  - 2. Section 08700 – Finish Hardware for Grade 1 locks
  - 3. Section 09900 - Painting

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of door. Include details of core and edge construction, vision kits for openings and factory finishing.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
  - 1. Use same unit designations used in Contract Documents.
  - 2. Hardware and wiring chase preparation.
  - 3. Glazed openings
  - 4. Blocking dimensions and locations
  - 5. Fire-protection ratings for fire-rated doors.
- C. Samples for Initial Selection: Available standard Stain.
- D. Samples for Verification:
  - 1. Factory finish applied to actual door face material, approximately 8 x 10 inches, for each material and finish.
  - 2. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
  - 3. Frames for light openings, 6 inches long, for each material, type, and finish when required.

#### 1.4 QUALITY ASSURANCE

- A. Quality Standard: WDMA I.S.1-A, latest edition, "Industry Standard for Architectural Wood Flush Doors".
- B. Security Standard: Filti Testing and Development (FTD), "Shooter Attack Test Method (SA)"

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags and wrap bundles of doors in plastic sheeting.
- C. Mark each door on top rail with opening number used on Shop Drawings.

#### 1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.

#### 1.7 WARRANTY

- A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
    - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
  - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
  - 3. Warranty Period for Solid-Core Interior Doors: **Life of Installation.**

### PART 2 - PRODUCTS

#### 2.1 BASIS OF DESIGN MANUFACTURER

- A. Masonite Architectural , Aspiro Series; or approved equal.
  - 1. A component of the Masonite Defendr™ Door System.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.

## 2.2 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: Provide WDMA I.S.1-A
  - 1. Performance Grade: Extra Heavy Duty.
  - 2. Aesthetic Grade: Custom (A grade faces).
- B. Security Standard: FTD-SA
  - 1. Performance Class:
    - a. Non-Rated - Class 6
    - b. 20 Minute rated – Class 3
- C. Fire-Rated Wood Doors: Conforming to NFPA 80; listed and labeled for required ratings based on testing at pressure NFPA 252 OR UL 10C by UL or other testing agency acceptable to authorities having jurisdiction.
  - 1. Rating: Category A positive pressure
  - 2. Cores:
    - a. 20-minute rated: Structural composite lumber
  - 3. Vertical Edges:
    - a. Category A Positive Pressure: Integral intumescent seals concealed by outer stile where required.
  - 4. Blocking: Provide blocking with improved screw holding capability approved for use in doors of fire protection ratings indicated as follows:
    - a. Blocking is not required in structural composite lumber core doors

## 2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
  - 1. Aesthetic Grade: **Custom, with Grade A faces.**
  - 2. Species: **Match Existing Veneer.**
  - 3. Cut: **Match Existing.**
  - 4. Match between Veneer Leaves: **Match Existing.**
  - 5. Assembly of Veneer Leaves on Door Faces: **Match Existing.**
  - 6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
  - 7. Vertical Edges: Matching / Compatible Hardwood Lumber over structural composite lumber.
  - 8. Horizontal Edges: Structural Composite Lumber.
  - 9. Core: Structural Composite Lumber
  - 10. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering.

## 2.4 LIGHT FRAMES

- A. Metal Vision Frames for Light Openings:
  - 1. 18 gauge cold-rolled steel
  - 2. Through-bolted through the door
  - 3. Bite: Minimum 3/8" overlap

4. Finish: Factory baked-enamel finish; and approved for use in doors of fire-protection rating indicated.
- B. MVF Manufacturer's: Subject to compliance, meeting Filti Testing and Development (FTD), "Shooter Attack Test Method (SA)".
1. Activar-VLFIG
  2. Anemostat-FGS-IS
  3. All Metal Stamping-118D or 118

## 2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
- C. Openings:
1. Light Openings: Factory cut and install with vision kits indicated above.
  2. Glass: Factory install glass in doors per manufacturer's instructions.
    - a. Non-rated glass to be Armoured One AOTSG516
    - b. 20-minute glass to be Armoured One AOSTG1016FR-45

## 2.6 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
- B. Transparent Finish:
1. Grade: Premium
  2. Finish: WDMA TR-8 UV Cured Acrylated Polyester/Urethane.
  3. Staining: As selected by Architect from manufacturer's full range.
  4. Sheen: Satin

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.

1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
  2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

- A. Hardware: For installation, see Section 08700 – Finish Hardware.
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
1. Install fire-rated doors according to NFPA 80.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
    - a. Comply with NFPA 80 for fire-rated doors.
    - b. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
  2. Bevel fire-rated doors 1/8 inch in 2 inches at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

### **3.3 ADJUSTING**

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

**END OF SECTION 08141**

## **SECTION 08211 - WOOD DOORS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related Sections:
  - 1. Section 01800 - Time of Completion and Liquidated Damages
  - 2. Section 04200 - Unit Masonry
  - 3. Section 08110 - Hollow Metalwork
  - 4. Section 08700 - Finish Hardware
  - 5. Section 08800 - Glass and Glazing
  - 6. Section 09250 - Gypsum Drywall
  - 7. Section 09900 - Field Painting of metal lites

#### **1.2 SUMMARY**

- A. Extent and location of each type of flush wood door is indicated on drawings and in the door schedule.
- B. Construction: Five plies with stiles and rails bonded to core, then entire unit abrasive planed before veneering. Assembly of face veneer and crossband to core in accordance with WDMA.
  - 1. Solid core wood doors with solid hardwood edging.
  - 2. Solid core 20 min. labeled flush wood doors with solid hardwood edging.
  - 3. Mineral core 90 min. labeled flush wood doors with hardwood edging.
- C. Shop-priming of wood doors is included in this Section.
- D. Factory-finishing of wood doors is included in this Section.
- E. Factory-prefitting to frames and factory-premachining for hardware for wood doors is included in this Section.

#### **1.3 QUALITY ASSURANCE**

- A. Construction per WDMA I.S. 1A - 11.
- B. Fire-Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies per ASTM 2074-00 Fire Test (Category A Positive Pressure). For mineral core doors, provide composite blocking with improved screw holding capability as needed to eliminate through-bolting of hardware. They are to be labeled and listed for ratings indicated by UL, Warnock Hersey or other testing and inspection agency acceptable to authorities having jurisdiction. Fire labels shall be affixed at

the factory of the door manufacturer, and shall be from the Underwriter's or Warnock Hersey Testing Laboratories. Each label shall show the testing time of the label, and no approval will be given to "Construction Type" labels.

1. Temperature Rise Rating: At stairwell enclosures, provide doors which have temperature rise rating of 450°F maximum in 30 minutes of fire exposure.
  2. All "Category A" doors shall have concealed intumescent seals.
- C. Door Construction Field Examination: Upon direction of the Architect, the Contractor may be instructed to destroy a randomly selected wood door or panel by sawing it in half, vertically and horizontally, to verify conformance of the contract requirements. If the door(s) do not meet the specifications, all of the doors delivered for the project will be rejected, and the doors shall be replaced at the Contractor' expense. Further door inspection, to insure conformity to specifications, shall also be at the expense of the Contractor.
1. All such delays as a result of the fabrication and delivery of non-compliant doors which vary from the processed shop drawing submittal will be the responsibility of the Contractor (refer to Section 01800 for Liquidated Damages).

#### 1.4 REFERENCE STANDARDS

- A. Comply with the applicable requirements of the following standards unless otherwise indicated.
1. Window & Door Manufacturers Association (WDMA)
    - a. I.S. 1A - 11 Architectural Wood Flush Doors (WDMA).
    - b. Standard Procedures and Recommendations for Factory Machining Flush Wood Doors for Hardware.
  2. American National Standards Institute
    - a. ANSI A115. W Series, Wood Door Hardware Standards.
  3. Underwriter's Laboratories, Inc. (UL)
    - a. UL 10C Fire Test
  4. American Society for Testing and Materials:
    - a. ASTM 2074-00 (Category A Positive Pressure) Fire Tests of Door Assemblies.

#### 1.5 SUBMITTALS

- A. **The shop drawing submittal will not be reviewed by the Architect unless a complete shop drawing submittal (technical data, details of core and edge construction, location and extent of hardware blocking, fire ratings, factory finish samples, 8" x 10" minimum for finish and 4" x 5" minimum for construction assembly) are made as one complete submittal, by the Contractor, and will be returned to the Contractor if incomplete.**
1. **Subsequent delays as a result of an incomplete submittal will be the responsibility of the Contractor (refer to Section 01800 for Liquidated Damages).**



- B. Product Data: Door manufacturer's technical data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory-finishing specifications.
1. Include certifications as may be required to show compliance with specifications.
  2. **The door manufacturer's shop drawing literature which may include language for the substitution of door construction at the option of the manufacturer is not permitted. Doors which are switched will be rejected and all costs associated with the manufacturing of the door type(s) specified will be by the Contractor/Manufacturer.**
- C. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for factory finishing and other pertinent data.
1. For factory-premachined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light openings.
- D. Samples: Submit samples, 8" x 10" minimum for finish and 4" x 5" minimum for construction assembly, for the following:
1. Doors for Transparent Finish: Flat samples illustrating finish and color of wood grain for each species of veneer and solid hardwood lumber required.
  2. Factory-Finished Doors: Each type of factory finish required.
  3. Metal Frames for Light Openings: Manufacturers product samples or product cut sheets for light frames and color selector guide for each material and finish required.
- E. Warranties and Certification Markings: Furnish with shop drawings:
1. Door supplier must attest, in writing addressed to Architect, that the order has been placed in conformance with specification requirements in all respects.
  2. All doors shall carry a "Lifetime" guarantee, including rehang and finish for all door(s) which do not comply with the manufacturer's warranty.
  3. Copy of Warranty shall be given to the Architect and Owner prior to the completion of the project.
  4. All doors shall be factory marked, on the top of the door, showing the order number, item number on the order, size of finished door, material, and core construction, for future information should replacement of the door be necessary.
- G. The Wood Door Supplier shall provide a letter indicating all of the following:
1. The wood door supplier has completely reviewed the contract documents (drawings, specifications and addenda) and has worked with the distributor in the preparation and submission of a complete shop drawing submittal to the Architect.

2. The wood door supplier shall attest that the order has been placed in accordance with the contract document drawings, specifications and addenda,
3. The wood doors ordered and delivered to the job site are in conformance with the requirements of the job and per the approved shop drawings.

## **1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standards and recommendations in WDMA pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors", as well as with manufacturer's instructions.
- B. Protect all doors from damage and moisture under cover. Use wood blocking under horizontally stored doors. At no time will doors be allowed to come in contact with floor or water.
  1. The location where the doors are being stored on the job site shall be between 25 - 55% relative humidity. The Contractor shall forward independent certified testing that confirms compliance.
- C. All doors not finished at factory must be sealed on all surfaces within one (1) week after arrival at jobsite.
- D. Remove all damaged doors from jobsite prior to completion of project.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Basis of Design: Provide "Aspiro™ Series I Marshfield-Algoma™" wood doors as manufactured by Masonite Architectural; or approved equal.
  1. Products specified herein have been selected because of their quality of construction, configuration, design, function, available finishes, components, accessories, dimensions, shape and style.
  2. Comparable products from other manufacturers will be considered if it can be clearly shown that their products are tested, equal to or will exceed the construction quality requirements, intended performances and all other design attributes listed above and provided that deviations in dimensions and profiles are minor and do not materially detract from the design concept or intended performances as judged solely by the Architect.
    - a. Eggers Industries; Architectural Flush Doors Division, a VT Industries company,
    - b. VT Industries, Architectural Wood Doors,
    - c. Or approved equal.
  3. The use of one manufacturer's catalog numbers, and the specific requirements set forth in drawings and specifications are not intended to preclude the use of other manufacturer's products or procedures which may be equivalent, but are given for the purpose of establishing a standard of design and quality for materials, construction and workmanship.

4. **Substitutions: Substitution of products will only be considered when the Contractor/ Door Supplier have submitted, to the Architect, all appropriate documents and in the time frame as outlined in the requirements indicated in AIA A201 and Section 00800.**

## 2.2 MATERIALS AND COMPONENTS

- A. General: Provide wood doors complying with applicable requirements of referenced standards for kinds and types of doors indicated and as specified.
- B. Solid Core Doors for Transparent Finish: Comply with the following requirements:
  1. **At existing buildings, provide veneer faces to match the species of the existing veneer or as directed by the Architect.**
  2. Aesthetic Grade: Custom, with Grade A faces
  3. Species: Match Existing Veneer
  4. Cut: Match Existing
    - a. Plain sliced red oak for transparent finish; CS-171, Type II.
  5. Match between Veneer Leaves: Match Existing.
    - a. Veneer leaves shall be Match Existing, Grade 'A'.
  6. Assembly of Veneer Leaves on Door Faces: Match Existing.
  7. Construction: Premium Construction Grade, SCLC-5 Bonded (5-ply, with no added urea-formaldehyde glues).
- C. Edges
  1. Vertical stiles of same species to the face veneer, with a minimum of 1/4 inch solid hardwood after trimming.
    - a. Manufacturers standard construction with hardwood outer.
- D. Core: Structural Composite Lumber Core consisting of an engineered wood product that is made by fusing a network of wood strands together with a water-resistant adhesive to produce a strong, solid and stable product that has true structural properties with excellent screw holding properties and very high split resistance.
  1. Core Edge Interface: Vertical and horizontal edges of solid core doors must be securely bonded to the core with waterproof glue containing no added urea formaldehyde resin.
- E. Fire-Rated Solid Core Doors
  1. Faces and WDMA Grade: Provide species and grade to match non-rated doors in same area of building, unless otherwise indicated.

2. Core Construction
  - a. 20 Min. Doors: Single Leaf - Same Structural Composite Lumber Core as noted above.
  - b. 20 Min. Doors: Double Leaf - Structural Composite Lumber Core which utilizes an engineered hardwood strand board that is oriented and resin bonded to provide physical properties that equal or exceed solid lumber.
  - c. 90 Min. Doors: Mineral core composite, tested and approved by the Underwriter's or Warnock Hersey Testing Laboratories, for various levels of fire retardation within a total door assembly.
  
3. Edge Construction
  - a. 20 Min. Doors: Single Leaf - Same Structural Composite Lumber edge construction noted above.
  - b. 20 Min. Doors: Double Leaf - Stiles to match face veneer, with minimum of 1/4 inch solid hardwood (after factory trimming).
    - 1) Manufacturers standard core construction with hardwood outer.
  - c. 90 Min. Doors: WDMA Extra Heavy Duty Construction. Stiles and rails to be made of special laminated material matching the face veneer, and tested for the following tests for performance.
    - 1) Split Resistance: Not less than 950 load pounds when tested in accordance with ASTM D 143 test specimen, modified to having a 3/4 inch hole in center.
    - 2) Direct Screw Withdrawal: Not less than 650 load pounds when tested in accordance with ASTM 1037 modified to use a #12 x 1-3/4" steel screw threaded to head with wood threads.
    - 3) Cycle/Slam: 200,000 cycles with no loosening of hinge screws or other visible signs of failure when tested in accordance with requirements of ANSI A 151.1, Section 2.5.
      - a) Stile Thickness: Hinge stile minimum 5/8". Lock stile minimum 3/4 inch.
      - b) Rail Thickness: Top: 1/4" (except where required for hardware; reinforcing then to be 5"). Bottom: 1-1/16" minimum.
      - c) Provide hardware reinforcing as needed and shall be indicated on the shop drawings to the attachment of surface applied hardware without thru bolts.
  - d. All "Category A" doors shall have concealed intumescent seals.

F. Glazing of Wood Doors:

1. Glazing shall be by the wood door manufacturer.
2. Glass shall be in accordance with requirements of Section 08800.

## 2.3 LITE FRAMES

A. Metal Lite Frames:

1. Standard Metal Vision Frames:
  - a. Basis of Design: Model "LoPro™" as manufactured by Anemostat Door Products.
    - 1) Equivalent by National Guard Products, Inc.
    - 2) or approved equal.
  - b. Material: 20 ga. (1mm) Cold Rolled Steel.

- c. Finish: Grey Primer, Beige or Bronze Baked Enamel.
- d. Glazing Thickness: Should be 1/4" (6mm), 3/16" (5mm) or 5/16" (8mm) fire and/or safety rated with UL and/or W.H.I classification markings. Nominal glazing space of 3/8" (10mm) allows for glazing tape to be used on both sides of the glass.
- e. Fire Ratings with UL & W.H.I Classification markings:
  - 1) 20\* Minute: Approved listing at 3204 sq.in. visible lite, max. width 36", max. height 89".
  - 2) 45/60\* Minute: Approved listing at 2772 sq. in. visible lite, max. width 36", max. height 77".
  - 3) 90\* Minute: Approved listing at 1296 sq. in. visible lite, max. width 36", max. height 54".
  - 4) 3 Hour: Approved listing at 100 sq. in. visible lite, max. width 12", max. height 33".

Note: \*Must be used with fire glazing tape as indicated in Section 08800. Glazing combination must be used in appropriately tested door assembly.

2. Standard Metal Vision Frames:

- a. Basis of Design: Model "LoPro™ - IS Style" as manufactured by Anemostat Door Products.
  - 1) Equivalent by National Guard Products, Inc.
  - 2) or approved equal.
- b. Material: 20 ga. (1mm) Cold Rolled Steel.
- c. Finish: Grey Primer, Beige or Bronze Baked Enamel.
- d. Glazing Thickness: Varies from 1/4" (6mm) to 1" (25mm) fire and/or safety rated with UL and/or W.H.I classification markings. Nominal glazing space varies depending on the glazing thickness from of 3/8" (10mm) to 1-1/6" which allows for glazing tape to be used on both sides of the glass.
- e. Fire Ratings with UL & W.H.I Classification markings:
  - 1) 20\* Minute: Approved listing at 3204 sq. in. visible lite, max. width 36", max. height 89".
  - 2) 45/60\* Minute: Approved listing at 2772 sq. in. visible lite, max. width 36", max. height 77".
  - 3) 90\* Minute: Approved listing at 1296 sq. in. visible lite, max. width 36", max. height 54".
  - 4) 3 Hour: Approved listing at 100 sq. in. visible lite, max. width 12", max. height 33".

Note: \*Must be used with fire glazing tape as indicated in Section 08800. Glazing combination must be used in appropriately tested door assembly.

## 2.4 GENERAL FABRICATION REQUIREMENTS

- A. Fabricate wood doors to produce doors complying with following requirements.
- B. In sizes indicated for job-site fitting.
- C. Factory-prefit and premachine doors to fit frame opening sizes indicated with the following uniform clearances and bevels:
  - 1. Comply with tolerance requirements of WDMA for prefitting. Comply with final hardware schedules and door frame shop drawings and with hardware templates.

2. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory premachining.
  3. Pre-fit and pre-machine wood doors at factory. Machining shall be in accordance with necessary templates supplied by the Builders Hardware supplier, in accordance with the approved Finish Hardware Schedule for this project. Each door shall be machined for all necessary mortise hardware (ie, locks, hinges, closers, etc.) but face or thru bolt holes shall be done in the field, if such machining is not called for on templates, or is not normally machined at factory. No field preparation will be allowed.
  4. Sizing of single doors to be undersized for nominal 1/4 inch, with edges beveled on two edges, as required by the frame manufacturer. Pairs of doors will be undersized 3/16 inch to permit no more than 1/8 inch gap between door leaves. Beveling same as single doors. Door edges beveled 1/8 inch in 2 inch thickness of door.
  5. Door clearances are to be 1/8 inch at top and the bottom shall be a maximum of 1/2 inch, or as required by job condition or labeling requirements.
- D. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.
- E. Factory Finish and Uniform Range of Veneers
1. Prefinish wood doors at factory only.
  2. All face veneer shall have uniform range of colors, as specified by Architect, in selection of the range of color of the veneer.
  3. Pairs of doors are to have matching grain pattern and color.
  4. Comply with recommendations of WDMA for factory finishing of doors, including final sanding, immediately before application of finishing materials.
  5. Provide finish WDMA, #TR-6, transparent water-based stain and ultraviolet (UV) cured water based polyurethane sealer and topcoat material, color as selected by Architect.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Install doors using finish hardware in accordance with approved hardware schedule. Protect doors from damage until completion of Project. Except where through bolting is required to meet Code for "A" or "B" label doors, install surface applied hardware on metal or wood doors using all thread screws inserted in pilot drilled holes filled with white acrylic glue.
- B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's printed instructions and of referenced WDMA standard and indicated in the printed instructions provided by the manufacturer.
- C. Install fire-rated doors in corresponding fire-rated frames in accordance with requirements of NFPA No. 80.

- D. Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors.
  - 1. Machine doors for hardware. Seal cut surfaces after fitting and machining.
- E. Fitting Clearances for Non-Rated Doors: Provide 1/8" at jambs and heads; 1/16" per leaf at meeting stiles for pairs of doors; and 1/8" from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4" clearance from bottom of door to top of threshold.
- F. Fitting Clearances for Fire-Rated Doors: Comply with NFPA 80.
  - 1. Bevel non-rated doors 1/8" in 2" at lock and hinge edges.
  - 2. Bevel fire-rated doors 1/8" in 2" in lock edge; trim stiles and rails only to extent permitted by labeling agency.
  - 3. Prefit Doors: Fit to frames for uniform clearance at each edge.
- G. Factory-Finished Doors: Restore finish before installation, if fitting or machining is required at the job site.
- H. Manufacturer of wood doors shall install glass in wood doors.

### **3.2 ADJUSTING AND PROTECTION**

- A. Operation: Rehang or replace doors which do not swing or operate freely.
- B. Finished Doors: Refinish or replace doors damaged during installation.
  - 1. Protect doors, as recommended by door manufacturer, to ensure that wood doors will be without damage or deterioration at time of Substantial Completion.

**END OF SECTION 08211**

## **SECTION 08305 - ACCESS DOORS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Wall access doors.
  - 2. Ceiling access doors.
- B. Types of construction in which access doors are installed include:
  - 1. Masonry.
  - 2. Gypsum board.
- C. Exact locations and sizes of access doors may not be indicated on the drawings. Obtain specific locations and sizes for access doors from trades requiring access to concealed equipment.
- D. Products Furnished and Installed under This Section:
  - 1. Installation of anchors for access doors placed in masonry: Division 4.
- E. Related Sections:
  - 1. Section 04200 - Unit Masonry.
  - 2. Section 09250 - Gypsum Drywall.
  - 3. Section 09900 - Painting of access doors.
  - 4. General requirements for access doors: Mechanical Work.
  - 5. General requirements for access doors: Electrical Work.

#### **1.3 SUBMITTALS**

- A. Product Data: Submit manufacturer's technical data and installation instructions for each type of access door assembly, including setting drawings, templates, instructions and directions for installation of anchorage devices.
  - 1. Include complete schedule, including types, general locations, sizes, wall, floor and ceiling construction details, finishes, latching or locking provisions, and other data pertinent to installation.
- B. Verification: Obtain specific locations and sizes for required access doors from trades requiring access to concealed equipment, and indicate on submittal schedule.
- C. Special Size Access Doors: Use where required or requested; indicate on schedule.



- D. Shop Drawings: Submit shop drawings for fabrication and installation of customized access doors and frames, including details of each frame type, elevations of door design types, anchorage and accessory items.
- E. Samples: 3" x 5" minimum size, of each panel face material showing factory-finished color and texture.

#### **1.4 QUALITY ASSURANCE**

- A. Test Reports: Submit manufacturer's test reports which demonstrate that products comply with required fire ratings.
- B. Size Variations: Obtain Architect's acceptance of manufacturer's standard size units which are different than actual opening size necessary for access.
- C. Coordination: Furnish inserts and anchoring devices which must be built into other work for installation of access doors. Coordinate delivery with other work to avoid delay.

#### **1.5 WARRANTY**

- A. Manufacturer's standard **five (5) year** warranty against defects in material and workmanship from date of purchase

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering access doors which may be incorporated in the work include, but are not limited to, the following:
  - 1. Bilco Company.
  - 2. J. L. Industries.
  - 3. Milcor/Lima Register.
  - 4. Bar-Co., Inc.
  - 5. Or approved equal.

#### **2.2 MANUFACTURED UNITS**

- A. Access Door Assembly 3:
  - 1. Location: Wall.
  - 2. Type: Flush door panel with exposed frame.
  - 3. Substrate: Masonry.
  - 4. Frame: 16 gauge steel.
  - 5. Doors: 14 gauge steel flush panel.
  - 6. Hinge: Continuous type hinge with stainless steel pin.
  - 7. Locking Device: Keyed cylinder lock.
  - 8. Finish: Baked-on rust-inhibitive prime coat.

B. Access Door Assembly 4:

1. Location: Wall.
2. Type: Flush door panel with concealed frame.
3. Substrate: Gypsum board.
4. Frame: 16 gage steel.
5. Door: 14 gage steel flush panel.
6. Hinge: Double-acting concealed spring hinges allowing door to open a minimum of 165 degrees.
7. Locking device: Keyed cylinder lock.
8. Finish: Baked-on rust-inhibitive prime coat.

C. Access Door Assembly 6:

1. Location: Ceiling.
2. Type: Flush door panel with concealed frame.
3. Substrate: Gypsum board.
4. Frame: 16 gauge steel.
5. Door: 14 gauge steel flush panel.
6. Hinge: Double-acting concealed spring hinges allowing door to open a minimum of 165 degrees.
7. Locking device: Keyed cylinder lock.
8. Finish: Baked-on rust-inhibitive prime coat.

## 2.3 ACCESSORIES

A. Locking Devices:

1. Where locking devices are indicated, provide one lock per access door.
2. Supply four (4) keys with each lock.
3. Key access door locks alike.

## 2.4 MATERIALS AND FABRICATION

- A. General: Furnish each access door assembly manufactured as an integral unit, complete with all parts and ready for installation.
- B. Steel Access Doors and Frames: Fabricate units of continuous welded steel construction, unless otherwise indicated. Grind welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of support shown.
- C. Frames: Fabricate from 16 gauge steel.
- D. Fabricate frame with exposed flange nominal 1" wide around perimeter of frame for units installed in the following construction:
1. Exposed masonry.
  2. Drywall finish.

- E. For gypsum drywall or gypsum plaster, furnish perforated frames with drywall bead.
- F. For installation in masonry construction, furnish frames with adjustable metal masonry anchors.
- G. Flush Panel Doors: Fabricate from not less than 14 gauge sheet steel, with concealed spring hinges or concealed continuous piano hinge set to open 175 degrees. Finish with manufacturer's factory-applied prime paint.
- H. Locking Devices: Furnish flush, screwdriver-operated cam locks of number required to hold door in flush, smooth plane when closed.
- I. Provide one cylinder lock per access door. Furnish four (4) keys per lock. Key all locks alike, unless otherwise scheduled.
- J. Where shown or scheduled, provide one cylinder lock per access door. Furnish four (4) keys per lock. Key all locks alike, unless otherwise indicated.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- A. Comply with manufacturer's instructions for installation of access doors.
- B. Coordinate installation with work of other trades.
- C. Set frames accurately in position and securely attach to supports with face panels plumb or level in relation to adjacent finish surfaces.
- D. Where the Plumbing, Mechanical, or Electrical (MEP) Prime Subcontractor(s) require an access door to be installed to provide access to valves, etc., the MEP (Sub)Contractor shall provide the access door and the General Contractor shall install the access door.

#### **3.2 ADJUST AND CLEAN**

- A. Adjust hardware and panels after installation for proper operation.
- B. Remove and replace panels or frames which are warped, bowed or otherwise damaged.

**END OF SECTION 08305**

## **SECTION 08700 - FINISH HARDWARE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The General Provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this section

#### **1.2 DESCRIPTION OF WORK**

- A. The work in this section includes providing all labor, materials, appliances, and services required to completely furnish and deliver all finish hardware and related work, complete in accordance with the Architect's drawings and specifications, including, but not limited to the following:
  - 1. All finish hardware for aluminum/FRP, hollow metal and wood doors in aluminum and hollow metal frames.
  - 2. All keying and cylinders.
  - 3. Furnish all finish hardware necessary to complete the project, whether particularly mentioned or not, and match in quality and finish the material specified.

#### **1.3 WORK NOT INCLUDED**

- A. Furnish finish hardware, except for certain noted items, under other sections for the following items:
  - 1. Toilet partitions
  - 2. Windows
  - 3. Washroom accessories
  - 4. Millwork
  - 5. Factory fabricated mechanical or electrical equipment.

#### **1.4 RELATED WORK IN OTHER SECTIONS**

- A. Refer to the following sections for these related items:
  - 1. Wood Doors - Section 08211
  - 2. Hollow Doors and Metal Frames - Section 08110
  - 3. Attack Resistant Flush Wood Doors - Section 08141
  - 4. Electrical - Section 16000

#### **1.5 QUALITY ASSURANCE**

- A. Manufacturer: Obtain each kind of material (latch and locksets, hinges, closers, etc.) from only one manufacturer of the respective item, although several may be indicated as offering products complying with requirements.
- B. Supplier: A recognized supplier, who has been furnishing Builders Hardware, in the project's vicinity, for a recommended period of not less than 3 years, and who is, or employs an experienced Architectural Hardware Consultant who is a recognized member of the Door

and Hardware Institute, available at reasonable times during the course of the work, for consultation about the project's material requirements to the Owner, Architect, and Contractor. All hardware is to be supplied by one dealer.

- C. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA 80. Provide only material which has been tested and listed by Underwriter's Laboratories, or other approved Testing Laboratories, for the types and sizes of doors required, and complies with requirements of Door and Frame labels.
- D. Where applicable, all hardware shall be in conformance with the State of New Jersey "Barrier-Free" sub code and ICC - ANSI A117.1

## **1.6 SUBMITTALS**

- A. Submittals shall conform to the requirements specified in Part 1.
- B. The hardware dealer shall submit to the Architect and/or Owner, at least six (6) copies of a detailed Hardware Schedule and Catalog Cut Sheets. These schedules shall be complete and describe in detail the finish hardware for all door openings, or occurrences of finish hardware. These schedules are to be checked and approved by the Contractor and Architect. No hardware is to be ordered nor templates issued, prior to the receipt, by the Hardware Dealer, of these approved schedules. Upon approval of the schedules, the Contractor shall supply the Architect with six (6) final copies.
- C. The finish hardware schedules submitted shall include information as indicated below. These schedules are intended for coordination of the work.
- D. Final finish hardware content: Based on materials indicated, organize schedule into "Hardware Sets", indicating complete destinations of every item required for each door or opening. Include the following information:
  - 1. Type, style, function, size and finish of each item.
  - 2. Name and manufacturer of each item including catalog cuts of each item.
  - 3. Fastenings and other pertinent information.
  - 4. Location of Hardware Set, cross-referenced to indications on drawings, both on floor plan and in door and frame schedule.
  - 5. Explanation of all abbreviations, symbols, codes, etc., contained in the schedule.
  - 6. Mounting locations for hardware.
  - 7. Wiring diagrams and electrical data.
- E. Submittal Sequence: Submit detailed finish hardware scheduled within 30 days of award of contract.

## **1.7 DELIVERY AND PACKAGING**

- A. All items of finish hardware shall be delivered to the project site or applicable fabricators of doors and frames.

- B. Package each item of hardware and each lockset, separately in individual containers, complete with necessary screws, keys, instructions, and installation template for spotting mortising tools. Mark each container with item number corresponding to the number shown on the hardware schedule.
- C. Furnish wrapping for all knobs, handles, and pulls for protection during construction.

## **1.8 WARRANTY**

- A. Guarantee workmanship and material provided against defective manufacture. Repair or replace defective workmanship and material appearing within period of **two (2) years** after substantial completion.
- B. Provide **twenty-five (25) year** factory warranty on door closers against defects in material and workmanship from date of occupancy of project.
- C. Provide **five (5) year** factory warranty on exit devices, locksets and overhead stops against defects in material and workmanship from date of occupancy of project.
- D. Provide **ten (10) year** factory warranty on locksets against defects in material and workmanship from date of occupancy of project.

## **1.9 JOB CONDITIONS**

- A. Field Service: Hardware Supplier: Assign a competent representative, acceptable to the Architect to be at the jobsite each time a major shipment of finish hardware is received. Such representative shall assist in "checking in" these shipments and shall secure a receipt covering the contents of each shipment. In addition, such representative shall be available for immediate call to the jobsite when, in the opinion of the Architect, their presence is necessary.
- B. Templates: Following approval of the Hardware Schedule by the Architect, furnish and deliver template information to the fabricators of items to which finish hardware is to be applied in ample time to avoid delays in such work of said fabricators. Provide drawings, schedules and detailed information to other trades as necessary for them to accommodate and prepare their work to receive the finish hardware.
- C. Cooperation and Coordination:
  - 1. Cooperate and coordinate work with that of other trades supplying materials or performing work in contact with, connecting to, underlying, or overlaying the work of this Section.
  - 2. Provide complete data of requirements for work of this Section to those other trades whose work is affected by or dependent upon the work of this Section.
  - 3. Furnish all items to be built into other work in ample time to avoid delaying the progress of such work.
  - 4. Examine all drawings covering the work of this Section and refer to all other drawings, including mechanical and electrical drawings, which may affect the work of this Section or require coordination by this trade.

- D. Existing Conditions: Hardware supplier: Verify all existing conditions in the field to ensure compatibility with finish hardware specified in Hardware Sets herein, prior to submission. Any discrepancies between the existing field conditions and finish hardware specified shall be brought to the attention of the Architect immediately. Hardware supplier shall not order any finish hardware until all discrepancies are rectified and the Architect grants written approval.

#### **1.10 GENERAL**

- A. The material called for under this section shall provide for all of the hardware required, whether the same is particularly specified or not. If the hardware for any particular location is not described herein, it should be provided and shall be like that specified for similar locations so far as practicable. If no similar locations are specified, such hardware must be of a suitable type approved by the Architect.
- B. Provide screws of proper type and compatible material, with shields, anchors, plugs, toggle nuts, etc., as required for the attachment of all items of hardware herein specified. All exposed screws shall have flat head, Phillips-type heads and shall be finished to match the item of hardware for which it is intended.

#### **1.11 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final **hardware and keying** schedule.

#### **1.12 MAINTENANCE SERVICE**

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

### **PART 2 - PRODUCTS**

#### **2.1. SCHEDULED DOOR HARDWARE**

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
  - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

## 2.2. HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:

- a. Two Hinges: For doors with heights up to 60 inches.
- b. Three Hinges: For doors with heights 61 to 90 inches.
- c. Four Hinges: For doors with heights 91 to 120 inches.
- d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

- a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
- b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

- a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
- b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

4. Hinge Options: Comply with the following:

- a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Manufacturers:

- a. Bommer Industries (BO).
- b. Hager Companies (HA).
- c. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).
- d. Or approved equal.

B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:

- a. Bommer Industries (BO).
- b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).



- c. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
- d. Or approved equal.

### **2.3. DOOR OPERATING TRIM**

- A. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
  - 1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
  - 2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
  - 3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
  - 4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
  - 5. Manufacturers:
    - a. Hiawatha, Inc. (HI).
    - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
    - c. Trimco (TC).
    - d. Or approved equal

### **2.4. CYLINDERS AND KEYING**

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
- C. Cylinders: Original manufacturer cylinders complying with the following:
  - 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
  - 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
  - 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
  - 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
  - 5. Keyway: Match Facility Standard.
- D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
  - 1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturers' cylinders.

- E. Keying System: Each type of lock and cylinders to be factory keyed.
  - 1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
  - 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
  - 3. Existing System: Key locks to Owner's existing system.
  
- F. Key Quantity: Provide the following minimum number of keys:
  - 1. Change Keys per Cylinder: Three (3).
  - 2. Master Keys (per Master Key Level/Group): Five (5).
  - 3. Construction Keys (where required): Ten (10).
  - 4. Construction Control Keys (where required): Two (2).
  - 5. Permanent Control Keys (where required): Two (2).
  
- G. Construction Keying: Provide temporary keyed construction cores.
  
- H. Key Registration List (Bitting List):
  - 1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
  - 2. Provide transcript list in writing or electronic file as directed by the Owner.
  
- I. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
  - 1. Manufacturers:
    - a. Lund Equipment (LU).
    - b. MMF Industries (MM).
    - c. Telkee (TK).
    - d. Or Approved Equal.
  
- J. Key Control Software: Provide one network version of "Key Wizard" branded key management software package that includes one year of technical support and upgrades to software at no charge. Provide factory key system formatted for importing into "Key Wizard" software.

## **2.5. MECHANICAL LOCKS AND LATCHING DEVICES**

- A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified.
  - 1. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt.
  - 2. Locks are to be non-handed and fully field reversible.
  - 3. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.2 requirements to 2 million cycles.

4. Manufacturers:
  - a. Stanley Best (BE) - 9K
  - b. Corbin Russwin Hardware (RU) – CL3300 Series.
  - c. Sargent Manufacturing (SA) – 10 Line.
  - d. Or Approved Equal.

## **2.6. LOCK AND LATCH STRIKES**

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
  1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
  2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
  3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
  4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
  1. Strikes for Mortise Locks and Latches: BHMA A156.13.
  2. Strikes for Bored Locks and Latches: BHMA A156.2.
  3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
  4. Dustproof Strikes: BHMA A156.16.

## **2.7. CONVENTIONAL EXIT DEVICES**

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
  1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
  2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
  3. Except on fire rated doors, provide exit devices with key cylinder dogging device to hold the pushbar and latch in a retracted position.
  4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
  5. Flush End Caps: Provide flush end caps made of architectural metal in the same finish as the devices as in the Hardware Sets. Plastic end caps will not be acceptable.

6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
    - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
  7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
  8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
  9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
  10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
  11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Manufacturers:
    - a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
    - b. Sargent Manufacturing (SA) - 80 Series.
    - c. Von Duprin (VD) - 35A/98 XP Series.
    - d. Or Approved Equal
- C. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.
1. Provide keyed removable feature where specified in the Hardware Sets.
  2. Provide stabilizers and mounting brackets as required.
  3. Provide electrical quick connection wiring options as specified in the hardware sets.
  4. Manufacturers:
    - a. Corbin Russwin Hardware (RU) - 700/900 Series.
    - b. Sargent Manufacturing (SA) - 980S Series.
    - c. Von Duprin (VD) - 9954 Series.
    - d. Or Approved Equal

## 2.8. DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
  2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
  3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
  4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
  5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
  6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
  7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.
1. Manufacturers:
    - a. Corbin Russwin Hardware (RU) - DC8000 Series.
    - b. Sargent Manufacturing (SA) - 351 Series.
    - c. Norton Door Controls (NO) - 7500 Series.
    - d. Or Approved Equal

## **2.9. DOOR STOPS AND HOLDERS**

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:
  - a. Hiawatha, Inc. (HI).
  - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
  - c. Trimco (TC).
  - d. Or Approved Equal

C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:
  - a. Rixson Door Controls (RF).
  - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
  - c. Sargent Manufacturing (SA).
  - d. Or Approved Equal

## **2.10. ARCHITECTURAL SEALS**

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. National Guard Products (NG).
2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

3. Reese Enterprises, Inc. (RE).
4. Or Approved Equal

#### **2.11. FABRICATION**

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

#### **2.12. FINISHES**

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

#### **2.13. HARDWARE SUPPLIER'S RESPONSIBILITY**

- A. The finish hardware listed herein shall in no way be construed as a complete hardware schedule and shall be considered as an indication of the finish hardware requirements desired by the Owner. It shall be the finish hardware supplier's responsibility to examine the drawings and door schedule, and provide all necessary or additional hardware as required, but not specified herein. Such items of finish hardware shall be of the same type, quality, and quantity as that scheduled for similar doors used for similar purposes in other parts of the building. A schedule of fabrication and delivery shall be executed to avoid any delay of the entire project.

#### **2.14. HARDWARE SUPPLIER'S RESPONSIBILITY**

- A. The door hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
- B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.
- C. Products listed in the Door Hardware Sets must meet the requirements described in the specification sections noted.
  1. Section 08700 – Finish Hardware.
  2. Section 16000 – Electrical Work.

D. Manufacturer's Abbreviations:

1. MK – McKinney
2. PE – Pemko
3. RO – Rockwood
4. SA – SARGENT
5. BE - BEST Locks & Closers
6. NO - Norton
7. OT - Other

**Hardware Sets**

**Set: 1.0**

Doors: V104

Description: Assembly Space - Pair (VIF)

2 Continuous Hinge	CFM-HD1 Series		PE
1 Removable Mullion	(12- if rated) L980	PC	SA
2 Exit Device (rim, intruder)	LD (12- if rated) 49 70 8816 ETL	US32D	SA
1 Mullion Cylinder	70 980C1	US26D	SA
2 Thumb-Turn Cylinder (inside)	124-46TL RED QSPAR NC-C11	US26D	SA
2 Door Closer	7500 (R, PR or to suit OH stop)	689	NO
2 Kick Plate	K1050 10" B4E	US32D	RO
2 Wall Stop	404 (or per spec)	US26D	RO
1 Mullion Gasketing	5110BL		PE
1 Gasketing	S88D (Head & Jambs)		PE
1 Meeting Edge Seal	S771C x Door Height		PE

**Set: 2.0**

Doors: H101.1, H101.2, H103.1, H104.1, H104.2

Description: Assembly Space - Single (VIF)

1 Continuous Hinge	CFM-HD1 Series		PE
1 Exit Device (rim, intruder)	LD (12- if rated) 49 70 8816 ETL	US32D	SA
1 Thumb-Turn Cylinder (inside)	124-46TL RED QSPAR NC-C11	US26D	SA
1 Door Closer	7500 (R, PR or to suit OH stop)	689	NO
1 Kick Plate	K1050 10" B4E	US32D	RO
1 Wall Stop	404 (or per spec)	US26D	RO
1 Gasketing	S88D (Head & Jambs)		PE

**Set: 3.0**

Doors: V102

Description: Lab

1 Continuous Hinge	CFM-HD1 Series		PE
1 Cylindrical Lock (intruder/office)	9K37UA 15D S3	626	BE
1 Door Closer	7500 (R, PR or to suit OH stop)	689	NO
1 Kick Plate	K1050 10" B4E	US32D	RO
1 Wall Stop	404 (or per spec)	US26D	RO
1 Gasketing	S88D (Head & Jambs)		PE



**Set: 4.0**

Doors: V104B

Description: Storage

1	Continuous Hinge	CFM-HD1 Series		PE
1	Cylindrical Lock (storeroom)	9K37D 15D S3	626	BE
1	Door Closer	7500 (R, PR or to suit OH stop)	689	NO
1	Kick Plate	K1050 10" B4E	US32D	RO
1	Wall Stop	404 (or per spec)	US26D	RO
3	Silencer	608		RO

**Set: 5.0**

Doors: H102.1, V104A

Description: Office

3	Hinge (heavy weight)	T4A3786	US26D	MK
1	Cylindrical Lock (office)	9K37AB 15D S3	626	BE
1	Wall Stop	404 (or per spec)	US26D	RO
3	Silencer	608		RO

**Set: 6.0**

Doors: H104A, H104B

Description: Alternate - Fire Rated Alum Assembly

1	Exit Device (rim, intruder)	LD (12- if rated) 49 70 8816 ETL	US32D	SA
1	Thumb-Turn Cylinder (inside)	124-46TL RED QSPAR NC-C11	US26D	SA

Notes: Coordinate remainder of hardware with assembly manufacturer.

**PART 3 - EXECUTION****3.1 INSTALLATION**

- A. Mount Hardware units at heights indicated in "recommended locations for Builders Hardware for Standard Steel Doors and Frames", by the Door and Hardware Institute, except as specifically indicated, required to comply with governing regulations, or may be otherwise directed by the Architect.
- B. Install each hardware item in compliance with the manufacturer's instruction and recommendations. Wherever cutting and fitting is required to install finish hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protection with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.
- C. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

**3.2 ADJUST AND CLEAN**

- A. Adjust and check each operating item of finish hardware and each door to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.

- B. Final adjustment: Wherever finish hardware installation is made more than one month prior to acceptance of occupancy of a space or area, return to the work site during the week prior to acceptance or occupancy, and make final check and adjustment of all finish hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of finish hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- C. Instruct Owner's personnel in proper adjustment and maintenance of finish hardware finishes during the final adjustment of finish hardware.
- D. Continued Maintenance Service: Approximately six months after the acceptance of finish hardware in each area, the installer, accompanied by the representative of the lock and latch manufacturer shall return to the project and re-adjust every item of finish hardware to restore proper function of doors and finish hardware. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace finish hardware items that have deteriorated or failed due to faulty design, materials or installation of finish hardware units.

**END OF SECTION 08700**

## **SECTION 08800 - GLASS AND GLAZING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related Sections:
  - 1. Section 08110 - Hollow Metalwork.
  - 2. Section 08211 - Wood Doors.
  - 3. Section 08871 - Security Glazing

#### **1.2 SUMMARY**

- A. Extent of glass and glazing work is indicated on drawings and schedules.
- B. Types of work or locations requiring glass and glazing include, but are not limited to, glass types scheduled herein and on the drawings.
  - 1. Doors, side lites and transoms.
  - 2. Interior borrowed lites.

#### **1.3 QUALITY ASSURANCE**

- A. Glazing Standards: Comply with recommendations of Flat Glass Marketing Association (FGMA) "Glazing Manual" and "Sealant Manual" except where more stringent requirements are indicated. Refer to those publications for definitions of glass and glazing terms not otherwise defined in this section or other referenced standards.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
- C. Single Source Responsibility for Glass: To ensure consistent quality of appearance and performance, provide materials produced by a single manufacturer or fabricator with a recommended 5 years of successful experience in the production of each kind and condition of glass indicated and composed of primary glass obtained from a single source for each type and class required.
- D. Installer (Glazier): A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program
  - 1. Firm with a recommended 5 years of successful experience in glazing work similar to required work.
- E. All glass shall bear the Label of the manufacturer.

#### **1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's technical data for each glazing material and fabricated glass product required, including documentation of compliance with requirements and instructions for handling, storing, installing, cleaning and protecting each type of glass and glazing material, and installation and maintenance instructions.
- B. Before any glass is delivered to the job site, submit sections and details of glass installation at framing members.
- C. Samples: Submit for verification purposes, 12" square samples of each type of glass indicated except for clear single pane units, and 12" long samples of each color required (except black) for each type of sealant or gasket exposed to view. Install sealant or gasket sample between two strips of material representative of adjoining framing system in color.
  - 1. Submit insulating glass samples with completed edge-seal construction, but hermetic seal need not be maintained.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Protect glass and glazing materials during delivery, storage and handling to comply with manufacturer's directions and as required to prevent edge damage to glass, and damage to glass and glazing materials from effects of moisture including condensation, of temperature changes, of direct exposure to sun, and from other causes.
- B. Protect solar and privacy window film, glass and glazing materials during delivery, storage and handling to comply with manufacturer's directions and as required to prevent edge damage to glass, and damage to glass and glazing materials from effects of moisture including condensation, of temperature changes, of direct exposure to sun, and from other causes.

#### **1.6 PROJECT CONDITIONS**

- A. Examine framing and substrate work to receive glass and glazing materials, and condition under which glass is to be installed. Do not proceed with glazing until unsatisfactory conditions have been corrected.
- B. Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing material manufacturer or when joint substrates are wet due to rain, frost, condensation or other causes.
  - 1. Install liquid sealants at ambient and substrate temperatures above 40°F.

#### **1.7 WARRANTY**

- A. Manufacturer's Limited Warranty on Fire-Rated / Impact Glazing: Written warranty, made out to the Owner and signed by manufacturer, warrants only that the product will be free of manufacturing defects resulting in material obstruction through the glass area and/or edge separation and changes in properties of the interlayer for a period of **five (5) years** from the date of purchase, provided the Products have been properly shipped, stored, handled, installed and maintained.

1. Limitation of Remedy - Inspection: The remedy for product proved to be defective under the terms of this warranty is limited to shipment of replacement product. With respect to all claims under this warranty, the Manufacturer shall have the right to inspect any and all products alleged to be defective.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include; but are not limited to, the following:
  1. Fire Rated Glass Assemblies:
    - a. Firelite Plus by TGP Technical Glass Products
    - b. SuperLite I-XL and SuperLite II-XL by Safti First, a Division of O'Keeffe's Inc.
    - c. Keralite L by Vetrotech Saint-Gobain North America
    - d. Pyran® Platinum by Schott Glass Products
    - e. Pyran® Platinum F by Schott Glass Products
    - f. Or approved equal.

### **2.2 FIRE-RATED / IMPACT GLAZING AND FRAMING ASSEMBLIES**

- A. Fire protection rated and impact safety rated glazing material with a thickness (indicated below), made from a patented directional specialty tempered glazing or laminated glass ceramic with a transparent appearance.
  1. Units are tested listed and labeled by Underwriters Laboratories Inc., UL, for the following applications and comply with the following Agencies:
    - a. Classified and labeled by Underwriters Laboratories, Inc.®. Test report number for labeled fire-rated assemblies is UL File No. R22036.
    - b. All above tests performed in accordance with UL 9, UL 10B, UL 10C, NFPA 257, NFPA 80, ASTM E2010-01, ASTM E2074-00.
    - c. This product is not considered a barrier to radiant heat and has not met the ASTM E-119 or UL 263 test standards.
    - d. Fire rated for up to 90 minutes with required hose-stream test.
    - e. Fire-rated for up to 180 minutes in doors with required hose-stream test.
    - f. Withstands thermal shock.
  3. Impact rating: ANSI Z97.1 (Class A) and CPSC 16CFR1201 (Cat. I and II).
  4. Passes positive pressure test standard UL 10C.
  5. Laminated floated glass-ceramic.
  6. Clear and colorless without the distracting amber tint associated with competitive glass-ceramics. Microfloat process allows for smooth surface and distortion-free mirror finish.
  7. Approved for use with any fire-rated frame.
  8. Sound Transmission Class (STC): 36

9. The panel must be placed on calcium silicate or hardwood setting blocks and glazed using PYRAN® Platinum classified glazing tape, such as closed cell PVC, Fiberfrax tape or Pemko FG3000S90; or approved equal.

B. Subject to compliance with requirements, provide the following:

1. **FRIG - 1B:** Fire-Rated / Impact Gazing - Provide SuperLite II-XL by Safti First, a Division of O'Keeffe's Inc.; or approved equal, at fire walls.
  - a. Door, sidelites, transoms, and windows with fire rating requirements of 20, 45, 60, 90 and 120 minutes.
    - 1) SuperLite II-XL 45: 20 to 45 minute maximum lite area = 4,952 sq. in.
      - a) Width 124" & Height 124".
    - 2) SuperLite II-XL 60: 60 minute maximum lite area = 4952 sq. in.
      - a) Width 124" & Height 124".
    - 3) SuperLite II-XL 90: 90 minute maximum lite area = 4876 sq. in.
      - a) Walls: Width 124" & Height 124".
      - b) Doors: Width 126" & Height 126".
    - 4) SuperLite II-XL 120: 120 minute maximum lite area = 4,876 sq. in.
      - a) Width 124" & Height 124".
  - b. Doors up to 3 hours with an equally rated heat barrier framing system.
  - c. Glazing product with Starphire Ultra-Clear® glass by Vitro.
  - d. Thickness:
    - a. SuperLite II-XL 45: 1" (25mm).
    - b. SuperLite II-XL 60: 1-3/8" (35mm).
    - c. SuperLite II-XL 90: 1-1/2" (39mm).
    - d. SuperLite II-XL 120: 1-3/4" (45mm).
  - e. Provide a minimum of 5/8" glazing stops, but Manufacturer recommends 1" glazing stops.

### **2.3 GLAZING COMPOUND FOR FIRE-RATED GLAZING MATERIALS**

- A. Glazing Tape: Closed cell polyvinyl chloride (PVC) foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent. Glass panels that exceed 1,393 sq. inches for 90-minute ratings must be glazed with fire-rated glazing tape supplied by manufacturer.
  1. Setting Blocks: Neoprene, EPDM, or silicone; tested for compatibility with glazing compound; of 70 to 90 Shore A hardness.
    - a. Cleaners, Primers, and Sealers: Type recommended by manufacturer of glass and gaskets.

### **2.4 MISCELLANEOUS GLAZING MATERIALS**

- A. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- B. Setting Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealants, 80 to 90 Shore A durometer hardness.
- C. Spacers: Neoprene, EPDM or silicone blocks, or continuous extrusions, as required for compatibility with glazing sealant, of size, shape and hardness recommended by glass and sealant manufacturers for application indicated.

- A. Edge Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealant, of size and hardness required to limit lateral movement (side-walking) of glass.
- B. Compressible Filler Rods: Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, flexible and resilient, with 5-10 psi compression strength for 25 percent deflection.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Require Glazier to inspect work of glass framing erector for compliance with manufacturing and installation tolerances, including those for size, squareness, offsets at corners; for presence and functioning of weep system; for existence of minimum required face or edge clearances; and for effective sealing of joinery. Obtain Glazier's written report listing conditions detrimental to performance of glazing work. Do not allow glazing work to proceed until unsatisfactory conditions have been corrected.

### **3.2 STANDARDS AND PERFORMANCE**

- A. Comply with combined printed recommendations of glass manufacturers, of manufacturers of sealants, gaskets and other glazing materials, except where more stringent requirements are indicated, including those of referenced glazing standards.
- B. Glazing channel dimensions as indicated in details are intended to provide for necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of installation.
- C. Protect glass from edge damage during handling and installation; use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass with flares or bevels along one horizontal edge which would occur in vicinity of setting blocks so that these are located at top of opening. Remove from project and dispose of glass units with edge damage or other imperfections of kind that, when installed, weakens glass and impairs performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Inspect each piece of glass immediately before installation, and discard pieces which have significant edge damage or face imperfections.
- F. Unify appearance of each series of lites by setting each piece to match others as nearly as possible. Inspect each piece and set with pattern, draw and bow oriented in the same direction as other piece.
- G. Install insulating glass units to comply with recommendations by Sealed Insulating Glass Manufacturers Association, except as otherwise specifically indicated or recommended by glass and sealant manufacturers.

### **3.3 PREPARATION FOR GLAZING**

- A. Clean glazing channel and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrate. Remove lacquer from metal surfaces where elastomeric sealants are used.
- B. Apply primer or sealer to joint surfaces where recommended by sealant manufacturer.

### **3.4 GLAZING**

- A. Install setting blocks of proper size in sill rabbet, located one quarter of glass width from each corner, but with edge nearest corner not closer than 6" from corner, unless otherwise required. Set blocks in thin course of sealant which is acceptable for heel bead use.
- B. Provide spacers inside and out, of correct size and spacing to preserve required face clearances, for glass sizes larger than 50 united inches (length plus height), except where gaskets or glazing tapes with continuous spacer rods are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
- C. Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass unit manufacturer.
- D. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- E. Provide compressible filler rods or equivalent back-up material, as recommended by sealant and glass manufacturers, to prevent sealant from extruding into glass channel weep systems and from adhering to joints back surface as well as to control depth of sealant for optimum performance, unless otherwise indicated.
- F. Force sealants into glazing channels to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.
- G. Tool exposed surfaces of sealants to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.
- H. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when installation is subjected to movement.
- I. Miter cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacturer to prevent pull away at corners; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

### **3.5 PROTECTION AND CLEANING**

- A. Cure glazing sealants and compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability.



- B. Protect glass from breakage immediately upon installation by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces.
- C. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.
- D. Maintain glass in a reasonably clean condition during construction, so that it will not be damaged by corrosive action and will not contribute (by wash-off) to deterioration of glazing materials and other work. Comply with manufacturer's instructions.
- E. Wash and polish glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Comply with glass manufacturer's recommendations for final cleaning.

**END OF SECTION 08800**

## SECTION 08871 - SECURITY GLAZING

### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section includes the following where security glazing will be installed in lieu of security window film where indicated on the drawings:
  - 1. Fire-rated Security Glazing
  - 2. Laminated Security Glazing
- B. Related Sections:
  - 1. Section 08110 – Hollow Metalwork
  - 2. Section 08141 – Attack Resistant Flush Wood Doors

#### 1.03 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Provide glazing systems produced by a manufacturer with a recommended 5-years successful experience in the fabrication of assemblies of the type and quality required.
- B. Installer's Qualifications: Glazed systems shall be installed by a firm with a recommended 5 years' successful experience in the installation of systems like those required.

#### 1.04 ACTION SUBMITTALS

- A. Samples: Submit 12-inch square samples of each glass product. Submit 6-inch-long samples of glazing sealant and glazing tape, for color review.
- B. Manufacturer's Data: Submit manufacturers' technical data and instructions for installing and maintaining each glazing material

#### 1.05 EXTENDED WARRANTIES

- A. General: Submit warranties provided by the manufacturer agreeing to repair or replace defective material or workmanship within the specified warranty periods, starting from the date of substantial completion.
  - 1. Fire Rated Security Glazing: Submit a **five (5) year** warranty from date of shipping
  - 2. Laminated Security Glazing: Submit a **ten (10) year** warranty against delamination.

## **PART 2 - PRODUCTS**

### **2.01 MANUFACTURER**

A. Security Glazing Manufacturers and Fabricators: Subject to compliance with requirements, firms producing glass products which may be incorporated into the work include the following:

1. Armoured One, LLC; or approved equal.

a. Products:

1) AOTSG516L – 5/16-inch Laminated Security Glass

2 AOTSG616FR – 3/8-inch Fire Rated Security Glass

### **2.02 AOTSG516L - LAMINATED SECURITY GLAZING**

A. Thickness: 5/16-inch Clear

B. ASTM C1172 – Standard Specification for Laminated Architectural Flat Glass

C. WEY-SA-C1 – Standard for Shooter/Attack Certification and Forced Entry Class 1.

D. GSA Level C – General Services Administration Standard Test Method for Glazing and Window Systems Subject to Dynamic Overpressure Loadings.

E. ASTM F1642 – Standard Test Method for Glazing and Glazing Systems Subject to Air blast Loadings.

F. UL972 – Standard for Burglary Resisting Glazing.

G. ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

H. 16CFR 1201 - Safety Standard for Architectural Glazing Materials; Consumer Products Safety Commission; current edition.

I. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test; 2010.

### **2.03 AOTSG616FR - FIRE RATED SECURITY GLAZING**

A. Thickness: 3/8-inch Fire Rated

B. 20-90 Minute Fire Rating for sidelites, windows, and transoms up to 3,143 sq./in (max. width 75 in. & max. height 75.in. with 1/2-inch stops)

C. 20-90 Minute Fire Rating for doors (Non-Temp. Rise), up to 2,736 sq./in (max. width 36 in. & max. height 75 in. with 5/8-inch stops)

D. 180 Minute Fire Rating for doors (Temp. Rise) up to 100 sq/in (max. width 12 in. & max. height 33in. with 5/8-inch stops)

E. Tested in accordance with NFPA 80, NFPA 252, NFPA 257, UL 9, UL 10B, UL 10C, ASTM E2074-00, ASTM E2010-01, ASTM E2074-00, and ASTM E2010-01.

F. WEY-SA-C2 – Standard for Shooter/Attack Certification and Forced Entry Class 2.

G. GSA Level C – General Services Administration Standard Test Method for Glazing and Window Systems Subject to Dynamic Overpressure Loadings.

H. ASTM F1642 – Standard Test Method for Glazing and Glazing Systems Subject to Air Blast Loadings.

- I. UL972 – Standard for Burglary Resisting Glazing.
- J. ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- K. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Consumer Products Safety Commission; current edition.
- L. ANSI Z97.1 - American National Standard for Safety Glazing Materials used in Buildings, Safety Performance Specifications and Methods of Test; 2010.

## 2.05 GLAZING MATERIALS

- A. General: Provide standard color of glazing materials as selected by Architect. Comply with manufacturer's recommendations for applications and conditions at time of installation.
- B. Polyurethane Glazing Gasket: Polyurethane gasket or stick tape, color to be selected by Architect, thickness and size as shown on drawings.
- C. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- D. Setting Blocks: Neoprene, silicone or EPDM, 70-90 durometer hardness, with proven compatibility with glazing materials used.
- E. Spacers: Neoprene, silicone or EPDM, 40-50 durometer hardness with proven compatibility with glazing materials used.
- F. Compressible Fillers: Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, proven to be compatible with sealants used, flexible and resilient, with 5-10 psi compression strength for 25% deflection.
- G. Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
  - 1. VOC Content: For sealants used inside of the weatherproofing system, not more than 250 g/L when calculated according to 40 CFR 59, Subpart D.
- H Dowsil 995 – Dow Corning Corp. (Applied to interior of vision kit to adhere security glazing to the interior or the frame.); or approved equal.
- I. Glazing Materials for Fire-Rated Glazing
  - 1. Glazing Tape: Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air and vapor seal.
  - 2. Silicone Sealant: One-part neutral curing silicone, medium modulus sealant, Type S; Grade NS; Class 25 with additional movement capability of 50 percent in both extension and compression (total 100 percent); Use (Exposure) NT; Uses (Substrates) G, A, and O as applicable. Available Products:
    - a. Dowsil 795 - Dow Corning Corp.
    - b. Silglaze-II 2800 - General Electric Co.

- c. Spectrem 2 - Tremco Inc.
  - d. Or approved equal.
3. Setting Blocks: Hardwood or calcium silicate; glass width by 4 inches (102-mm) by 3/16 inch (4.7-mm) thick.
  4. Spacers: Neoprene or other resilient blocks of 40 to 50 Shore A durometer hardness, adhesive-backed on one face only, tested for compatibility with specified glazing compound.
  5. Cleaners, Primers, and Sealers: Type recommended by manufacturer of glass and gaskets.

## **PART 3 – EXECUTION**

### **3.01 GENERAL**

- A. Each glazing installation must withstand normal temperature changes, and impact loading without failure of glass, failure of sealants or gaskets, deterioration of glazing materials and other defects in the work.
- B. Protect glass from damage during handling and installation, and subsequent operation of glazed components of the work. Discard units with edge damage or other imperfections.
- C. Glazing channel dimensions are intended to provide for necessary bite on glass, minimum edge clearance, and adequate tape or sealant thicknesses, with reasonable tolerances.
- D. Comply with recommendations by manufacturers of glass and glazing products, except where more stringent requirements are indicated, including those of referenced glazing standards.

### **3.02 PREPARATION**

- A. Clean glazing channel and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrate.
- B. Where sealants are used, apply primer or sealant to joint surfaces where recommended by sealant manufacturer.

### **3.03 GLAZING**

- A. Where indicated, provide spacers for size and spacing required for glass sizes larger than 50 united inches, except where gaskets or pre-shimmed tapes are used for glazing. Provide 1/4-inch minimum bite of spacer on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
- B. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- C. Where sealants are used at butt joints, apply sealant in thin continuous clear bead. Tool sealant to a uniform, continuous, even profile.

- D. Using DOW 995 structural sealant, or approved equal, bond the security glazing to interior of frame, by adding a bead of sealant to the edges of glazing and the framing on both sides of glazing.
- E. Apply glazing stops and clean up any excess structural sealants from finished surfaces.

#### **3.04 PROTECTION AND CLEANING**

- A. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.
- B. Wash and polish glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish Date of Substantial Completion in each area of project. Comply with glass manufacturer's recommendations for final cleaning.

**END OF SECTION 08871**

## **SECTION 09250 - GYPSUM DRYWALL**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Extent of each type of gypsum drywall construction required is indicated on the drawings.
- B. This Section includes the following types of gypsum board construction:
  - 1. Gypsum drywall including screw-type metal support system
  - 2. Impact resistance gypsum wallboard
  - 3. Water-resistant gypsum wallboard
  - 4. Sound Insulation
  - 5. Drywall finishing (joint tape and compound treatment)
  - 6. Vinyl trim and accessories.
  - 7. Knee Wall Brace Kit.
- C. Related Sections:
  - 1. Section 09900 - Painting

#### **1.3 QUALITY ASSURANCE**

- A. Manufacturer: Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.
- B. Single Source Responsibility: Obtain each type of gypsum board and related joint treatment materials from a single manufacturer.
- C. Fireblocking and Draftstopping: Comply with the International Building Code requirements for installation of fireblocking and / or draftstopping, to prevent the fire passage of flame and product of combustion through concealed spaces or openings in gypsum board systems, in the event of fire.
- D. Provide self extinguishing vinyl trim accessories which do not support combustion once flame source is removed.

#### **1.4 REFERENCES**

- A. ANSI/ASTM C 840 Gypsum Board Standard - Comply with applicable requirements for application and finishing of gypsum board, unless otherwise indicated.
- B. ASTM C1396/C1396M Gypsum Wallboard (Standard, Ceiling,, Mold-Resistant)
- C. ASTM C1178/C1178M Standard for Glass Mat Water-Resistant Gypsum Backing Panel

- D. ASTM C754 Steel Framing Standard - Comply with applicable requirements for installation of steel framing for gypsum board)
- E. ASTM C11 Gypsum and Related Building Materials and Systems
- F. ASTM C1396/C1396M Impact Resistance Gypsum Wallboard and tested in accordance with ASTM C1629/C1629M
- G. ASTM D1784 Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPCV) Compounds
- H. ASTM C475/C475M Joint Treatment Materials
- I. ASTM D3678 Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Interior-Profile Extrusions
- J. Application and Finishing of Gypsum Panel Products: GA-216

## **1.5 SUBMITTALS**

- A. Product Data: Submit manufacturer's product specifications and installation instructions for each gypsum drywall component, including other data as may be required to show compliance with these specifications.
  - 1. Provide product data for impact resistance gypsum wallboard system.
- B. Shop drawings: Submit shop drawings for wall metal stud framing for drywall shaft system and structural heavy gauge wall studs supporting other equipment, items, cabinets, etc.
  - 1. Show layout, spacings, sizes, thicknesses, and types of metal framing, fabrication, fastening and anchorage details, including mechanical fasteners.
  - 2. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachments to other units of Work.
  - 3. Indicate manufacturer's design thickness to meet structural performance requirements for each wall mounted item, equipment, cabinet, etc.
- C. Samples: For the following products:
  - 1. Trim Accessories: Full-size Sample in 12-inch- (300-mm-) long length for each trim accessory indicated.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion and damage from construction



traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.

- C. Handle gypsum boards to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

## **1.7 PROJECT CONDITIONS**

- A. Environmental Conditions, General: Establish and maintain environmental conditions for application and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.
  - 1. Minimum Room Temperatures: When ambient outdoor temperatures are below 55°F maintain continuous, comfortable building working temperature of not less than 55°F for 48 hours prior to application and continuously thereafter until drying is complete.
  - 2. Ventilate building spaces as required to remove water in excess of that required for drying joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent materials from drying too rapidly.
  - 3. The gypsum drywall shall be installed only when the exterior walls have been erected, windows installed and the permanent roof is installed and in watertight condition to prevent the growth of mold. The contractor shall not install gypsum drywall panels that are wet, have the indication of mold, including but not limited to: fuzzy or splotchy surface contamination and discoloration.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Acceptable Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:
- B. Metal Support Systems:
  - 1. Allied Structural Industries
  - 2. Clark-Dietrich Building Systems
  - 3. National Gypsum Company
  - 4. Marino\WARE; a Div. of WARE Industries, Inc.
  - 5. United States Gypsum Co. (USG)
  - 6. Or approved equal.
- C. Gypsum Boards and Related Products:
  - 1. CertainTeed Gypsum.
  - 2. Georgia-Pacific Corp.
  - 3. Gold Bond Building Products Div., National Gypsum Co.
  - 4. United States Gypsum Co.
  - 5. Continental Building Products
  - 6. Or approved equal.

D. Impact Resistance Gypsum Wallboard:

1. United States Gypsum Co. (USG)
2. National Gypsum Co.
3. Georgia-Pacific Gypsum, LLC
4. Continental Building Products
5. CertainTeed Gypsum.
6. Or approved equal.

E. Vinyl Trim

1. Trim-Tex,
2. Or approved equal.

## 2.2 METAL SUPPORT MATERIALS

A. General: Provide components which comply with ASTM C754 for materials and sizes, unless otherwise indicated.

B. Ceiling Support Materials and Systems

1. General: Size ceiling support components to comply with ASTM C754 unless otherwise indicated.
2. Main Runners: Steel channels with rust inhibitive paint finish, hot or cold-rolled.
3. Hanger Wire: ASTM CA641, soft, Class 1 galvanized.
4. Hanger Anchorage Devices: Devices applicable to the indicated method of structural anchorage for ceiling hangers and whose suitability for use intended has been proven through standard construction practices or by certified test data. Size devices for 3x calculated load supported.
5. Furring Member: ASTM C645; 0.0179" minimum thickness of base metal, hat-shaped.
6. Furring Anchorages: 16 gauge galvanized wire ties, manufacturer's standard wire type clips, bolts, nails or screws as recommended by furring manufacturer and complying with C754.
7. Direct Suspension Systems: Manufacturer's standard zinc coated or painted steel system of furring runners, furring tees, and accessories designed for concealed support of gypsum drywall ceilings, of proper type for use intended.

C. Wall/Partition Support Materials

1. Studs ASTM C645, 25 gauge unless otherwise indicated. 20 gauge minimum at door jambs and wherever structural or other gauge studs are called for, for use with impact resistant type gypsum wallboard, and to comply with applicable published instructions and recommendations of gypsum board manufacturer or, if not available, of "Gypsum Construction Handbook" published by United States Gypsum Company.
  - a. Depth of Section: 3-5/8 inch, unless indicated otherwise.

- b. Runners: Match studs; type recommended by stud manufacturer for floor and ceiling support of studs, and for vertical abutment of drywall work at other work.
  - c. Provide structural heavy gauge studs and bracing to support loads of wall mounted items, equipment, cabinets, etc. coordinate with other trades for weight requirements and mounting locations.
2. Furring Members: ASTM C645, 25 gauge hat-shaped.
  3. Fasteners for Stud Members: Provide fasteners of type, material, size, recommended by furring manufacturer for the substrate and application indicated.
- D. Metal Furring Support Materials
1. Roll-formed, hat-shaped sections made of 20-ga. Corrosion-resistant steel. Designed for screw attachment of gypsum panels. Size 7/8" x 2-9/16"; length 12', and to comply with applicable published instructions and recommendations of gypsum board manufacturer or, if not available, of "Gypsum Construction Handbook" published by United States Gypsum Company; or approved equal.
- E. Knee Wall Brace Kit
1. Basis of Design: "SKB" Knee Brace Kit as manufactured by Pittcon Softforms® LLC; or approved equal.
  2. The welded steel assembly consists of a 2" x 2" steel tube, 1/8" thick wall and a 3 1/2" x 5" x 1/4" thick steel base plate with four (4) holes of 7/16" diameter. The assembly shall be painted with a flat black primer providing a corrosive resistant surface compatible with plaster, joint compounds and interior finishes.
    - a. Manufacturer recommends anchoring the base plate using 3/8" x 3 1/2" masonry fasteners with expanded shields for mounting in concrete floor.

## 2.3 GYPSUM BOARD

- A. General: ASTM C1396, in maximum lengths available to minimize end to end joints.
1. Type: Type X for fire resistance rated assemblies, where indicated.
  2. Edges: Tapered.
  3. Thickness: 5/8 inch, unless otherwise indicated.
- B. Water-Resistant Gypsum Board and Tile Backer: ASTM C1178, and as follows:
1. Thickness: 5/8 inch, unless otherwise indicated.
  2. Provide at showers, toilet rooms and where indicated.
  3. Basis of Design: "Dens-Shield Tile Backer"; Georgia-Pacific Corp.; or approved equal.
    - a. Provide manufacturer's standard **20-year warranty** which starts at approved date of substantial completion.
    - b. Provide manufacturer's recommended accessories and joint finishing materials.

- c. Subject to compliance with requirements of the Contract Documents, manufacturers offering products which may be incorporated in work include the following:
  - 1) "Exp Tile Backer", by National Gypsum.
  - 2) "Diamondback GlasRoc Gypsum Tile Backer, by CertainTeed Gypsum.
  - 3) "Durock™ Brand Glass-Mat Tile Backerboard", by USG.
  - 4) Or approved equal.
  
- C. Impact Resistance Gypsum Wallboard: ASTM C1629 level 3 (highest) for hard- and soft-body impact, and tested in accordance with ASTM C473 for moisture and mold resistance and ASTM D3273 for resistance to growth of mold on the surface of interior coatings. Mold Defense per ASTM D3273. Provide Type X; tapered edge, 5/8 inch thick, unless otherwise indicated. (Paintable)
  1. Basis of Design: "Mold Tough VHI Firecode Core" High-Impact-Resistant Panels with Moisture and Mold Resistance; United States Gypsum Co.; or approved equal.
  2. Where two layers of gypsum wallboard application is indicated, provide impact resistance type gypsum wallboard only for the exposed to view gypsum wallboard layer.
  3. Subject to compliance with requirements of the Contract Documents, manufacturers offering products which may be incorporated in work include the following:
    - a. "Hi-Impact XP", by National Gypsum.
    - b. "Extreme Impact Resistant Gypsum Drywall, by CertainTeed Gypsum.
    - c. Or approved equal.
  4. Use as a tile substrate is limited to tile installed according to the most current TCNA and ANSI specifications. Please consult with the adhesive and tile manufacturers for their recommendations for maximum size and weight parameters for use with gypsum board.
  
- D. Impact Resistance, Water-Resistant Gypsum Board and Tile Backer: ASTM C1178, and as follows: (Paintable)
  1. Thickness: 5/8 inch, unless otherwise indicated.
  2. Materials shall be mold resistance.
  3. Provide at showers, toilet rooms and where indicated.
  4. Basis of Design: "Fiberock - Brand Aqua"; United States Gypsum Co.; or approved equal.
  
- E. Impact Resistance, Gypsum Board: ASTM C1629, and as follows: (Paintable)
  1. Thickness: 5/8 inch, unless otherwise indicated.
  2. Complies with ASTM E84, Flame Spread 5, Smoke Developed 0 and Fire Resistance ASTM E119.

3. Mold resistant per ASTM D3273-00 "Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environment Chamber".
4. Edges: Manufacturer's standard.
5. Basis of Design: "Fiberock Abuse Resistant Interior Panels"; United States Gypsum Co.; or approved equal.

## **2.4 GYPSUM BOARD CEILING SUSPENSION SYSTEM**

- A. Heavy-Duty Drywall Furring Tee's: Provide heavy-duty furring system which comply with ASTM C645 and has G40 minimum protective for hot-dipped galvanized process and .0179 steel thickness before application of protective coating.
  1. Structural Classification: Comply with ASTM C635 for heavy-duty system.
  2. Provide manufacturer's standard suspension system accessories required for each condition indicated on the contract documents.
- B. The following system indicated, is the "Basis of Design", other manufacturer's will be considered for substitution, provided they comply with the contract documents and are submitted as per the requirements of AIA A201 and Section 00800:
  1. "Perimeter Solutions"; Armstrong World Industries, Inc.; "Drywall Suspension System"; USG Corp.; or approved equal.
  2. Main Beam: Double-web steel construction, hot dipped galvanized, 1-1/2" web height with rectangular top bulb, and prefinished 1-1/2" flange; (Item No. HD8906). For fire rated ceilings provide main beam formed to include integral splice for expansion relief. Web is to be formed to receive override cross tee.
  3. Primary Furring Cross Tees: Double-web, hot-dipped galvanized steel, 1-1/2" web height with rectangular bulb and hot-dipped 1-1/2" knurled flange.
  4. Secondary Framing Cross Tees: Double-web, hot-dipped galvanized steel, 1-1/2" web height with rectangular bulb and hot-dipped 15/16" flange.
  5. Wall Moldings: Manufacturer's standard hot-dipped galvanized steel angles or channels as selected by the Architect.
  6. Hanger Wire: Hot dipped galvanized steel, 12 gauge, tested to exceed 500 lbs. pull out force.
  7. Accessories: Manufacturer's standard angle clips, direct ceiling clips, acoustical transition clips and other accessories required to allow for use of complete grid system at indicated transitions for walls and ceilings.

## **2.5 TRIM ACCESSORIES**

- A. General: Provide manufacturer's standard trim accessories of types indicated for drywall work, formed of galvanized steel unless otherwise indicated, with either knurled and

perforated or expanded flanges for nailing or stapling, and beaded for concealment of flanges in joint compound. Provide corner beads, L-type edge trim beads, J-type edge trim beads, special L-kerf type edge trim beads, and one-piece control joint beads.

- B. Semi-Finishing Type: Manufacturer's standard trim units which are not to be finished with joint compound (non-beaded), where indicated.

## **2.6 JOINT TREATMENT MATERIALS (GYPSUM BOARD APPLICATION)**

- A. General: Provide materials complying with ASTM C475, ASTM C840, and recommendations of manufacturer of both gypsum board and joint treatment materials for the application indicated.
- B. Joint Tape: Manufacturer's recommended types for indicated applications. Use types compatible with joint compounds.
- C. Joint Compounds: Provide manufacturer's recommended types for indicated applications.
  - 1. For interior repair and patching work, provide chemical-hardening-type for bedding and filling, ready-mixed vinyl type or vinyl type powder type for topping.

## **2.7 MISCELLANEOUS MATERIALS**

- A. General: Provide auxiliary materials for gypsum drywall construction which comply with referenced standards and the recommendations of the manufacturer of the gypsum board.
- B. Gypsum Board Screws: ASTM C954 or ASTM C1002.
- C. Acoustical Sealant: Water base type, non-drying, non-bleeding, non-staining type; permanently elastic, as recommended by gypsum board manufacturer.
  - 1. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant, [with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E90.
  - 2. Acoustical Sealant for Concealed Joints: Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant, with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), recommended for sealing interior concealed joints to reduce airborne sound transmission.

## **2.8 SOUND ATTENUATION BLANKETS**

- A. Products shall be in accordance with ASTM C665-84, Type I semi-rigid unfaced mineral fiber blanket, Class 25 flame spread, thickness as indicated, and/or to achieve a minimum of STC 50 rating for indicated assemblies.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates to which drywall construction attaches or abuts, preset hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of drywall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

### **3.2 PREPARATION OF METAL SUPPORT SYSTEMS**

- A. Ceiling Anchorages: Coordinate installation of ceiling suspension system with installation of overhead structural systems to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling anchors in a manner that will develop their full strength and at spacing required to support ceiling.
  - 1. Furnish concrete inserts and other devices indicated, to other trades for installation well in advance of time needed for coordination with other construction.

### **3.3 INSTALLATION OF METAL SUPPORT SYSTEMS**

- A. Do not bridge building expansion and control joints with steel framing or furring members; independently frame both sides of joints with framing or furring members or as indicated.
- B. Provide furring and shims as required to install new work over existing substrates so that new work will be installed plumb, level and true.
- C. Ceiling Support Suspension Systems
  - 1. Secure hangers to structural support by anchorage devices or fasteners.
  - 2. Space main runners 4'-0" o.c. and space hangers 4'-0" o.c. along runners, except as otherwise shown.
  - 3. Level main runners to a tolerance of 1/4" in 12'-0", measured both lengthwise on each runner and transversely between parallel runners.
  - 4. Wire-tie or clip furring members to main runners and to other structural supports as indicated.
  - 5. Direct-hung Metal Support System: Attach perimeter wall track or angle wherever support system meets vertical surfaces. Mechanically join support members to each other and butt-cut to fit into wall track.
  - 6. Space furring member 16" o.c. except as otherwise indicated.
  - 7. Install auxiliary framing at termination of drywall work, and at openings for light fixtures and similar work, as required for support of both the drywall construction and other work indicated for support thereon.

D. Wall-Partition Support Systems:

1. Install supplementary framing, blocking and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, furnishings, and similar work to comply with details indicated or, if not otherwise indicated, to comply with applicable published recommendations of gypsum board manufacturer or, if not available, of "Gypsum Construction Handbook" published by United States Gypsum Company.
2. Isolate non-load bearing steel stud system from transfer of structural loading to system, both horizontally and vertically. Provide slip or cushioned type joints to attain lateral support and avoid axial loading.
  - a. Install single deep-leg deflection tracks and anchor to building structure.
  - b. Connect drift clips to cold-formed metal framing and anchor to building structure.
3. Install runners tracks at floors, ceilings and structural walls and columns where gypsum drywall stud system abuts other work, except as otherwise indicated. Ramset to precast plank.
4. Extend partition stud system through acoustical ceilings and elsewhere as indicated to the structural support and substrate above the ceiling.
5. Frame door openings with vertical studs securely attached by screws at each jamb either directly to frames or to jamb anchor clips on door frame; install runner track sections (for jack studs) at head and secure to jamb studs.
6. Space studs 16 inches o.c. except as otherwise indicated.
7. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
8. Frame openings other than door openings in same manner as required for door openings; and install framing below sills of openings to match framing required above door heads.
9. Provide runner tracks of same gauge as jamb studs. Space jack studs same as partition studs.
10. Cut studs 1/2" short of full height to provide perimeter relief.
11. Do not fasten studs to top track to allow independent movement of studs and track.
12. Door jambs:
  - a. Install double 20 gauge studs at each jamb for all doors.
  - b. Space wall furring members 16 inches o.c. except as otherwise indicated.

**3.4 APPLICATION AND FINISHING OF GYPSUM BOARD, GENERAL**

- A. Pre-Installation Conference: Meet at the project site with the installers of related work and review the coordination and sequencing of work to ensure that everything to be concealed by gypsum drywall has been accomplished, and that chases, access panels, openings, supplementary framing and blocking and similar provisions have been completed.



- B. Install sound attenuation blankets at all partitions prior to gypsum board unless readily installed after board has been installed.
- C. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.
- D. Install ceiling boards across framing in the manner which minimizes the number of end-butt joints, and which avoids end joints in the central area of each ceiling. Stagger end joints at least 24 inches.
- E. Install wall/partition boards in manner which minimizes the number of end-butt joints or avoids them entirely where possible.
- F. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards. Do not force into place.
- G. Locate either edge or end joints over supports, except in horizontal applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
- H. Attach gypsum board to framing and blocking provided for additional support at openings and cutouts.
- I. Cover both faces of steel stud partition framing with gypsum board in concealed spaces (above ceilings, etc.)
- J. Form control joints and expansion joints at locations indicated (@ 30'-0" o.c. or 900 sf), with space between edges of boards, prepared to receive trim accessories.
- K. Isolate perimeter of non-load-bearing drywall partitions at structural abutments. Provide 1/4 inch to 1/2 inch space and trim edge with "U" bead edge trim. Seal joints with acoustical sealant.
- L. Floating Construction: Where feasible, including where recommended by manufacturer, install gypsum board over wood framing, with "floating" internal corner construction.
- M. Space fasteners in gypsum boards in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations.

### **3.5 METHODS OF GYPSUM BOARD APPLICATION**

- A. Single-Layer Application: Install gypsum wallboard as follows:
  - 1. On ceilings apply gypsum board prior to wall/partition board application to the greatest extent possible.
  - 2. On partitions/walls apply gypsum board vertically (parallel to framing), unless otherwise indicated, and provide sheet lengths which will minimize end joints.

### 3.6 INSTALLATION OF DRYWALL TRIM ACCESSORIES

- A. General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges to comply with manufacturer's recommendations.
- B. Install corner beads at external corners.
- C. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed, and except where plastic trim is indicated. Provide type with face flange to receive joint compound. Install "L" type trim where drywall construction is tightly abutted to other construction and install special kerfed type where other work is kerfed to receive long leg of "L" type trim. Install U-type trim where edge is exposed, revealed, gasketed, or sealant-filled (including expansion joints).
  - 1. Install J-type semi-finishing trim where indicated, and where exterior gypsum board edges are not covered by applied moldings.
- D. Install metal control joint (beaded type) where indicated or required.

### 3.7 FINISHING OF DRYWALL

- A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for decoration.
- B. Prefill open joints and rounded or beveled edges, if any, using setting-type joint compound.
- C. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
- D. Apply joint compounds in 3 coats (not including prefill of openings in base), and sand between last 2 coats and after last coat.
- E. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C11, ASTM C 840 and GA-216:
  - 1. **Level 1:** All joints and interior angles shall have tape set in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. In plenum areas above the ceiling, attics, areas concealed in the building (does not typically meet fire-resistant assembly requirements).
  - 2. **Level 5:** All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Two separate coats of joint compound shall be applied over all flat joints and one separate coat of joint compound shall be applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. A thin skim coat of joint compound trowel applied, or a material manufactured especially for this purpose and applied in accordance with manufacturer's recommendations, applied to the entire surface. The surface shall be

free of tool marks and ridges. Finish for areas that are to receive gloss, semi-gloss, enamel or non-textured flat paints.

### **3.8 IMPACT RESISTANCE GYPSUM WALLBOARD INSTALLATION**

- A. General: Install fiber reinforced gypsum wallboard according to manufacturer's instructions and GA-216 "Application and Finishing of Gypsum Board."
  - 1. Nails and Screws: Corrosion resistant; ASTM C 840.
  - 2. Adhesives: Manufacturer's approved adhesive types.
  - 3. Accessories: Similar to indicated gypsum wallboard application.
  - 4. Joint Tape, Taping Compound and Finishing Compound: Comply with ASTM C 475.

### **3.9 CLEANING AND PROTECTION**

- A. Remove temporary coverings used to protect other work.
- B. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum drywall construction being without damage or deterioration at time of Substantial Completion.

**END OF SECTION 09250**

## SECTION 09510 - ACOUSTICAL CEILINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Extent of each type of acoustical ceiling is shown and scheduled on the drawings.
- B. Type of acoustical ceilings specified in this section includes the following:
  - 1. Lay in acoustical ceiling board, exposed suspension system.
  - 2. Decorative Ceiling Systems:
    - a. Lay-in.
    - b. Baffles

#### 1.3 QUALITY ASSURANCE

- A. Installer: Firm with a recommended three years of successful experience in installation of acoustical ceilings similar to requirements for this project and which is acceptable to manufacturer of acoustical units, as shown by current written statement from manufacturer.
- B. Fire Resistance Ratings: As indicated by reference to design designation in UL "Fire Resistance Directory" for floor, roof or beam assemblies in which acoustical ceilings function as a fire protective membrane; tested per ASTM E 119. Provide protection materials for lighting fixtures and air ducts to comply with requirements indicated for rated assembly.
- C. Surface Burning Characteristics: As follows, tested per ASTM E 84.
  - 1. Flame Spread: 25 or less.
  - 2. Smoke Developed: 50 or less.
- D. All acoustical ceilings shall be installed to conform to the requirements of International Building Code for Category C and the recommendation of the Ceiling and Interior Systems Construction Association (CISCA) for Zone 2 seismic design and comply with installation requirements for areas subject to light to moderate seismic activity.
- E. General Contractor shall provide adequate ventilation and humidity control before, during and after ceiling installation to prevent damage (sagging, etc.) to ceilings prior to Owner's acceptance of building.
- F. Warranty:
  - 1. Provide manufacturer's special project warranty against sagging or warping of acoustic ceiling boards for a minimum period of **thirty (30) years** which starts on approved date of substantial completion.

- G. Unless otherwise approved by the Architect, all Acoustical Ceiling Board types and Suspended Grid System types shall be by a single manufacturer.

#### 1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required including certified test reports to show compliance with requirements of these specifications.
  - 1. Include manufacturer's recommendations for cleaning and refinishing acoustical units, including precautions against materials and methods which may be detrimental to finishes and acoustical performance.
- B. Samples: Submit manufacturer's standard size samples of acoustical units, but not less than 6" square, and of exposed ceiling suspension members including wall and special moldings. Provide samples showing full range of colors, textures and patterns available for each type of component required.
- C. Shop Drawings: Submit shop drawings for acoustical ceilings, including layout of system components and details of connections between elements of system and between system and other building components.
  - 1. **Contractor must provide shop drawings certifying that attachment devices meet specified loads. Contractor must coordinate with all other Prime Contractors / Subcontractors for fixture loads, etc.**
- D. Testing Reports: Submit testing reports which indicate compliance with indicated requirements.
- E. Deliver extra materials to Owner. Furnish extra materials described below matching products installed, packaged with protective covering for storage and identified with appropriate labels.
  - 1. Acoustical Ceiling Units: Furnish quantity of full size units equal to 2.0% (rounded up to the nearest full carton) of each type of acoustic unit installed.
  - 2. Exposed Suspension System Components: Furnish quantity of each exposed component equal to 2.0% (rounded up to the nearest full carton) of each type suspension component installed.

#### 1.5 PROJECT CONDITIONS

- A. Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Basis of Design: Provide Acoustical Ceiling Board (ACB) and Metal Suspension System as manufactured by Armstrong World Industries; United States Gypsum Co.; CertainTeed Ceilings; or approved equal.

- B. Acoustical Ceiling Tile and Grid system products specified herein have been selected because of their quality of construction, configuration, design, function, available finishes, components, accessories, dimensions, shape and style.
1. Comparable products of the following manufacturers will be considered if it can be clearly shown that their products are equal to or will exceed the construction quality requirements and other design attributes listed as performance of the "Basis of Design" Systems.
    - a. USG Corporation,
    - b. CertainTeed Ceilings.
    - c. Rockfon, LLC,
    - d. Or approved equal.
  2. The use of one manufacturer's catalog numbers, and the specific requirements set forth in drawings and specifications, are not intended to preclude the use of other manufacturer's products or procedures which may be equivalent, but are given for the purpose of establishing a standard of design and quality for materials, construction and workmanship.
- C. Substitute products will be considered for substitution only when submitted to the Architect as per the requirements of AIA A201 and Section 00800.

## **2.2 ACOUSTICAL CEILING BOARDS**

- A. Refer to reflected ceiling plans for sizes and locations.
- B. Where ACB-1 is indicated: 24" x 48" x 7/8" thick, square edge, NRC .80; CAC 35 light reflectance 87%, sag resistance; Humiguard Plus Performance. Armstrong Ultima High NRC (Item# 1943); equivalent from USG, CertainTeed; or approved equal. [Unperforated]
- C. Where ACB-2 is indicated: 24" x 24" x 7/8" thick, square edge, NRC .80; CAC 35 light reflectance 87%, sag resistance; Humiguard Plus Performance. Armstrong Ultima High NRC (Item# 1940); equivalent from USG, CertainTeed; or approved equal. [Unperforated]

## **2.3 METAL SUSPENSION SYSTEMS, GENERAL**

- A. Standard for Metal Suspension Systems: Provide metal suspension systems of type, structural classification and finish indicated which comply with applicable ASTM C 635 requirements.
- B. Finishes and Colors: Provide manufacturer's standard factory-applied finish for type of system indicated. For exposed suspension members and accessories with painted finish, provide color indicated or, if not otherwise indicated, as selected by Architect from manufacturer's full range of standard colors.
- C. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung.
- D. Concrete Inserts: Inserts formed from hot-dipped galvanized sheet steel and designed for attachment to concrete forms and for embedment in concrete, with holes or loops for attachment at hanger wires.

- E. Hanger Wire: Galvanized carbon steel wire, ASTM A 641, soft temper, prestretched, Class 1 coating, sized so that stress at 3-times hanger design load (ASTM C 635, Table 1, Direct Hung), will be less than yield stress of wire, but provide not less than 12gage (0.106").
- F. Type of System: Either direct-hung or indirect-hung suspension system, at Contractor's option.
  - 1. Carrying Channels: 1-1/2 inch steel channels, hot-rolled or cold-rolled, not less than 0.475 lbs. per lineal foot.
- G. Edge Moldings and Trim: Metal types and profiles indicated or, if not indicated, provide manufacturer's standard molding for edges and penetrations of ceiling which fits with type of edge detail and suspension system indicated. Provide 7/8" edge at wall angle and reveal edges.
- H. Hold-Down Clips: For interior ceilings composed of lay-in panels weighing less than 1 lb. per sq. ft., or where indicated, provide hold-down clips spaced 2'-0" o.c. on all cross tees.

## **2.5 EXPOSED METAL SUSPENSION SYSTEMS**

- A. Double Web Steel Suspension System: For use where ACB ceilings are indicated. Manufacturer's standard system roll-formed from prefinished hot dipped galvanized steel with 15/16" wide exposed faces on flanges of structural members; other characteristics as follows:
  - 1. Structural Classification: Intermediate-Duty System.
  - 2. Finish: Painted in color as selected by Architect.
  - 3. Basis of Design: Armstrong World Industries "Prelude XL Exposed Tee System"; USG "Donn Brand DX", CertainTeed 15/16" Classic Stab; or approved equal.
- B. Perimeter Trim Profiles:
  - 1. "Edgeline Trim", as manufactured by Hunter Douglas. Refer to drawings for sizes and finishes.
  - 2. "Axiom Trim", as manufactured by Armstrong. Refer to drawings for sizes and finishes.
  - 3. "Compasso Trim", as manufactured by USG. Refer to drawings for sizes and finishes.
  - 4. Or approved equal.

## **2.6 MISCELLANEOUS MATERIALS**

- A. Acoustical Sealant: Resilient, non-staining, non-shrinking, non-hardening, non-skinning, non-drying, non-sag sealant intended for interior sealing of concealed construction joints.

# **PART 3 - EXECUTION**

## **3.1 INSPECTION**

- A. Examine conditions under which acoustical ceiling work is to be performed and notify Architect in writing of unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected in an acceptable manner.

### 3.2 PREPARATION

- A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.
- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders, and comply with reflected ceiling plans wherever possible.

### 3.3 INSTALLATION

- A. General: Install materials in accordance with manufacturer's printed instructions, and to comply with governing regulations, fire-resistance rating requirements as indicated, and CISCA standards applicable to work.
- B. Arrange acoustical units and orient directionally-patterned units (if any) in manner shown by reflected ceiling plans.
  - 1. Install tile with pattern running in one direction, unless otherwise indicated.
- C. Install suspension systems to comply with ASTM C 636, with hangers supported only from building structural members. Locate hangers not less than 6" from each end and spaced 4'-0" along each carrying channel or direct-hung runner, unless otherwise indicated, leveling to tolerance of 1/8" in 12'-0".
  - 1. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye-screws, or other devices which are secure and appropriate for substrate, and which will not deteriorate or fail with age or elevated temperatures.
- D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.
  - 1. Sealant Bed: Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings.
  - 2. Screw-attach moldings to substrate at intervals not over 16" o.c. and not more than 3" from ends, leveling with ceiling suspension system to tolerance of 1/8" in 12'-0". Miter corners accurately and connect securely.
  - 3. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.
  - 4. Install hold-down clips in areas indicated, and in areas where required by governing regulations or for fire-resistance ratings; space as recommended by panel manufacturer, unless otherwise indicated or required.
- E. Cooperate with other trades and Contractors for installation of their materials and equipment, particularly with those installing the ductwork, ceiling diffusers and lighting fixtures so that diffusers, lighting fixtures and other items are located on center lines of tile or on centers of joints as shown on approved shop drawings.



1. Provide additional hanger wires to support cubicle curtain tracks, and other superimposed loads. Locate the supplemental hangers within 6 inches of each corner of the item being supported.
2. Where light fixtures, or other recessed items occur in ceilings, frame acoustical material properly to permit installation of such recessed items and do all necessary cutting and fitting of acoustical materials and suspension systems to accommodate same. Cut neatly around all pipes passing through ceilings. Build in fixture frames and yokes in cooperation with Electrical Contractor.

### **3.4 CLEANING**

- A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage. General Contractor is responsible for cleaning or replacement of all damaged tile, regardless of how the damage was caused and regardless of by which Contractor.

**END OF SECTION 09510**

## **SECTION 09512 - ACOUSTICAL BAFFLE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Suspended acoustical baffles.
  - 2. Exposed grid suspension system
  - 3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings

#### **1.3 REFERENCES**

- A. Acoustic Performance Testing conducted by Riverbank Acoustical Laboratories. Reference report RAL-A19-505.
- B. Quality Material: Class A Fire Resistant Material (ASTM E-84); Moisture Resistant.

#### **1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
- C. Shop Drawings: Layout and details of acoustical ceilings show locations of items, which are to be coordinated with, or supported by the ceilings
- D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.

#### **1.5 QUALITY ASSURANCE**

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
  - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84
    - a. Flame Spread: 25 or less
    - b. Smoke Developed: 50 or less
- C. Noise Reduction Coefficient (NRC) Values of sound absorption coefficients in accordance with ASTM Test Method C423.
- D. Handle acoustical baffle units carefully to avoid damage to the units in any way.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver acoustical baffle units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical baffle units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical baffle units carefully to avoid damage units in any way.

## **1.7 WARRANTY**

- A. **Ten (10) year** performance-based warranty on all standard components.

## **PART 2-PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Basis of Design: Acoustic HP-2 Acoustic Baffle Unit Unlit, as manufactured by Finelite; or approved equal.

### **2.2 PRODUCT**

- A. The HP-2 Acoustic Baffle Unlit improves the sound quality of open space environments.
- B. The acoustic baffle contributes towards WELL Sound Absorption SO4 requirements.
- C. Body Type Construction: 100% Polyester fiber, joined with double-coated tape and adhesive.
- D. Mounting Type Hanging Hardware: 50" fully adjustable (FA) plated steel aircraft cable with safety stop hardware standard. contact factory for additional lengths up to 150".
- E. Height of baffle: 8".

### **2.3 COLOR**

- A. Selection from manufacturer's extended optional colors.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Do not proceed with installation until all wet work has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

### **3.2 PREPARATION**

- A. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.

### **3.3 INSTALLATION**

- A. Install baffles per manufacturer's installation instructions.
- B. For areas having seismic requirements, consult with the Authority Having Jurisdiction or Building Code to determine the local requirements and following the manufacturers seismic guidelines found in the manufacturers Installation instructions.
- C. Install suspension system per ASTM C636 unless otherwise noted in the manufactures Installation Instructions.

### **3.4 ADJUSTING AND CLEANING**

- A. Replace damaged baffles.
- B. Clean exposed surfaces of baffles including suspension members comply with manufacturer's instructions for cleaning and touch up of minor finish damage.
- C. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

**END OF SECTION 09512**

## **SECTION 09685 - CARPET TILE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related Sections:
  - 1. Section 01455 - Concrete In-situ Relative Humidity and pH Testing.
  - 2. Section 03300 - Concrete Work.
  - 3. Section 03452 - Cement Based Self-Level Underlayment.
  - 4. Section 09650 - Resilient Flooring, for rubber base.

#### **1.2 SUMMARY**

- A. Extent, location and details of Collection and type of carpet tile is indicated on the drawings.
- B. Work of this section includes furnishing and installation of carpet tile, adhesives and accessories.

#### **1.3 DEFINITIONS**

- A. Commercial Carpet: Carpet intended for use in commercial and public spaces, with construction, fire ratings, static control and appearance appropriate for this use.

#### **1.4 REFERENCES**

- A. American Association of Textile Chemists and Colorists (AATCC):
  - 1. AATCC 16: Test Method of Colorfastness to Light.
  - 2. ATTCC 134: Test Method for Electrostatic Propensity of Carpets.
  - 3. AATCC 174: Antimicrobial Activity Assessment of Carpets.
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM E 648: Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
  - 2. ASTM E 662: Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
  - 3. ASTM E 2471: Standard Test Method for Using Seeded-Agar for the Screening Assessment of Antimicrobial Activity In Carpets

## 1.5 PERFORMANCE REQUIREMENTS

### A. Comply with the following general performance requirements:

1. Radiant Panel: ASTM E-648: Class 1
2. Smoke Density: ASTM E-662  $\leq 450$
3. Static: AATCC - 134,  $< 3.0$  KV
4. Lightfastness: AATCC 16 - E,  $\geq 4.0 @ 60 @ AFU's$
5. Indoor Air Quality: Green Label Plus #GLP0820

### B. Comply with the following special performance requirements:

1. Carpet must be square, 4 hole cross-section.
2. Carpet must be 100% Recycled Content Nylon.
3. Carpet must have permanent anti-static fiber.
4. Carpet must have Soil Protection.
5. Carpet must be 100% Solution Dye.

### C. Warranty Performance Requirements:

1. **Twenty (20) year** excessive surface wear (loss of more than 10% by weight of face fiber), edge ravel, backing separation, shrinking, stretching and static electricity Warranty from the date of invoice.
2. **Twenty (20) year** - Antimicrobial Preservative Protection Warranty.
3. **Special Project Warranty:**
  - a. In addition, a written special project warranty, executed by the Contractor and the Installer, agreeing to repair or replace carpet which fails in material or workmanship within a period of **two (2) years**, which starts at the date of substantial completion, without any cost to the Owner, and agreeing to repair or replace other defects beyond Contractor's / Installer's / Manufacturer's controls, as judged by the Architect, at Owner's expense at prevailing rates.
  - b. TacTiles® carpet tile will not be adversely affected by defects in their materials or workmanship for a period of **two (2) year** from the date of invoice when used to install the appropriate Interface® carpet products.
4. Refer to Section 01900 - Warrantees and Guarantees, which include but not limited to the following requirements:
  - a. Excessive wear,
  - b. Edge ravel,
  - c. Backing separation,
  - d. Shrinking,
  - e. Stretching,
  - f. Cupping,
  - g. Doming,
  - h. Static electricity,
  - i. Antimicrobial effectiveness,
  - j. Excessive color loss.

## 1.6 SUBMITTALS

- A. Manufacturer's Data: Submit manufacturer's product literature and installation instructions for each type of carpeting material and installation accessory required. Include methods of installation for each type of substrate.
  - 1. Submit written data on physical characteristics, durability, resistance to fading and flame resistance characteristics and showing compliance with the contract requirements, including independent laboratory test reports.
  - 2. Include manufacturer's recommended specifications for primer, adhesive and installation instructions.
- B. Fiber Requirements: Submit certification from the fiber producer verifying the following:
  - 1. Use of the specified fiber in the submitted carpet product.
  - 2. Must have federally registered Branded trademark.
- C. Certificate of Compliance:
  - 1. Submit certified test reports that carpet meets all the performance requirements stated above in paragraph 1.4 (above) Performance requirements. Submit certified test reports that carpet meets all performance criteria.
- D. Samples:
  - 1. Submit two carpet samples 6" x 8" of each type, color, and pattern of carpet materials required. Submit two samples, 6" in lengths of edge guard stripping.
  - 2. Any alternates to specified products must be submitted for approval by the Architect after project award.
  - 3. Final Sample Submittal:
    - a. Submit two (2) sets of samples for each carpet type.
    - b. No carpet shipments are permitted until acceptance of final samples is given by the Architect / Owner.
    - c. Samples submitted are assumed to be the manufacturer's best obtainable match to the carpet described under Materials Section.
- E. Shop Drawings:
  - 1. For carpeted areas submit shop drawings showing installation of carpeting, seam diagram, pattern direction, necessary installation accessories, and provisions for work of other trades. Show location of different patterns or styles of carpet. Also show locations of any threshold conditions.
  - 2. The Contractor will supply reproducible prints on request, to facilitate shop drawing preparation.

F. Maintenance Manual:

1. Within sixty (60) days of awarding the Contract, submit two (2) copies of carpet manufacturer's maintenance manual, including his recommendations for the care, cleaning and maintenance programs of each type of carpeting.

G. Recycling, Energy Conservation, and Reclamation Programs:

1. Submit manufacturer's written certifications that all indicated programs are established and in full effect at the time of bidding.

H. Testing of Substrate:

1. Submit test reports of testing the concrete or other floor substrate, indicating compliance with manufacturer's requirements for moisture and alkalinity percentage of contents. Tests shall be performed in accordance with requirements of Section 01455.

I. Warranties:

1. Submit Warranties as described in paragraph 1.5 (above).

J. Closeout Submittals:

1. Maintenance Data: Include maintenance procedures, recommended cleaning and stain removal materials, and recommended cleaning schedule. Include product data and Safety Data Sheets (SDS) for cleaning and stain-removal materials.
2. Installation Instructions: Include detailed installation procedures. Include modular installation procedures, adhesive types, trowel sizes, spread rates, open times, and Safety Data Sheets (SDS) for all modular adhesives.
3. Warranties and Performance Certifications:
  - a. Submit written warranties for all products as well as Performance testing results on all items included in Warranty section and Performance section of this specification.

## 1.7 QUALITY ASSURANCE

- A. Single Source Responsibility: Provide products from a single manufacturer.
- B. Warranties must be manufacturer's standard and not job specific.
- C. All styles must come from the same manufacturer.
- D. Carpet must be 100% Recycled Content Nylon
- E. Do not install carpet until areas have been fully enclosed and environmental conditions have reached the levels indicated during occupancy.



- F. Maintain ambient temperature and humidity conditions during and after installation of carpet at levels indicated during occupancy.
- G. Allow carpet to reach room temperature or minimum temperature recommended by manufacturer before beginning installation.
- H. Protect adhesives from freezing. Follow manufacturer's recommendations for minimum temperatures to which adhesives are exposed.
- I. IAQ Requirements, Green Label: All products must be CRI Green Label Plus Certified.
- J. Carpet must be 100% recyclable.

## **1.8 QUALIFICATIONS**

### **A. Manufacturer:**

1. Company specializing in manufacturing Commercial Carpet with a recommended minimum five (5) years of documented experience and has been in continuous operation and using technology that has been in use for a recommended ten (10) years.
2. The manufacturer must agree to provide on-site supervision during the start up phase of installation without any additional cost to the Owner.
  - a. The manufacturer shall provide the Architect / Construction Manager with written documentation of locations within the project that were supervised by the manufacturer.
  - b. Manufacturer shall notify the Architect / Construction Manager and the General Construction Work Contractor if installation instructions are not completely followed.
3. The manufacturer must agree to provide a Reclamation Program. Written documentation, indicating that this program is in effect with proof that the mechanics of the program is available at the time of the bid.

### **B. Installer:**

1. Company specializing in installing carpet with a recommended minimum five (5) years of documented experience approved by the manufacturer, and participation in manufacturer's installation programs including responsible carpet removal.
  - a. The installation of the carpet must be guaranteed by the manufacturer of the carpet.
  - b. Installation must be performed by an installer that is pre-approved in writing by the manufacturer of the carpet.
  - c. The agreement between the manufacturer and the installer must specifically address all installation procedures and materials to be used with the specified warranties.
2. Installer shall follow all installation procedures recommended by the manufacturer and use only materials supplied by the manufacturer to assure obtaining required warranties offered by the manufacturer.

C. Indoor Air Quality Testing:

1. Submit testing reports furnished by an independent testing laboratory with manufacturers' certification attesting that all carpet supplied for this project have been tested and passed the Indoor Air Quality Testing requirements established by the Carpet and Rug Institute (CRI), Green Label Program for VOC's, which do not exceed the established emission levels. Likewise, the adhesives to be used for installation of the carpet have been tested and determined to be in compliance with the CRI Indoor Air Quality Testing Program requirements.

**1.9 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials to project site in original factory original wrappings, clearly labeled with identification of manufacturer, brand name, quality or grade, fire hazard classification, and lot number.
- B. Store materials in original undamaged packages and containers, inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, humidity; laid flat, blocked off ground to prevent sagging and warping.
- C. Comply with instructions and recommendations of manufacturer for special delivery, storage, and handling requirements.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Provide "On Line Collection" for Color Types 1, 3, 4 and 5 carpet tile, as manufactured by InterfaceFLOR; or approved equal.
  1. Type: Tufted Textured Loop.
  2. Face Yarn: 100% Recycled Content Nylon
  3. Color System: 100% Solution Dyed.
  4. Yarn Weight: 22.0 ounces per square yard.
  5. Pile Density: 6,146 ounces per cubic yard
  6. Backing Material: GlasBac™
  7. Pile Thickness: 0.12".
  8. Stitches: 9/in.
  9. Size: 9.845 in. x 39.38 in.
  10. Soil/Stain Protection: Protekt<sup>2</sup>®.
  11. Preservative Protection: Intersept® antimicrobial
  12. Preservative Efficacy: (AATCC 174 Parts 2&3) 99% Reduction/No Mold 7 Days. (ASTM E-2471) Complete Inhibition.
  13. Smoke Density: ASTM E-662 ≤450
  14. Static Test: (AATCC - 134) <3.0 KV
  15. Flooring Radiant Panel: ASTM E-648 Passes.
  16. Indoor Air Quality: Green Label Plus #GLP0820.
  17. Environmental Specifications:
    - a. Total Recycled Content 69.26%
    - b. Recycled Content (Pre Consumer) 58.14%

- c. Recycled Content (Post Consumer) 11.12%
- d. Other Environmental Claims: Certified Carbon Neutral Floors™  
Free of Added Heavy Metals,  
Formaldehyde, Flurinated Chemicals  
(PFAS), and Halogenated Flame  
Retardants.
- e. End of Life: Carpet to Carpet Recycling through  
ReEntry®
- 18. Lightfastness: (AATCC 16-E) ≥4.0 @ 60 AFU's
- 19. Static: (AATCC-134) <3.0 KV
- 21. Traffic Classification: Heavy.
- 20. Warranty: Manufacturer's standard - **Twenty (20) year** (Educational)  
from the date of invoice.

Special Project Warranties: In addition, a written special project warranty, executed by the Contractor and the Installer, agreeing to repair or replace carpet which fails in material or workmanship within a period of **two (2) years**, which starts at the date of substantial completion, without any cost to the Owner, and agreeing to repair or replace other defects beyond Contractor's/ Installer's / Manufacturer's controls, as judged by the Architect, at Owner's expense at prevailing rates.

TacTiles® carpet tile will not be adversely affected by defects in their materials or workmanship for a period of **two (2) years** from the date of invoice when used to install the appropriate Interface® carpet products.

B. Provide "Night Lights Collection" for Color Type 2 carpet tile, as manufactured by InterfaceFLOR; or approved equal.

- 1. Type: Tufted Textured Loop.
- 2. Face Yarn: 100% Recycled Content Nylon
- 8. Color System: 100% Solution Dyed.
- 9. Yarn Weight: 19.0 ounces per square yard.
- 10. Pile Density: 7,355 ounces per cubic yard
- 11. Backing Material: GlasBac™
- 12. Pile Thickness: 0.09".
- 8. Stitches: 8.5/in.
- 9. Size: 9.845 in. x 39.38 in.
- 10. Soil/Stain Protection: Protekt2®.
- 11. Preservative Protection: Intersept® antimicrobial
- 12. Preservative Efficacy: (AATCC 174 Parts 2&3) 99% Reduction/No Mold 7 Days.  
(ASTM E-2471) Complete Inhibition.
- 13. Smoke Density: ASTM E-662 ≤450
- 14. Static Test: (AATCC - 134) <3.0 KV
- 15. Flooring Radiant Panel: ASTM E-648 Passes.
- 16. Indoor Air Quality: Green Label Plus #GLP0820.
- 17. Environmental Specifications:
  - a. Total Recycled Content 69.26%

- b. Recycled Content (Pre Consumer) 58.36%
- c. Recycled Content (Post Consumer) 10.31%
- d. Other Environmental Claims: Certified Carbon Neutral Floors™  
Free of Added Heavy Metals,  
Formaldehyde, Fluorinated Chemicals  
(PFAS), and Halogenated Flame  
Retardants.
- e. End of Life: Carpet to Carpet Recycling through  
ReEntry®
- 18. Lightfastness: (AATCC 16-E) ≥4.0 @ 60 AFU's
- 19. Static: (AATCC-134) <3.0 KV
- 21. Traffic Classification: Severe.
- 20. Warranty: Manufacturer's standard - **Twenty (20) year** (Educational)  
from the date of invoice.

Special Project Warranties: In addition, a written special project warranty, executed by the Contractor and the Installer, agreeing to repair or replace carpet which fails in material or workmanship within a period of **two (2) years**, which starts at the date of substantial completion, without any cost to the Owner, and agreeing to repair or replace other defects beyond Contractor's/ Installer's / Manufacturer's controls, as judged by the Architect, at Owner's expense at prevailing rates.

TacTiles® carpet tile will not be adversely affected by defects in their materials or workmanship for a period of **two (2) years** from the date of invoice when used to install the appropriate Interface® carpet products.

C. Patterns and Colors: Patterns as indicated on the drawings and indicated below:

- 1. Color 1: Collection - On Line & Off Line; Product - On Line; Color - Pewter.
- 2. Color 2: Collection Night Lights; Product - Soft Glow; Color - Ink Cloud.
- 3. Color 3: Collection - On Line & Off Line; Product - On Line; Color - Lapis.
- 4. Color 4: Collection - On Line & Off Line; Product - On Line; Color - Leaf.
- 5. Color 5: Collection - On Line & Off Line; Product - On Line; Color - Cloud.

D. Comparable products of other manufacturers will be considered if it can be clearly shown that their products are tested, equal to or will exceed the construction quality requirements, intended performances and all other design attributes listed above and provided that deviations in dimensions and profiles are minor and do not materially detract from the design concept or intended performances as judged solely by the Architect.

- 1. Approved equal by The Mohawk Industries Group.
- 2. Approved equal by Bentley.
- 3. Approved equal by Bigelow.
- 4. Approved equal by Patcraft.
- 5. Approved equal by Prince Street.
- 6. Approved equal by Mannington.
- 7. Or approved equal.

## 2.2 ACCESSORIES

- A. Floor Primer: Manufacturer's approved floor primer applied to all areas that will receive carpeting.
- B. Carpet Edge Guard, Non-metallic: Extruded or molded heavy-duty vinyl or rubber carpet edge guard of size and profile indicated; minimum 2" wide anchorage flange; colors selected by Architect from standard colors.
- C. Installation Adhesive: Water-resistant, non-staining as recommended by carpet manufacturer, which complies with flammability requirements for installed carpet.
- D. Miscellaneous Materials: As recommended by manufacturers of carpet, cushions, and other carpeting products; selected by Installer to meet project circumstances and requirements.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine and test substrates for moisture content, high alkalinity, levelness and other conditions under which carpeting is to be installed. Notify contractor in writing of major conditions detrimental to proper completion of the work.
  - 1. Do not proceed until unsatisfactory conditions have been corrected.
  - 2. **Commencement of work shall constitute acceptance of conditions. Any necessary remedial work required to correct any unsatisfactory conditions, found after the start of installation, will be provided at no cost to the Owner.**
  - 3. Coordinate with installation of floor leveling underlayment where indicated or required.

### 3.2 PREPARATION

- A. Repair minor holes, cracks, depressions, and rough areas using material recommended by carpet or adhesive manufacturer.
- B. Clear away debris and scrape up cementitious deposits from surfaces to receive carpeting; vacuum clean immediately before installation. Check concrete surfaces to ensure no dusting through installed carpet; apply sealer where required to prevent dusting.

### 3.3 GENERAL

- A. Install work in strict conformance with manufacturer's printed recommendations and as shown on approved seaming layouts.
- B. Substrates shall be free from dust, oils, grease or other foreign matter. Cracks, holes and unevenness shall be filled with latex base floor filler.

- C. During winter conditions, building shall be preheated to 72°F for at least 24 hours prior to installation. During summer conditions, air conditioning shall be in operation or other provisions shall be made to obtain temperatures and humidity within limits recommended by the manufacturer.
1. Temperatures shall be kept constant night and day during installation.
  2. Concrete shall have cured for at least sixty (60) days prior to installation.

### **3.4 CARPET TILE**

- A. Butt Fitting and Joints: Brush pile back and tip individual tiles into place to avoid catching pile in the joint.
1. Frequently check joints for proper alignment and firm abutment.
  2. Avoid excessively tight joints which will cause tile to peak or buckle.
  3. Check tightness and establishing gain factor.
  4. Cut tile from the back and secure cuts or partial tiles with manufacturer's standard or approved releasable compatible adhesive or double sided tape.
  5. Install all carpet tile with pile orientation in the proper direction, as recommended by the manufacturer for each carpet type, follow manufacturer's embossed arrows on the back of tiles as guide for the proper direction.
    - a. If carpet product will be installed in parquet pattern only, arrows should point in the same direction every other tile and diagonally.
  6. Center floor trench headers directly under a full tile row.
  7. Install tile rows adjacent to walls as per manufacturer's recommended instructions.
  8. In open perimeter designs, use a fixed reducer and carpet keeper strips to secure the tile area. Use types and sizes recommended by the tile carpet manufacturer.
  9. Remove and replace damaged tiles, protect carpet tile until inspection for substantial completion of carpet tile work.
  10. Install every tile with releasable adhesive in accordance with manufacturer's instructions and information for using of appropriate tools and methods of applications.

#### **OR/**

Install carpet tile using "GlasBac®/GlasBacRE TacTiles® Connectors", as manufactured by InterfaceFLOR; or approved equal. The clear 3" x 3" polyester squares replace adhesives when used to install modular carpet with GlasBac® and GlasBac RE backings; or approved equal, only.

### **3.5 CLEANING**

- A. Remove and dispose of debris and unusable scraps. Vacuum carpet using commercial machine with face-beater element. Remove spots and replace carpet where spots cannot be removed. Remove any protruding face yarn using sharp scissors.

### **3.6 CALL BACK**

- A. Prior to expiration of **two (2) year warranty**, perform all necessary corrections and adjustments.

### **3.7 ADDITIONAL MATERIAL**

- A. Deliver to Owner as directed not less than five percent (5%) additional carpet tile of each type, pattern and color used.

**END OF SECTION 09685**

## **SECTION 09900 - PAINTING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related Section(s):
  - 1. Section 04200 - Unit Masonry.
  - 2. Section 05400 - Miscellaneous Structural Steel.
  - 3. Section 05500 - Metal Fabrications.
  - 4. Section 08110 - Hollow Metalwork.
  - 5. Section 08211 - Wood Doors for light frames.
  - 6. Section 09250 - Gypsum Drywall.
  - 7. Division 15 - Mechanical Work.
  - 8. Division 16 - Electrical Work.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of painting work is indicated on drawings and schedules, and as herein specified.
- B. Work includes painting and finishing of interior exposed items and surfaces throughout project, except as otherwise indicated.
  - 1. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.
- C. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.
- D. Surfaces to be Painted: Except where natural finish of material is specifically noted as a surface not to be painted, paint exposed surfaces whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, paint the same as similar adjacent materials or areas. If color or finish is not designated, Architect will select these from standard colors or finishes available.
- E. Following categories of work are not included as part of field-applied finish work.
  - 1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, steel windows, miscellaneous metal, hollow metal work, and similar items. Also, for fabricated components such as architectural woodwork, wood casework, and shop fabricated or factory built mechanical and electrical equipment or accessories. This is in addition to the prime coat specified herein.
  - 2. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer-finishing is specified for such items as (but not limited to)



metal toilet enclosures, prefinished partition systems, acoustic materials, architectural woodwork and casework, and shop fabricated or factory built mechanical and electrical equipment, including light fixtures, switchgear and distribution cabinets.

3. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts.
  4. Finished Metal Surfaces: Unless otherwise indicated, metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting.
  5. Operating Parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting.
  6. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment, identification, performance rating, name, or nomenclature plates.
- F. Mechanical and Electrical Work: Painting of mechanical and electrical work is specified herein.
1. Painting of mechanical and electrical work is limited to those items exposed to view.
  2. Mechanical items to be painted include, but are not limited to, the following:
    - a. Piping, pipe hangers and supports.
    - b. Ductwork, insulation.
    - c. Access doors and service panels.
  3. Electrical items to be painted include, but are not limited to, the following:
    - a. Conduit and fittings.
    - b. Backboxes.
    - c. Junction boxes.

### **1.3 QUALITY ASSURANCE**

- A. Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.
- B. Coordination of Work: Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use, to ensure compatible prime coats are used.
- C. Industry Standards: Comply with industry standard established by the Painting and Decorating Contractors of America PDCA for applications, methods and recommendations and use of tools and equipment for paint and stain coatings, primers and block fillers.

D. Lead and Chromate Contents:

1. All paint products must be free of any lead or chromate contents.

E. Volatile Organic Compound Compliant (VOC.):

1. All paint products must meet the State VOC environmental regulations (OTC Regulation compliant) and the following:
  - a. Chemical Components of Interior Paints and Coatings: Provide products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions:
    - (1) Primer, Sealer and Undercoater: VOC content of not more than 200 g/L.
    - (2) Specialty Primer, Sealer and Undercoater: VOC content of not more than 350 g/L.
    - (3) Rust Preventative Coating: VOC content of not more than 400 g/L.
    - (4) Flat Paints and Coatings: VOC content of not more than 100 g/L.
    - (5) Non-Flat Paints and Coatings: VOC content of not more than 150 g/L.
    - (6) Nonflat High Gloss Coatings: VOC content of not more than 250 g/L.
    - (7) Varnishes and Sanding Sealers: VOC content of not more than 350 g/L.
    - (8) Stains: VOC content of not more than 250 g/L.
    - (9) Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).

F. Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and reprime as required. Notify Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

1. At galvanized surfaces, primer shall be a zinc dust-zinc oxide coating.

#### 1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.
- B. Samples: Prior to beginning work, Contractor shall furnish color chips (2 fan decks) for surfaces to be painted. Use representative colors when preparing samples for review. Submit samples for Architect's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.
  1. On 12" x 12" hardboard, provide two samples of each color and material, with texture to simulate actual conditions. Resubmit samples as requested by Architect until acceptable sheen, color, and texture is achieved.
  2. On concrete masonry, provide complete walls or portions of walls as sample mock-ups and in sizes and locations as directed by the Architect;

- a. Mock-up wall samples shall be for painting on masonry for each type of finish and color, defining filler, prime and finish coat.
  - b. Mock-up wall samples shall remain until authorized by the Architect for use as part of the work.
- C. Acknowledgment of Contract Documents: Contractor / Installer shall submit to the Architect certifications signed by each of the Contractor and Installer attesting acknowledgment of requirements of the Contract Documents for specific project requirements indicated in this specifications.
1. Installer shall submit proof of evidence, (this project specification section) with his/her letter of certificate.
  2. Contractor / Installer shall not proceed with painting work of this section until submittal of required certifications are completed.
  3. Any work performed prior to completion of this submittal shall be subject to total rejection by the Architect. All rejected work shall be rectified without any additional cost to the Owner.
- E. Coating Maintenance Manual: Upon conclusion of the project, the contractor in conjunction with the coating manufacturer shall furnish a coating maintenance manual such as the Sherwin-Williams "Custodian Project Color and Product Information" report or equal. Manual shall include an area summary with finish schedule, area detail designating where each product/color/finish was used, product data pages, SDS pages, care and cleaning instructions, touch up procedures and color samples of each color and finish used.

## **1.5 DELIVERY AND STORAGE**

- A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:
1. Name or title of material.
  2. Fed. Spec. number, if applicable.
  3. Manufacturer's stock number and date of manufacturer.
  4. Manufacturer's name.
  5. Contents by volume, for major pigment and vehicle constituents.
  6. Thinning instructions.
  7. Application instructions.
  8. Color name and number.

## **1.6 JOB CONDITIONS**

- A. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45°F (7°C) and 95°F (35°C), unless otherwise permitted by paint manufacturer's printed instructions.
- B. Do not apply paint in snow, rain, fog or mist, or when relative humidity exceeds 85%, or to damp or wet surfaces, unless otherwise permitted by paint manufacturer's printed instructions.

- C. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.
- D. Provide sufficient temporary illumination producing overall space/room minimum illumination level of 50 ft. candles while preparing or painting of surfaces and to assure the production of quality finishes.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include but are not limited to the following:
  - 1. M A B
  - 2. Benjamin Moore
  - 3. PPG Architectural Coatings
  - 4. The Sherwin-Williams Company
  - 5. Linetec Inc.
  - 6. Or approved equal

### **2.2 COLORS AND FINISHES**

- A. Prior to beginning work, Contractor shall furnish color chips for surfaces to be painted from manufacturers full line of products. This shall include custom colors.
  - 1. Contractor shall allow for a total of 20 different colors of each type of paint, (excluding graphics and /or art work as indicated) with change of color within a room or space occurring either on a horizontal or vertical line, allow for multiple (6) colors at each room unless otherwise shown. Where roof structure is exposed, steel beams, steel joists and metal decking will be painted with different colors, as selected by the Architect.
  - 2. Contractor shall allow for split frames at all new and existing hollow metal door and borrowed lite frames to be painted.
  - 3. Final acceptance of colors will be from samples supplied on the job.
- B. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

### **2.3 MATERIALS**

- A. Material Quality: Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.
- B. Provide undercoat paint recommended and produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only within recommended limits.

## 2.4 INTERIOR PAINT SCHEDULE

### A. Semi-Gloss (Satin) Enamel:

1. 1st Coat: Sherwin-Williams, Pro Industrial Pro-Cryl Universal Primer.
2. 2nd Coat: Acrylic Enamel, Sherwin-Williams, Pro Industrial HP Acrylic.
3. 3rd Coat: Acrylic Enamel, Sherwin-Williams, Pro Industrial HP Acrylic.
4. Apply to following interior surfaces: Hollow metal work, metal lites for wood doors, miscellaneous steel and ferrous metal fabrications.
5. Apply as many coats as necessary to produce a uniform substrate and finish appearance.

### B. Semi-Gloss (Satin) Enamel:

1. 1st Coat: Sherwin-Williams, Pro Industrial Pro-Cryl Universal Primer.
2. 2nd Coat: Acrylic Enamel, Sherwin-Williams, Pro Industrial DTM Acrylic.
3. 3rd Coat: Acrylic Enamel, Sherwin-Williams, Pro Industrial DTM Acrylic.
4. Apply to following interior surfaces: Exposed metal ductwork.
5. Apply as many coats as necessary to produce a uniform substrate and finish appearance.

### C. Egg-Shell / Satin Enamel - Acrylic Latex:

1. Base Coats: Enamel Undercoat; Primer-Sealer to suit substrate or Loxon Block Surfacer for Concrete Masonry/CMU Block.
  - \* Block Filler shall be Level 3 - Premium Fill; one or multiple coats for high performance block filler in accordance with PDCA industry standards. Apply mock-up to confirm appearance before application of finish coats.
2. 2nd Coat: Sherwin-Williams, ProMar 200 Zero VOC Eg-Shel.
3. 3rd Coat: Sherwin-Williams, ProMar 200 Zero VOC Eg-Shel.
4. Apply to the following interior surfaces: Concrete masonry units, gypsum drywall and other interior assemblies to receive paint.
5. Apply as many coats as necessary to produce a uniform substrate and finish appearance.

### D. Flat - Dryfall Acrylic Latex:

1. 1st Coat: Galvanized steel or ferrous metal primer to suit substrate.

2. 2nd Coat: Sherwin Williams, Pro Industrial, Low VOC Waterborne Acrylic Dryfall Flat.
  3. 3rd Coat: Sherwin Williams, Pro Industrial, Low VOC Waterborne Acrylic Dryfall Flat.
  4. Apply to following interior surfaces: Overhead exposed structural steel, steel joists, underside of steel deck, etc.
  5. Apply as many coats as necessary to produce a uniform substrate and finish appearance.
- E. Water-Based Acrylic Epoxy:
1. Base Coats: Block fillers (Sherwin-Williams Loxon Block Surfacer and/or Primers recommended by manufacturer.
    - \* Block Filler shall Level 3 - Premium Fill; one or multiple coats for high performance block filler in accordance with PDCA industry standards. Apply mock-up to confirm appearance and before finish coat applications.
  2. 2nd Coat: Sherwin Williams, Pro Industrial Water-based Catalyzed Epoxy.
  3. 3rd Coat: Sherwin Williams, Pro Industrial Water-based Catalyzed Epoxy.
  4. Apply to following surfaces: CMU and other surfaces where indicated or required.
  5. Apply as many coats as necessary to produce a uniform substrate and finish appearance.

## **2.5 EXTRA STOCK**

- A. Contractor shall provide one gallon of extra stock for each color/type selected for use on the project. Provide unopened containers clearly marked with manufacturers color number and name.

## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions, included rotted or otherwise defective materials, have been observed by all concerned and corrected in a manner acceptable to Applicator.
- B. Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

## 3.2 SURFACE PREPARATION

### A. General:

1. Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.
2. Provide barrier coats over incompatible primers or remove and reprime as required. Notify Architect in writing of any anticipated problems in using the specified coating systems with substrates primed by others.
3. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.
4. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.
5. Painting of materials shall commence only when the moisture content of the materials complies with manufacturer's recommendations as follows:
  - a. Concrete and masonry - 22% maximum.
  - b. Gypsum drywall - 12% maximum.

### B. Cementitious Materials:

1. Prepare cementitious surfaces of concrete, concrete block, cement plaster and gypsum drywall board to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.
2. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions.

### C. Ferrous Metals:

1. Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
2. Touch-up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch-up with same type shop primer.
3. Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum based solvent.

### 3.3 MATERIALS PREPARATION

- A. Mix and prepare painting materials in accordance with manufacturer's directions.
- B. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
- D. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

### 3.4 APPLICATION

- A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
- B. Where finish schedule calls for walls, floors or ceilings to be painted, paint all new and existing surfaces in same area. Paint from corner to corner on walls, floors, or ceilings, or to a major change in direction of surface to be painted. Provide crisp, clean, sharp lines where new painted surfaces abut existing painted surfaces.
- C. **Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.**
- D. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
- E. Sand lightly between each succeeding enamel or varnish coat.
- F. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
- G. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- H. **Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as recommended by coating manufacturer and an acceptable finished appearance in finish, color and appearance as determined by the Architect.**



- I. Primer Coat: Apply primer coat of material which is required to be painted or finished, and which has not been prime coated by others.
  - 1. **Re-coat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.**
- J. **Block Fillers: Apply block fillers using manufacturer's recommended application techniques with sufficient material and coats to achieve a pinhole-free, "Level 3 - Premium Fill Surface", and in accordance with PDCA 's industry standards.**
- K. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.
- L. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

### **3.5 CLEAN-UP AND PROTECTION**

- A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.
- B. Upon completion of painting work, clean all paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
  - 1. Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
  - 2. At completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

**END OF SECTION 09900**

## **SECTION 10100 - DRY MARKERBOARDS AND EXHIBITION BOARDS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of dry markerboards and exhibition boards is indicated on the drawings.
- B. Type of dry markerboards and exhibition boards specified in this section includes the following:
  - 1. Porcelain enamel steel dry marker boards.
  - 2. Fabriccork fabric faced cork exhibition boards.
  - 3. Factory applied trim.
  - 4. Magnetic markerboard tray(s).

#### **1.3 REFERENCES**

- A. ASTM E84 Standard Test Method for Surface Burning Characteristics for Building Materials.
- B. ASTM C540 Gloss for ceramic materials.
- C. ASTM C614 for alkali resistance.
- D. ASTM D2244 evaluation of color differences.
- E. ASTM B221 Standard Specification for Aluminum and Aluminum Alloy Extruded Bars, Rods, Wires, Profiles and Tubes.
- F. ASTM C208-72 for cellulosic fiberboard.
- G. ANSI A208.1-79 for particleboard.
- H. ANSI H35.1-82 for aluminum temper and alloy.
- I. HNSI A424-80 for steel for porcelain enameling.
- J. FS LLL-B-810 for tempered hardboard.
- K. PEI-1002 Manual and Performance Specification for Porcelain Enamel Writing Surfaces.
- L. BYK-Gardner Surface Distortion.
- M. GREENGUARD Indoor Air Quality Certified.

N. GREENGUARD Children and Schools Indoor Air Quality Certified.

#### 1.4 QUALITY ASSURANCE

A. Manufacturer: Furnish all dry markerboards and exhibition boards by a single manufacturer for the entire project.

B. Surface Burning Characteristics: Provide exhibition board surfaces which are identical in composition to those with surface burning characteristics indicated below, as determined by testing in compliance with ASTM E84. Use only exhibition boards which are certified to meet the following standards:

1. Flame Spread: Not more than 25.
2. Smoke Developed: Not more than 40.

C. Uniformity of color, corrosion, temperature, alkali, water, range of gloss test, uniform texture, light reflectance and cleanability are requirements for all groups and have specific ranges for each.

D. Product Certifications: Provide GREENGUARD Indoor Air Quality Certified and GREENGUARD Children and Schools Indoor Air Quality Certificates for markerboards.

E. Reflectivity of LCSII ceramicsteel Markerboard writing surfaces shall not exceed the following:

1. Gloss Range / 60° Gloss meter GU (Gloss Units)
  - a. LCSII ceramicsteel for Markerboard 68 -76% (low gloss surface).
  - b. LCSII ceramicsteel for writing surfaces - Surface Distortion reduction and the optimum improvement to performance characteristics.
2. Contrast/waviness for Markerboards (light and dark effects) shall be no greater than 15 [Scale 0 – 30] when tested with BYK – Gardner Wave Scan 5+ Measuring device showing visual acuity (contrast sensitivity) to the human eye at distances greater than 3 meters (10'- 0").
3. Resolution (visual acuity) shall be based on 3 lines per degree and be visibly maintained beyond the current standard of 3 meters. [Byk-Gardner Wave Scan 5+ Measuring device].
4. Surface distortion (“orange peel”/surface peaks and valleys) as tested by the BYK-Gardner Wave Scan 5+ Measuring device [Scale 0 – 60]. Values are established by the difference in the highpoint/low point of the Markerboard test surfaces. P 3 ceramicsteel shall establish the lowest range of distortion from 11.7 – 16.02.

#### 1.5 SUBMITTALS

A. Samples and colors for each:

1. Face sheet materials
2. Cork materials
3. Vinyl materials
4. Aluminum trim or wood trim types and profiles.

- B. Shop Drawings: Submit shop drawings for each type of drymarker and exhibition board. Include sections of typical trim members and dimensioned elevations. Show anchors, grounds, reinforcement, accessories, layout and installation details.
  - 1. Drawings shall indicate location and actual material lengths of each unit. Room elevations shall indicate joint locations and include dimension from floor and adjacent side walls, cross-sections for trim, backing, face and core materials, fastener spacing and types of units provided.
- C. Product Data: Submit manufacturer's technical data and installation instructions for each material and component part, including data substantiating that materials comply with requirements.
- D. Certification: Submit the manufacturer's certification that materials furnished for the project comply with the specified requirements.
- E. Manufacturer's Product Warranty: Submit manufacturer's product and accessories warranty and certificate of authenticity from manufacturer.
- F. Product use, regular cleaning, stain removal and precautions information in the operation and maintenance instructions.

## 1.6 SPECIAL PRODUCT WARRANTY

- A. Submit a "**Life of Building**" warranty, stating that under normal usage and maintenance, and when installed in accordance with manufacturer's instructions and recommendations, porcelain enamel steel markerboard writing surfaces are guaranteed for the Life of the Building. Guarantee covers replacement of defective boards, but does not include cost of removal or reinstallation.
- B. Submit a standard warranty, stating that when installed in accordance with manufacturer's instructions and recommendations, exhibition boards are guaranteed for **one (1) year** against defects in materials and workmanship. Guarantee does not cover normal wear and tear, improper handling, any misuse, or any defects caused by vandalism or subsequent abuse. Guarantee covers replacement of defective material, but does not include cost of removal or reinstallation.
- C. Writing Surface Warranty Period: **Lifetime of the building** commencing on the Date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis of Design: "Series 1", as manufactured by Claridge Products and Equipment, Inc.; or approved equal.
  - 1. Finishes and Colors: Shall be selected by the Architect from manufacturer's available full range of finishes and colors including painted aluminum colors.

- B. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
1. Manufacturers of Porcelain Enamel Dry Markerboards and Exhibition Boards:
    - a. Educational Equipment.
    - b. Platinum Visual Systems
    - c. Or approved equal

## 2.2 MARKERBOARD MATERIALS

- A. Porcelain Enamel: Provide balanced, high pressure laminated porcelain enamel markerboards of 3-ply construction consisting of facing sheet, core material and backing.
1. Face Sheet: LCS-II Porcelain Enamel grade cold rolled steel for markerboard, as indicated on drawings..
    - a. Coat the exposed face with a 3-coat process consisting of primer, ground coat and color cover coat, and the concealed face with a 2-coat process consisting of primer and ground coat.
      - 1) Bottom Ground Coat - 1.5 to 2.2 mils
      - 2) Top Ground Coat - 2.0 to 2.8 mils
      - 3) Top Cover (Color) Coat - 3.0 to 4.0 mils
    - b. Fuse cover and ground coats to the steel at the manufacturer's firing temperatures, but not less than 1,200 deg.F (649°C).
    - c. LCS-II Porcelain Enamel for markerboard with improved writing and erasing surface (3 colors low gloss and 3 colors high gloss)
    - d. Facing sheet construction:
      - 1) 1.7-2.5 mils enameled ground coat on face minimum thickness.
      - 2) 3.0 - 4.0 mils enameled cover (color) coat for markerboard.
      - 3) 1.7-2.5 mils enameled minimum ground coat on back of facing.
      - 4) Firing temperatures shall be a minimum of 1200°F for LCSII markerboard.
  2. Writing Surface Core: 7/16" Medium Density Fiberboard (MDF) composed of approximately 90% post-industrial waste.
    - a. Units over 12'-0" in length and longer will require H-bar at center.
  3. Moisture backer shall be factory laminated to core material. A 0.005" thick aluminum backer shall be provided standard on all markerboards.
  4. Perimeter trim shall be as indicated on the architectural drawings.
  5. Markerboard tray(s): Provide item #264M satin anodized finish magnetic markerboard tray(s). Size: 2-3/4" deep x 12" long with 3/4" radius corners.
  6. Accessories (1" or 2"):
    - a. Maphooks (minimum two per 4' maprail).
    - b. Flag holder (one per room).
      - 1) Provide separate wall mount flagholder, as required. Coordinate locations with locations of projection screens.
    - c. Map roller brackets (one pair per markerboard).
    - d. Maprail end stops (one pair per display rail).

7. Lamination:
  - a. Factory machine type only.
  - b. Specially formulated adhesives.

### **2.3 EXHIBITION BOARD MATERIALS**

- A. Fabricork: #1380 Vinyl fabric on natural cork underlay with Duracore backing.
- B. Thickness: Total laminated thickness of core and covering is 1/2". All thicknesses are nominal.
- C. Vinyl Fabric: 15 oz/ln yd.
- D. Lamination: Factory machine type with specially formulated adhesive.
- E. Metal Trim and Accessories: Factory fabricated frames and trim of not less than 0.062" thick aluminum alloy, size and shape as indicated, to suit type of installation. Provide straight, single length units wherever possible; keep joints to a minimum. Miter corners to a neat, hairline closure. Plastic accessories will not be accepted.

### **2.4 FABRICATION**

- A. Assembly: Provide factory assembled dry markerboard and exhibition board units, except where field assembled units are required.
- B. Make joints only where the total length exceeds the maximum manufactured length. Fabricate with the minimum number of joints, balanced around the center of the board, as acceptable to the Architect.
  1. Provide the manufacturer's standard vertical joint system between abutting sections of dry markerboard.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Field Measurements: Take field measurements prior to the preparation of shop drawings and fabrication where possible, to ensure proper fitting of the work. Allow for trimming and fitting wherever taking of field measurements before fabrication might delay work.
- B. Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

### **3.2 INSTALLATION**

- A. Deliver factory-built dry markerboard and exhibition board units completely assembled in one piece without joints, wherever possible. Where dimensions exceed panel size, provide 2 or more pieces of equal length as acceptable to the Architect. When overall dimensions require delivery in separate units, prefit components at the factory, disassemble for delivery, and make final joints at the site. Use splines at joints to maintain surface alignment.

- B. Install units in locations and at mounting heights indicated and in accordance with the manufacturer's instructions. Keep perimeter lines straight, plumb and level. Provide all grounds, clips, backing materials, adhesives, brackets, anchors, trim and accessories necessary for a complete installation.
  - 1. Anchor all components securely using tamperproof fasteners, where accessible.
  - 2. Install all dry markerboards and exhibition boards with completely concealed continuous hangers.
  - 3. Where wall mount flagholders is required install units where directed by the Architect/Owner.
- C. Provide factory-trained installers.
- D. Apply manufacturers' adhesive behind each board using roughly ¼ cup @ 16" on center.
- E. Mounting heights from the floor for each room shall be as follows:

Consult with the Architect / Owner before start of installation:

  - 1. Kindergarten 24"
  - 2. First & Second grades 26"
  - 3. Third & Fourth grades 28"
  - 4. Fifth and Sixth grades 30"
  - 5. Seventh – ninth grades 33"
  - 6. Tenth and up grades 36"
- F. Provide covering for H-moldings to match vinyl-covered boards.
- G. Clean boards using manufacturers' recommended procedures and install cleaning labels for each room.
- H. Locate accessories on each board as specified.
- I. Provide mitered and wrapped hairline joints for all trims.
- J. Provide fasteners at perimeter trims 16" – 24" and 12" – 16" on trays.

### **3.3 ADJUST AND CLEAN**

- A. Verify that accessories required for each unit have been properly installed and that operating units function properly.
- B. Clean units in accordance with the manufacturer's instructions. Break-in markerboards only as recommended by the manufacturer.
- C. Repair or replace all damaged units and surfaces to the approval of the Architect at no additional cost to Owner.

**END OF SECTION 10100**

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## **SECTION 10440 - SPECIALTY SIGNS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of specialty signs is shown on the drawings.
- B. Forms of specialty signs required include the following:
  - 1. Panel signs (Room Identification Signs).
  - 2. Installation of all specialty signs.

#### **1.3 QUALITY ASSURANCE**

- A. Uniformity of Manufacturer: For each sign form and graphic image process indicated furnish products of a single manufacturer.
- B. All signs shall conform to the International Building Code and ICC/ANSI A117.1. - 2009 requirements for accessible building elements.
  - 1. All signs to permanent rooms and spaces shall include Braille in accordance with N.J.A.C. 5:23-7.11 (j).

#### **1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's technical data and installation instructions for each type of sign required.
- B. Samples: Submit samples of each sign form and material showing finishes, colors, surface textures and qualities of manufacturer and design of each sign component including graphics.
  - 1. Submit full-size sample units, if requested by the Architect. Acceptable units may be installed as part of the work.
- C. Shop Drawings: Submit shop drawings for fabrication and erection of specialty signs. Include plans, elevations, and large scale details of sign wording and lettering layout. Show anchorages and accessory items. Furnish location template drawings for items supported or anchored to permanent construction.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:



1. Americraft Inc.
2. Architectural Graphics Inc.
3. ASI Sign Systems, Inc.
4. Bayuk Graphic Systems, Inc.
5. Brandon Signage Co.
6. Designer Sign Company.
7. Gemini
8. Howard Industries
9. Metro Signs.
9. Mohawk Sign Systems.
10. Or approved equal.

## **2.2 MATERIALS**

- A. GENERAL: Provide manufacturer's standard plastic signage which comply with the requirements established in the International Building Code and ICC/ANSI 117.1 - 2009 Barrier Free Standards. All signs to permanent rooms and spaces shall include Braille in accordance with N.J.A.C. 5:23-7.11 (j).
1. Acrylic sheet material to be cut to the desired sizes with radius or square corners as indicated, or as per approved shop drawings.
  2. Manufacturer's standard extruded aluminum and acrylic material, as indicated, for Barrier Free Accessible signage indicating International Symbol of Accessibility.
  3. "Helvetica Regular" letter style, Domed Grade II Braille and other pictograms as described herein.
  4. Colors: As selected by the Architect from manufacturer's standards after award of contract, or as specified herein.

## **2.3 FABRICATION**

- A. Unframed Panel Signs: Fabricate unframed panel signs with edges mechanically and smoothly finished to conform with the following requirements:
1. Edge Condition: Square cut.
  2. Corner Condition: Provide radius corners for each sign type.

## **2.4 SIGNAGE**

- A. GENERAL: ALL signage MUST comply with the requirements established in the International Building Code and ICC/ANSI 117.1 - 2009. All signs to permanent rooms and spaces shall include Braille in accordance with N.J.A.C. 5:23-7.11 (j).
- B. INTERIOR SIGNAGE:
1. Room Names and Numbers Signage:
    - a. Provide Room Name and Numbers plastic signs for all rooms with name and room number, as shown on drawings and schedules.
      - 1) Types "9" Signs - Classrooms and Offices:

- a) Provide 1/4" thick non-combustible, self extinguishing solid composite plastic sign signs with integral tactile letters, numbers and symbols raised a minimum of 1/32" from sign face. Provide window insert with non-glare clear plastic cover
    - b) Basis of Design: Provide "Series 200A Sand Carved process with window insert Series 400 Vinyl Copy" as manufactured by Mohawk Sign Systems Inc.; or equal by Brandon Signage Co.; or approved equal.
  - 2) Type "8" Signs - Multi-Purpose Room, Stage, Cafeteria, Auditorium, Faculty Dining, Main Offices, Media Center, Kitchen, etc. :
    - a) Provide sand-carved process, 1/8" thick non-combustible, self-extinguishing solid composite plastic with integral tactile letters, numbers and symbols raised a minimum of 1/32" from sign face.
  - 3) Informational Signage:
    - a) Provide informational plastic signs at selected doors, as shown on drawings and schedules.
      - i) Signs - "THIS IS NOT AN EXIT", "EXIT", etc.:
        - (1) Provide sand-carved process, 1/8" thick non-combustible, self-extinguishing solid composite plastic with integral tactile letters, numbers and symbols raised a minimum of 1/32" from sign face.
  - 4) Sizes: As indicated or as directed by the Architect / Owner.
  - 5) All room signs shall have radius corners.
- 2. Room Occupant Capacity Signs:
  - a. Provide room occupant capacity signs for room capacity more than 50 persons and as indicated.
    - 1) Provide sand-carved process, 1/8" thick non-combustible, self-extinguishing solid composite plastic with integral tactile letters, numbers and symbols raised a minimum of 1/32" from sign face.
- 3. Signage Locations:
  - a. Along the door on the latch side and shall be mounted as follows:
    - 1) 48" minimum to the lowest tactile character on the sign measured from the finish floor.
    - 2) 60" maximum to baseline of highest tactile character on the sign measured from the finish floor.
  - b. For locations having double doors, mounting shall be to the right of the right hand door.
  - c. Where there is no wall space on the latch side of the door, including double leaf doors, signs shall be placed on the nearest adjacent wall.
- 4. Graphic Content and Style: Provide sign copy to comply with the requirements indicated for sizes, styles, spacing, content, positions, materials, finishes and colors of letters, numbers, symbols and other graphic devices.
  - a. Raised Copy Thickness: Not less than 1/32" from the sign face.
  - b. Raised characters shall be in different color and meets the Barrier Free requirements for a 70% contrast ratio of colors. Colors shall be selected from manufacturer's available full range of colors.
  - c. Raised characters and symbols for tactile signs shall be 5/8" high minimum and 2" high maximum. Sign size shall suit the required letters and numbers.

5. Braille Copy: Braille Copy shall be Grade II and shall conform to Specification 800, National Library Service, Library of Congress. Braille shall be raised integral .0625 diameter.
  - a. Braille shall be separated 1/2" minimum from the corresponding raised characters or symbols.
6. Mounting: As directed by the Architect using required fasteners.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- A. General: Locate sign units and accessories where shown or scheduled, using mounting methods of the type described and in compliance with the applicable Codes and regulation.
- B. Install sign units level, plumb and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
- C. Wall Mounted Panel Signs: Attach panel signs to wall surfaces using the methods indicated below:
  1. Silicone Adhesive Mounting: Use liquid silicone adhesive recommended by the sign manufacturer to attach sign units to irregular, porous or vinyl-covered surfaces.
    - a. Use double-sided vinyl tape where recommended by the sign manufacturer to hold the sign in place until the adhesive has fully cured.
    - b. Fasteners and Anchors: Manufacturer recommended concealed types for indicated signage and substrate materials.

#### **3.2 CLEANING AND PROTECTION**

- A. At completion of the installation, clean soiled sign surfaces in accordance with the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

**END OF SECTION 10440**

## **SECTION 10522 - FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of fire extinguishers, cabinets and accessories is indicated on the drawings.
- B. Definition: "Fire Extinguishers" as used in this section refers to units which can be hand-carried as opposed to those which are equipped with wheels or to fixed fire extinguishing systems.
- C. Type of products required include:
  - 1. Fire extinguishers.
  - 2. Fire extinguisher cabinets.
  - 3. Signs.
- D. Related Sections:
  - 1. Section 07900 - Joint Sealer Assemblies.
  - 2. Section 09250 - Gypsum Drywall.

#### **1.3 QUALITY ASSURANCE**

- A. Single Source Responsibility: Obtain products in this section from one manufacturer.
- B. Coordination: Verify that fire extinguisher cabinets are sized to accommodate fire extinguishers of type and capacity indicated.
- C. UL-Listed Products: Provide new portable fire extinguishers which are UL-listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher indicated.

#### **1.4 SUBMITTALS**

- A. Product Data: Submit product data for each type of product included in this section. For fire extinguisher cabinets include roughing-in dimensions and details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style and door construction, and panel style and materials.

#### **1.5 WARRANTY**

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
  - a. Failure of hydrostatic test according to NFPA 10 when testing interval required by NFPA 10 is within the warranty period.
  - b. Faulty operation of valves or release levers.
2. Warranty Period: **Six (6) years** from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
  1. J.L. Industries.
  2. Larsen's Mfg. Co.
  3. Potter Roemer
  4. Or approved equal.

### **2.2 FIRE EXTINGUISHERS**

- A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard which comply with requirements of governing authorities.
- B. Fill and service extinguishers to comply with requirements of governing authorities and manufacturer's requirements.
- C. Multi-Purpose Dry Chemical Type: UL-rated 2-A:10:B:C, 5 lbs. nominal capacity, in enameled steel container, for Class A, Class B and Class C fires.
  1. Elevator Machine Room: Provide UL- rated C, 5 lbs. nominal capacity extinguisher in machine room mounted on bracket.

### **2.3 FIRE EXTINGUISHER CABINETS**

- A. General: Provide fire extinguisher cabinets where indicated, of suitable size for housing fire extinguishers of types and capacities indicated.
- B. Construction: Manufacturer's standard enameled steel box, with trim, frame, door and hardware to suit cabinet type, trim style, and door style indicated. Weld all joints and grind smooth. Miter and weld perimeter door frames.
- C. Cabinet Type: Suitable for mounting conditions indicated, of the following types:
  1. Recessed: Cabinet box (tub) fully recessed in walls of sufficient depth to suit style of trim indicated.
  2. Semi-Recessed: Cabinet box (tub) partially recessed in walls of shallow depth.
  3. Provide fire rated UL. listed type cabinets.

- D. Trim Style: Fabricate trim in one piece with corners mitered, welded and ground smooth.
- E. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
  - 1. Square-Edge Trim: Square edges with backbend depths as follows:
    - a. 1/4" to 5/16".
  - 2. Trim Metal: Of same metal as door.
- F. Door Material and Construction: Manufacturer's standard door construction, of material indicated, coordinated with cabinet types and trim styles selected.
  - 1. Enameled Steel: Manufacturer's standard finish, hollow steel door construction with tubular stiles and rails.
- G. Door Glazing: Tempered float glass complying with FS DD-G-1403, grade B, style I, type I, quality q3, class as indicated below:
  - 1. Clear glass, class 1 (transparent).
- H. Door Style: Manufacturer's standard design as indicated below and on drawing.
  - 1. Vertical Duo-Panel: Tempered glass, 1/8" thick.
- I. Door Hardware: Provide manufacturer's standard door operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam action latch, or door pull, exposed or concealed, and friction latch. Provide concealed or continuous type hinge permitting door to open 180 degrees.

## **2.4 SIGNAGE**

- A. Identification: Signage complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
  - 1. Basis of Design: "PTD-182", V-Shaped Sign - 'FIRE EXTINGUISHER' with picture of extinguisher on red background; or approved equal.

## **2.5 FACTORY FINISHING OF FIRE EXTINGUISHER CABINETS**

- A. General: Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations except as otherwise indicated. Apply finishes in factory after products are assembled. Protect cabinets with plastic or paper covering, prior to shipment.
- B. Painted Finishes: Provide painted finish to comply with requirements indicated below for extent, preparation and type:
- C. Extent of Painted Finish: Apply painted finish to both concealed and exposed surfaces of cabinet components except where other than a painted finish is indicated.

- D. Color: Provide color or color matches indicated, or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.
- E. Preparation: Clean surfaces of dirt, grease, and loose rust or mill scale.
- F. Baked Enamel Finish: Immediately after cleaning and pretreatment, apply cabinet manufacturer's standard baked enamel finish system to the following surfaces:
  - 1. Interior of cabinet.
  - 2. Exterior of cabinet except for those surfaces indicated to receive another finish.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.
- B. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.
- C. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.
- D. Where exact location of surface-mounted cabinets and bracket-mounted fire extinguishers is not indicated, locate as directed by Architect.

### **3.2 IDENTIFICATION**

- A. Identify existence of fire extinguisher in cabinet with die cut vertical lettering spelling "FIRE EXTINGUISHER" applied to door. Provide lettering to comply with requirements indicated for letter style, color, size, spacing and location or, if not otherwise indicated, as selected by Architect from manufacturer's standard vertical arrangements.
- B. Identify bracket-mounted extinguishers with red letter decals spelling "FIRE EXTINGUISHER" applied to wall surface. Letter size, style and location as selected by Architect.

**END OF SECTION 10522**

## **SECTION 10900 - MISCELLANEOUS EQUIPMENT AND FURNISHINGS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Part 1 through Part 6 Specification Sections, apply to this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of each type of equipment is shown on drawings.
  - 1. Wall-mounted Folding Workbenches

#### **1.3 SUBMITTALS**

- A. Product Data: Submit manufacturer's specifications, installation instructions, and general recommendations, including data which substantiates that materials comply with requirements.
- B. Shop Drawings: Submit shop drawings for installation to existing or new masonry or steel std/ gypsum board wall construction. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation.

### **PART 2 - PRODUCTS**

#### **2.1 WALL-MOUNTED FOLDING WORKBENCH**

- A. Basis of Design: Provide wall-mounted folding workbench assemblies Model No. "H-8992-MAP" as manufactured by Uline; or approved equal.
  - 1. Products specified herein have been selected because of their quality of construction, safety features, configuration, design, function, available finishes, components, accessories, dimensions, shape and style.
  - 2. Comparable products of other manufacturers will be considered if it can be clearly shown that their products are tested, equal to or will exceed the construction quality requirements, intended performances and all other design attributes listed above and provided that deviations in dimensions and profiles are minor and do not materially detract from the design concept or intended performances as judged solely by the Architect.
  - 3. The use of one manufacturer's Series number, and the specific requirements set forth in drawings and specifications, are not intended to preclude the use of other manufacturer's products or procedures which may be equivalent, but are given for the purpose of establishing a standard of design and quality for materials, construction and workmanship.



**B. PRODUCTS**

1. Workbenches to be high quality, solid maple. Front edge shall be rounded, side and rear edges shall be square.
2. Tables shall be 48" long by 24" wide. Depth shall be 4" when folded down against wall,
3. Powder-coated frame shall be capable of supporting 500 pound load minimum.
4. Furnish complete with all mounting hardware.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Demonstrate proper operation of the equipment to Architect's satisfaction. Adjust as required for smooth, efficient operation.
- B. Provide instructions for Owner's personnel, with manufacturer's use and maintenance manuals.
- C. Protect equipment from damage until acceptance of the entire project by the Owner.
- D. Install equipment and materials in accordance with manufacturer's recommendations and instructions for installation.

**END OF SECTION 10900**

## SECTION 11000 - GENERAL REQUIREMENTS - CASEWORK AND EQUIPMENT WORK

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Part 1 through Part 6 Specification Sections, apply to this Section.

#### 1.2 DESCRIPTION OF WORK

- A. Casework and Equipment Work includes all items listed on schedules. All general requirements of this section apply to all equipment Contracts.

#### 1.3 QUALITY ASSURANCE

- A. Products of individual manufacturers are scheduled to establish type and standard of quality. Products of other manufacturers proposed to be used shall meet the published specifications of the specified product as to materials, finishes, design and fabrication, to the satisfaction of the Architect.
- B. Compatibility: Provide each type of equipment by a single manufacturer, including accessories. It is of the utmost importance that a stability of design and interchangeability of parts and pieces be provided, and it shall be specifically understood that a miscellaneous assortment of equipment assembled by dealers or agents will not be considered as meeting requirements of the specification.
- C. Casework and/or Equipment Work specified herein and other Division 11 specification sections have been selected because of their quality of construction, configuration, design, function, available finishes, components, accessories, dimensions, shape and style.
  - 1. Comparable products of other manufacturers will be considered only if it can be clearly shown that their products are equal to or will exceed the construction quality requirements and other design attributes listed by manufacturers for indicated model numbers.
  - 2. The General Contractor will not award subcontract for Casework or Equipment supplier unless the Architect has approved that supplier's samples, certificates, individual product drawings, and proof of ability to perform.

#### 1.4 SUBMITTALS

- A. Submit manufacturer's technical data, catalog cuts and installation instructions for each type of furniture and equipment.
- B. Samples: Submit, for verification purposes, samples of each exposed material from which equipment units and accessories are composed, in each color, finish, pattern and texture indicated. If these qualities are not indicated, submit, for initial selection, manufacturer's color charts or samples of actual materials showing full range of standard colors, finishes, patterns, and textures available. Include samples of the following:

1. Plastic laminate
  2. Baked enamel finishes for metal components
  3. Wood and plywood materials and finishes
  4. Molded plastic and fiberglass
  5. Exposed fasteners
- C. Submit full-size samples of finished units when complete with hardware, doors, adjustable shelves, etc., when requested by Architect. Acceptable sample units will be used for comparison inspection at project. Unless otherwise directed, acceptable sample units may be incorporated in the work. Notify Architect of their exact locations. If not incorporated in the work, retain acceptable sample units in the building until completion and acceptance of the work. Remove sample units from the premises when directed by Architect.
- D. Shop Drawings
1. Submit shop drawings showing plans, elevations, ends cross-sections. Show details and location of anchorages and fitting to floors, walls and base. Include layout of units with relation to surrounding walls, doors, windows, and other building components.
  2. Coordinate shop drawings with other work involved.

## **1.5 PRODUCT HANDLING**

- A. Deliver casework only after wet operations in building are complete.
- B. Store completed equipment in ventilated place, protected from the weather, with relative humidity therein of 50% or less at 70°F.
- C. Protect sanded and finished surfaces from soiling and damage during handling and installation. Keep covered with polyethylene film or other protective coating.

## **1.6 JOB CONDITIONS**

- A. Advise Architect of requirements for maintaining heating, cooling and ventilation in installation areas as required to reach relative humidity necessary to maintain optimum moisture content.
- B. Examination of Substrate and Conditions
  1. Field measurements shall be taken to verify that the equipment will fit into the designated space. Entry ways, corridors and door openings shall be verified to ensure that the equipment be manufactured in a matter to permit it to be moved through properly into place.
  2. Examine the substrate and the conditions under which the work under this section is to be performed, including condition of substrate to which equipment is to be attached, and notify the Architect, in writing, of unsatisfactory conditions. Do not proceed with work under this section until satisfactory conditions have been corrected in an acceptable manner.

## 1.7 QUALIFICATION OF SUPPLIERS OF CASEWORK AND EQUIPMENT

- A. That it owns and operates a factory or factories adequate for and devoted to the manufacture of casework, equipment or material which is proposed to furnish and maintains strict inspection and quality control over the various manufacturing operations performed to produce a satisfactory end product of the standard and quality set forth in the detailed specification.
1. That is at the time of submitting products and equipment and had been engaged in the manufacturing of casework or equipment for a recommended 10 consecutive years and has maintained during this time a published catalog of such specialized equipment, including a line similar to the specified.
  2. That the manufacturer or his franchised representative shall have a major installation of equipment delivered and installed over a recommended 10 years conforming to the design and quality specified herein.

## 1.8 VARIATION FROM MATERIALS, PRODUCTS AND EQUIPMENT SPECIFIED

- A. The designs, materials, finishes, functions and upholsteries have been selected by the Owner on the advise of the Architect with intention of creating an integrated building design. For this reason, no variations from the plans, specifications and design guide will be permitted except as noted below.
1. Whenever and wherever in any of the contract documents an article, material or equipment is defined by describing a proprietary product or by using the statement, "as manufactured by", it is the intent that this shall describe by reference the materials desired; craftsmanship and method of manufacture, as well as the size and dimensions rather than detailing all of these requirements herein. It is not the intention to limit the bidding on such items, but merely to indicate that the item must conform to these standards.
  2. **Any Laboratory Casework manufacturer requesting equivalence must submit test report from a Scientific Equipment and Furniture Association (SEFA) approved independent testing facility showing compliance with SEFA-8 standards. Failure to provide the required information maybe cause for rejection.**

## PART 2 - PRODUCTS

### 2.1 See Schedules on Drawings.

### 2.2 GENERAL REQUIREMENTS (As applicable for each Contract)

- A. BASIS OF DESIGN: CATALOG NUMBERS REFER TO CAMPBELL-RHEA CASEWORK CATALOG, BRODART LIBRARY FURNITURE CATALOG, ETC.; OR APPROVED EQUAL, UNLESS OTHERWISE SHOWN, SEE PARAGRAPH 1.2 ABOVE.
- B. ALL CASEWORK DOORS AND DRAWERS TO HAVE LOCKS KEYED ALIKE PER ROOM AND MASTER KEYED.
1. The Contractor shall package keys for each room separately and identify the room number on the package and deliver to the Owner's Representative.

- C. ALL TOPS SHALL BE 3/4" PLYWOOD WITH SOLID SURFACE COVERING ON ALL EXPOSED SURFACES (UNLESS NOTED OTHERWISE).
- D. ALL BACKSPLASHES SHALL BE SOLID SURFACE SECURED TO THE WALL SURFACE (UNLESS NOTED OTHERWISE).
- E. ALL FURNITURE, CASEWORK AND EQUIPMENT SHOWN DOTTED AND/OR IS INDICATED AS (N.I.C.) IS NOT IN CONTRACT.
- F. UNLESS OTHERWISE SHOWN, THE CASEWORK AND EQUIPMENT WORK SUBCONTRACTOR SHALL SUPPLY AND DELIVER ALL SINKS, TAILPIECES, FAUCETS, STRAINERS AND GAS COCKS, IN CASEWORK TO THE PLUMBING AND DRAINAGE WORK CONTRACTOR.
  - 1. PLUMBING CONTRACTOR SHALL SUPPLY AND INSTALL ALL TRAPS, VALVES ETC AND SHALL MAKE FINAL CONNECTIONS TO ALL WASTE/VENTS, WATER AND GAS LINES, ETC., AS REQUIRED, TO MAKE SYSTEMS FULLY FUNCTIONAL.
  - 2. UNLESS OTHERWISE SHOWN, CASEWORK AND EQUIPMENT SUBCONTRACTOR SHALL MAKE SINK CUT-OUTS.
  - 3. SINK CABINETS TO BE INSTALLED BEFORE THE INSTALLATION OF ADJACENT CABINETS.
- G. UNLESS OTHERWISE SHOWN, CASEWORK AND EQUIPMENT WORK SUBCONTRACTOR SHALL SUPPLY AND DELIVER ALL DUPLEX OUTLETS, SWITCHES, AND COVER PLATES ETC., AS REQUIRED, FOR INSTALLATION IN CASEWORK, TABLES, CARRELS, ETC., TO THE ELECTRICAL WORK CONTRACTOR, READY FOR INSTALLATION AND FINAL CONNECTION BY ELECTRICAL CONTRACTOR.
  - 1. ALL DUPLEX OUTLETS SHALL BE G.F.I.C. UNLESS NOTED OTHERWISE.
- H. ALL CONTRACTORS TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT IN WRITTEN FORM OF ANY DISCREPANCIES.
- I. PROVIDE ALL FILLERS ,AS REQUIRED. FINISH TO MATCH CASEWORK.
- J. UNLESS OTHERWISE SHOWN, RUBBER BASE ON ALL CASEWORK BY G.C.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Condition casework and furniture to average prevailing humidity conditions in installation areas prior to installing.

#### **3.2 INSTALLATION**

- A. Deliver, uncrate, set in place and install plumb, level, true and straight with no distortions. Shim as required, using concealed shims. Where casework abuts other finished work, scribe and cut for accurate fit. Before making cutouts, drill pilot holes in corners.

- B. Trim and Moldings: Install in single, unjointed lengths for openings and for runs less than maximum length of lumber available. For longer runs, use only one piece less than maximum length available in any straight run. Stagger joints in adjacent members.
- C. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.
- D. Inspect for dents, scratches, tears, stains, holes, etc. Replace any items showing damage, loose joints or other defects.

### **3.3 CLEANING AND PROTECTION**

- A. Clean and polish all items, remove packing cases and debris from the site.
- B. Protection: Perform all procedures and precautions for protection of materials and installed casework from damage by the work of other trades until acceptance of the work by the Owner.
- C. Cover casework with 4-mil polyethylene film for protection against soiling and deterioration during remainder of construction period.

**END OF SECTION 11000**

## SECTION 11011 - CASEWORK AND EQUIPMENT

### PART 1 - GENERAL

#### 1.1 DESCRIPTION OF WORK

- A. Section Includes: Wood Casework and related equipment.
1. Pre-manufactured wood casework and equipment, covered by this specification and accompanying drawings, are manufactured or supplied by one manufacturer to avoid divided responsibility.
- B. Work included in this section:
1. Furnish all items of equipment as listed in the specifications, equipment schedule and/or as shown on the drawings, including delivery to the building, unpacking, setting in place, leveling, and scribing to walls and floors as required.
  2. Furnishing: Equipment Subcontractor shall make cutouts, holes and openings in countertops so as to be ready for installation of fixtures by the Plumbing Work (Sub)Contractor.
    - a. The Casework and Equipment Subcontractor(s) shall turn over to the Plumbing (Sub)Contractor in a package, all sinks, fixtures, faucets, tailpieces, strainers, gas cocks, etc., and nipples and locknuts, etc., for installation and final connection by the Plumbing (Sub)Contractor.
  3. Furnishing: Equipment Subcontractor shall make cutouts, holes and openings in countertops so as to be ready for installation of fixtures by the Electrical Work (Sub)Contractor.
    - a. The Casework and Equipment Subcontractor(s) shall turn over to the Electrical (Sub)Contractor in a package, all electrical devices, for installation and final connection by the Electrical (Sub)Contractor.
  4. The Casework and Equipment Subcontractor shall provide an itemized lists and a designated site location for the transfer of the above referenced materials to the Plumbing and Electrical (Sub)Contractors. The list shall have a description of the items and quantity along with a sign-off line for the Plumbing and Electrical (Sub)Contractor(s).
    - a. **A copy of the signed list is to be submitted to the Architect/Owner prior to billing for this equipment.**
  5. All debris, dirt and rubbish accumulated as a result of this installation shall be removed and the premises left clean and orderly.
  6. All contractors shall familiarize themselves with the job conditions and building measurements in order to coordinate the planning, design, connections, delivery and erection of the fixed casework and related equipment furnished under these specifications with other related and associated work during the term of this contract.
- C. Work included under the work of other contracts:

1. The connection of sinks, tailpieces, traps, service lines, drainlines, and piping within the equipment and through, under or along the backs of working surfaces as required by the specifications and/or as shown on the drawing shall be by the Plumbing and Drainage Work (Sub)Contractor in accordance with Part-4 Specifications Sections.
2. The connection of electrical receptacles, shall be by the Electrical Work (Sub)Contractor in accordance with Part-6 Specifications Sections.
3. The furnishing of any framing or reinforcements for walls, floors, or ceilings to support any equipment, General Construction Work Contractor in accordance with Part-2 Specifications Sections.

## 1.2 QUALITY ASSURANCE

- A. Provide all casework (for integration with tops, sinks and service fixtures, as required) manufactured or furnished by the same company for single responsibility.
- B. Basis of Design: **"Campbell Rhea - Classic Oak Series", as manufactured by Institutional Casework, Inc.;** or approved equal.
- C. Products specified herein have been selected because of their quality of construction, configuration, design, function, available finishes, components, accessories, dimensions, shape and style.
  1. Comparable products of the following manufacturers will be considered if it can be clearly shown that their products are equal to or will exceed the construction quality requirements and other design attributes listed above.
    - a. TMI System Design Corp.
    - b. Diversified Casework.
    - c. Leonard Peterson - Vanguard Line, Lipped.
    - d. Or approved equal.
  2. The use of one manufacturer's catalog numbers, and the specific requirements set forth in drawings and specifications, are not intended to preclude the use of other manufacturer's products or procedures which may be equivalent, but are given for the purpose of establishing a standard of design and quality for materials, construction and workmanship.
  3. Substitute products will be considered for substitution only when submitted to the Architect as per the requirements of AIA A201 and Section 00800.
  4. Substituted product(s) shall be meet the following minimum requirements:
    - a. All four corners of drawer boxes must be dove-tailed together, and the bottom of all drawer boxes must be let in to the sides, front and back, to be "fully captured." Applied drawer bottoms will not be permitted.
    - b. All drawer front shall be fabricated from solid red oak lumber.
    - c. All cabinet doors shall be framed with solid oak rails on four sides. Tall case doors shall include a lightweight core to reduce stress on hinges. Doors constructed of plywood or particleboard, edge-banded with oak will not be permitted. Tall case doors shall be mounted with (4) hinges.



- d. All tall case doors shall be complete with three-point latching mechanism. Single-point latching will not be permitted.
5. The General Contractor will not award subcontract to a wood laboratory casework supplier who is not on the approved list, unless the Architect has approved that supplier's samples, certificates, individual product drawings, and proof of ability to perform.

### **1.3 SUBMITTALS**

- A. Submit two copies of manufacturer's data and installation instructions for each type of equipment.
- B. Samples:
  1. Submit samples of available laminated plastic patterns and colors for Architect's selection.
  2. Submit one full size sample of finished base cabinet unit complete with hardware, doors and drawers, without finish top.
  3. Submit one full size sample of finished wall mounted cabinet unit complete with hardware, doors and adjustable shelves.
  4. Acceptable sample units will be used for comparison inspections at project. Unless otherwise directed, acceptable sample units may be incorporated in the work. Notify Architect of their exact locations. If not incorporated in the work, retain acceptable sample units in the building until completion and acceptance of the work.
  5. Remove sample units from the premises when directed by the Architect.
- C. Shop Drawings
  1. Submit shop drawings showing plans, elevations, ends, cross-sections, service run spaces, locations and type of service fixtures with lines thereto. Show details and location of anchorages and fitting to floors, walls and base. Include layout of units with relation to surrounding walls, doors, windows, and other building components.
  2. Coordinate shop drawings with other work involved.
- D. **Test Reports - Certifications:**
  1. Submit the following:
    - a. Test reports certifying that the casework finish complies with chemical and other resistance requirements of the specifications.
    - b. Performance test reports from an independent testing lab on each specified top material.

#### 1.4 PRODUCT HANDLING

- A. Deliver casework only after wet operations in building are complete.
- B. Store completed wood furniture in ventilated place, protected from the weather, with relative humidity therein of 50% or less at 70°F.
- C. Protect sanded and finished surfaces from soiling and damage during handling and installation. Keep covered with polyethylene film or other protective coating.

#### 1.5 JOB CONDITIONS

- A. Advise Architect of requirements for maintaining heating, cooling and ventilation in installation areas as required to reach relative humidity necessary to maintain optimum moisture content.
- B. Examination of Substrate and Conditions
  - 1. Field measurements shall be taken to verify that the equipment will fit into the designated space. Entry ways, corridors and door openings shall be verified to ensure that the equipment be manufactured in a matter to permit it to be moved through properly into place.
  - 2. Examine the substrate and the conditions under which the work under this section is to be performed, and notify the Architect, in writing, of unsatisfactory conditions. Do not proceed with work under this section until satisfactory conditions have been corrected in an acceptable manner.

#### 1.6 WARRANTY

- A. Manufacturer shall warrant the casework to be free from defects in materials and workmanship, under normal use and service, for **three (3) years** from date of delivery.
  - 1. Within the warranty period, manufacturer shall repair, replace, or refund the purchase price of defective casework.

### PART 2 - PRODUCTS

#### 2.1 GENERAL

- A. The best cabinet making practices for casework construction shall be followed. All cabinets shall be integral units, each completely enclosed without the use of common partitions unless otherwise specified.

#### 2.2 MATERIALS

- A. Lumber:
  - 1. Oak lumber is red oak, grade FAS or better, air dried and kiln dried to a 6 percent moisture content, then tempered to 7-8 percent prior to fabrication. Red oak lumber exposed to view, is free of stains, splits, shakes, season checks and other similar defects.

2. Other hardwoods are grade FAS or better, air dried to a 6 percent moisture content, then tempered to 7-8 percent prior to fabrication. Other hardwoods are used in semi-exposed, or unexposed, areas and comply with NHLA grading for FAS or better lumber.

B. Plywood:

1. Oak plywood is red oak, grade A-2, plain sliced, book-matched, crossbanded, and has a solid core.
  - a. 3/4 inch is a minimum of 7-ply.
  - b. 1/2 inch is a minimum of 5-ply.
  - c. 1/4 inch is a minimum of 3-ply.
  - d. 3/32 inch is a minimum of 3-ply.
2. Other hardwood plywoods are sound grade, have a solid core and are suitable for semi-exposed or unexposed areas.
  - a. 3/4 inch is a minimum of 7-ply.
  - b. 1/2 inch is a minimum of 5-ply.
  - c. 1/4 inch is a minimum of 3-ply.
  - d. 3/32 inch is a minimum of 3-ply.

C. Hardboard:

1. Hardboard is service tempered and consists of steam-exploded wood fibers, highly compressed into a hard, dense, 1/4 inch thick, homogeneous sheet, using natural resins and other added binders.
2. Physical properties:
  - a. Average modulus of rupture is 5,300 lbs./sq. inch
  - b. Density is 50 to 60 lbs./cu. foot
  - c. Tensile strength of 3,500 lbs./sq. inch.

D. Particleboard:

1. Particleboard is industrial grade.
2. Physical properties:
  - a. Density, 46 to 50 lbs./cu. ft.
  - b. Modulus of rupture, minimum, 2,200 psi
  - c. Modulus of elasticity, minimum, 450,000 psi.

E. Service Fixtures:

1. Water, gas, steam, or other services: Triple chrome plated, have heavy-duty construction and are specifically designed for laboratory use.
  - a. **Water Faucets - Hot and Cold:** Faucets are cast from red brass, and have four-arm type handles with color coded indexes. Faucets have serrated hose nozzles. Faucets have patented REX unit ceramic disc cartridges, and replaceable seats. The stem is brass, with full Acme threads, and has a brass cap nut. Goosenecks are rigid. Fixture outlets are tapped 3/8 inch I.P.S. for aerators, vacuum breakers, hose

connections, and or other accessories. Provide vacuum breakers.

**(1) Provide lever handle type faucet control for barrier free applications in accordance with sink notes indicated on drawings.**

- b. **Vacuum Breakers:** Watts NLF-9, or comparable, vacuum breakers are brass with polished chrome plating, screw-in type with stainless steel working parts, and durable rubber diaphragm and disc. Vacuum breaker is for hot or cold faucet and has a primary valve with a soft disc that seats against mating part. The secondary check valve utilizes a soft disc to metal seating. Breaker is tapped 3/8 inch N.P.T.
2. Electrical Fixtures: Receptacles are 3-wire grounded, 20 A, 125V AC, with stainless steel cover plates and cadmium-plated steel boxes. Pedestal boxes are brushed, cast aluminum with conduit nipples and lock nuts.
    - a. G.F.I. fixtures: 20 A, 125V AC, with a brown nylon face and a LED indicator light. Conform to UL Standard 943 Class A, have hospital grade high abuse receptacle construction, and certified corrosion resistance with cupro-nickel exposed metal parts. Provide terminal screw wiring connections and a trip time of 0.025 seconds.
  3. Sinks and Sink Outlets:
    - a. **Stainless steel** sinks have a satin finish. They are 18 gauge, type 304, 18-8 stainless steel, with heavily undercoated bottoms and positive pitch drains. Outlets are chrome plated brass. Drain holes are 3-1/2 inch diameter for 4-1/2 inch stainless steel cup strainers. The cup strainer has a neoprene stopper. Provide necessary tail pieces to tie into plumbing roughing, typical.

NOTE: Coordinate with Plumbing Drawings and Specifications.

G. Tops (Refer to Section 06650 - Solid Polymer Fabrications).

H. Hardware and Accessories:

1. Pulls: Shall be selected by the Architect from manufacturer's available standard and custom units at no additional cost to the Owner.
2. Handles:
  - a. Latching handle LH-1 is die cast zinc alloy, 4-1/4 inches long, has a dull chrome plated finish. Handle operates with 1/4 turn. Double door cases have latching handles on the right door and dummy handles on the left door. The rods are 5/16 inch in diameter and move in nylon guides attached to the back of the door. The middle of the door is secured by a latch plate which engages the side of the case, or latches behind the left door on cases with double doors.
  - b. Locking handle LK-1 is a latching handle with a lock mechanism incorporated into the handle head. On double door cases, the left door has a dummy handle, and the right door has the locking handle. Lock is laboratory grade with a 5-disc tumbler mechanism and a dull chrome plated face. Tumblers and keys are brass, while the plug and cylinder are die cast zinc alloy.
3. Locks:
  - a. Lock SL-1 is a laboratory grade, cylinder cam lock, with a 5-disc tumbler mechanism, and a dull chrome plated face. Tumblers and keys are brass, while plug and cylinder are die cast zinc alloy. Lock operates with a 180 degree turn of the

- key. There are 500 key changes standard. Locks are keyed differently, master keyed and furnished with 2 keys per lock.
- b. Locks are to be furnished on all doors and drawers.
4. Hinges:
- a. Hinge CP-1 is heavy duty, institutional type, 5-knuckle hospital tipped, and made from .095 inch thick, chrome plated mild steel. Hinge is wrap around style, and 2-3/4 inches high. The wing for mounting to end panel has 4 holes, two of which are slotted for adjustability; wing for the door has 5 holes, two of which are slotted for adjustability.
  - b. Elbow catch is a steel, spring loaded catch that releases with finger pressure. The catch and steel strike plate are mounted with screws. Strike plate screw holes are slotted for adjustability and pin hole is provided to help anchor its position.
5. Shelf Clips:
- a. **Shelf support clips shall be "seismic" twin pin type for mounting on interior of cabinet work. Clips shall be corrosion resistant and shall retain shelves from accidental removal. Shelves in all cabinets are adjustable on 32mm centers.**
    - 1) **Single pin support clips and surface mounted metal support strips and clips subject to corrosion are not acceptable.**

## 2.3 FABRICATION

- A. Factory assembly of casework in the largest components possible aids in the installation. Mortise and tenon construction with glued and screwed joints is used for maximum strength; and the use of precision jigs and clamps ensures square corners and plumb vertical surfaces.
- B. Fabrication of laboratory casework and equipment is completed to dimensions in the final, approved copy of shop drawings.
- C. Base Cabinets:
  1. All base cabinets are rigidly constructed, integral units with the strongest most advanced joinery methods utilized of bored, doweled, dadoed, glued and screwed construction. Each base cabinet is completely enclosed without the use of common partitions, and has flush construction with overlapping doors and drawers, which provides a dust resistant interior. A base cabinet has a full horizontal top frame with bored, doweled and glued joints, intermediate front rails and a 3/4 inch plywood bottom; rear horizontal parting rails and separators are provided as required. Horizontal top frame, intermediate parting rails and the bottom are bored, doweled and glued. Separators where indicated, are let into routed intermediate rails. Backs are recessed and encapsulated into dadoed end panels and further secured with glue blocks on each side, except where they need to be removable for access to plumbing. Backs are screwed to the top frame and further secured with glue blocks on each side. An enclosed toe space, 2-1/4 inches by 4 inches, is furnished with the toe rail bored, doweled and glued to end panels.
- D. Wall and Upper Cases:
  1. All wall and upper cases are rigidly constructed, integral units with the strongest most advanced joinery methods utilized of bored, doweled, dadoed, glued and screwed

construction. Each case is completely enclosed without the use of common partitions, and has flush construction with overlapping doors, which provides a dust resistant interior. Top panel is bored, doweled and glued into end panels. Bottom panel is bored, doweled and glued into end panels; and glued and screwed to the back. Backs are recessed and encapsulated into dadoed end panels, and further secured with glue blocks on each side. Exterior hanger rails, at the top of the back, are glued to the back and then screwed to the top panel and bored, doweled and glued into end panels. Exterior hanger rails, at the bottom of the back, are glued to the back and then screwed to the bottom panel and bored, doweled and glued into end panels. Adjustable shelves are supported on **“seismic” twin pin type** shelf clips, which fit into holes drilled 32 mm on centers, in the case end panels.

E. Tall Cases:

1. All tall cases are rigidly constructed, integral units with the strongest most advanced joinery methods utilized of bored, doweled, dadoed, glued and screwed construction. Each case is completely enclosed without the use of common partitions, and has flush construction with overlapping doors, which provides a dust resistant interior. Top panel is bored, doweled and glued into end panels. Bottom panel is bored, doweled and glued into end panels and glued and screwed to the back. An exterior back cross rail is provided at the top of each case, glued to the back, and then screwed to the top panel and bored, doweled and glued into the end panels. Additional back cross rails are provided, as required. Backs are recessed, let into dadoed end panels, and further secured with glue blocks at the sides. An enclosed toe space, 2-1/4 inches by 4 inches high, is furnished with toe rail securely bored, doweled and glued to end panels and bottom panel.
2. Rails:
  - a. Interior: 2-1/4 inches by 3/4 inch, solid hardwood
  - b. Exterior: 4-1/8 inches by 3/4 inch, solid oak
3. Top panel, bottom panel, dividers, fixed shelf and adjustable shelves:
  - a. Cases with exposed interiors: All are 1 inch oak plywood
  - b. Cases with unexposed interiors: All are 1 inch hardwood plywood.
4. Backs:
  - a. Cases with exposed interiors and exposed exteriors: Back is 1/4 inch oak plywood.
  - b. Cases with unexposed interiors and unexposed exteriors: Back is 1/4 inch service tempered hardboard.
5. End panels:
  - a. Cases with exposed interiors: End panels are 3/4 inch oak plywood.
  - b. Cases with exposed exteriors: end panels are 3/4 inch oak plywood.
  - c. Cases with unexposed interiors and one exposed end panel and one unexposed end panel: Exposed end panel is 3/4 inch oak plywood; unexposed end panel is 3/4 inch hardwood plywood.
  - d. Cases with unexposed interiors and unexposed exteriors: end panels are 3/4 inch hardwood plywood.

6. Exposed edges of end panels, dividers and shelves are edgebanded with 1/4 inch solid oak.
7. Exterior back cross rails: 3 inches by 3/4 inch hardwood plywood.

F. Doors:

1. Hinged solid doors, 48 inches or less in height:
  - a. Core ply: Solid oak rails on four edges framing a particleboard core.
  - b. Hardwood plywood crossbands: Four; two laminated on each side of core ply.
  - c. Red oak veneer: Face plys; one applied to each side.
  - d. Construction: Hinged solid doors, 48 inches or less in height, are 13/16 inch thick and have solid oak rails on the four edges. Doors overlap the opening 1/4 inch on all sides and have machined radiused edges. Doors have one aluminum pull which is surface mounted with two screws. Doors have two, CP-1 chrome plated, heavy duty, institutional type, 5-knuckle hospital tipped hinges, each attached with 5 tempered steel screws into solid oak framing of door, and 4 Euro screws into the end panel. Doors are secured by zinc plated steel, friction roller catches, with positive action, spring cushioned, polyethylene roller, and a metal strike plate. Catch and steel strike plate are attached with screws. On lockable double door cabinets, the left door is secured with a steel, spring loaded, elbow catch that releases with finger pressure. The catch and the strike plate are attached with screws. Strike plate screw holes are slotted for adjustability and a pin hole is provided to help anchor plate's position. Lock SL-1 is furnished when indicated.
2. Hinged solid doors over 48 inches in height:
  - a. Core ply: Solid oak rails on four edges framing a particleboard core.
  - b. Hardwood plywood crossbands: Four; two laminated on each side of core ply.
  - c. Red oak veneer: Face plys; one applied to each side.
  - d. Construction: Hinged solid doors over 48 inches in height, are one inch thick and have solid oak rails on the four edges. Doors overlap opening 1/4 inch on all sides, and machined radiused edges. Single doors and right door of double doors have a LH-1 latching handle, which is 4-1/4 inches long, streamline design, with a dull chrome plated finish. Handle operates with 1/4 turn. Left door of double doors has a fixed handle, which is the same size and finish as a LH-1 latching handle. A three point latching system provides single doors and right door of double doors positive engagement at the top and bottom of the door with tapered aluminum rods which engage plastic strike plates and pull the door snug. The rods are 5/16 inch in diameter and move in nylon guides attached to the back of the door. The middle of the door is secured by a latch plate which engages the side of the case, or latches behind the left door on cases with double doors. Right door of double doors lap over the integral machined astragal on left door, securely holding door shut. Doors have three, CP-1 chrome plated, heavy duty, institutional type, 5-knuckle hospital tipped hinges; each attached with 5 tempered steel screws in to solid oak framing of the door, and 4 Euro screws into the end panel. Left door of double doors is additionally secured with two zinc plated steel, friction roller catches, with positive action, spring cushioned, polyethylene roller, and a metal strike plate. Catches and steel strike plates are attached with screws. Catch screw holes are slotted for adjustability, and the strike plate has two nips to help anchor its position. Locking handle LK-1 is furnished when indicated.

G. Casework Finishes:

1. Surfaces to be Finished: Exposed exterior and exposed interior surfaces of cabinets receive the full finishing process. The unexposed interior surfaces of cupboards, drawers, wall cases, upper cases, and tall cases receive a baked on protective coat of moisture and chemical resistant catalyzed sealer, and a top coat of clear, catalyzed conversion varnish. Other unexposed surfaces are processed through standard finishing steps, and receive a baked on protective coat of moisture and chemical resistant catalyzed sealer.
2. Finishing Process: Prior to assembly lumber for doors, drawers and cabinets, and plywood for cabinets, are machine sanded with 120 grit, 180 grit, and finally, 220 grit sand paper. Flat surfaces receive two additional machine sandings: one in an orbital crossbelt sander with 40 micron and 60 micron grit sanding belts; and, one through a rotary polisher with 150 grit sand paper. Door and drawer front edges are machine sanded to a very smooth surface through a profile edge sander utilizing a 100 grit and a 150 grit paper. After assembly, drawers, doors, and casework are thoroughly examined and fine-finished by hand to provide a consistently smooth surface. Prior to the first application in the finishing process, items are placed in the dust-off booth where compressed air is used to remove loose fibers and dust. Selected surfaces are stained with NGR stain to the desired color and allowed to dry. Next a protective coat of moisture and chemical resistant, catalyzed sealer is applied. After flash drying, items are oven baked at 130°F. Following a cool down period, surfaces that receive the final top coat are carefully hand sanded and wiped clean. A top coat of clear, catalyzed, conversion varnish is applied, allowed to dry, and then oven baked at 130°F. The final top coat provides chemical resistance, toughness, durability, and excellent color stability with a smooth finish and high-gloss lustre.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Condition casework and furniture to average prevailing humidity conditions in installation areas prior to installing.

### **3.2 INSTALLATION**

- A. Install plumb, level, true and straight with no distortions. Shim as required, using concealed shims. Where casework abuts other finished work, scribe and cut for accurate fit. Before making cutouts, drill pilot holes at corners. Install wall cabinets in accordance with details on drawings.
- B. Trim and Moldings: Install in single, unjointed lengths for openings and for runs less than maximum length of lumber available. For longer runs, use only one piece less than maximum length available in any straight run. Stagger joints in adjacent members.
- C. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.



### **3.3 CLEANING AND PROTECTION**

- A. Repair or remove and replace defective work as directed upon completion of installation.
- B. Protection: Perform all procedures and precautions for protection of materials and installed casework from damage by the work of other trades until acceptance of the work by the Owner. Advise HVAC Contractor of the required temperature/humidity conditions which must be maintained during the remainder of the construction period.
- C. Cover casework with 4-mil polyethylene film for protection against soiling and deterioration during remainder of construction period.
- D. Clean up cut out pieces, sawdust and debris, packing cases, etc. Leave areas in broom clean condition. Remove all debris as a result of work of this Contract.

**END OF SECTION 11011**

## SECTION 11050 - LIBRARY EQUIPMENT & FURNITURE

### PART 1 - GENERAL

#### 1.1 DESCRIPTION OF WORK

- A. Extent of library equipment and furnishing is indicated on drawings and in the schedules and shall include, but not limited to the following:
- B. Type of library equipment and furniture required includes the following:
  - 1. Circulation desk components.
  - 2. Electrical Accessories.

#### 1.2 QUALITY ASSURANCE

- A. Provide all Library Furnishing and Equipment as manufactured or furnished by the same company for single source responsibility.
  - 1. The design is based on the following manufacturer:
    - a. Provide products as manufactured by Brodart Co., Inc.; or approved equal.
  - 2. Products specified herein have been selected because of their quality of construction, configuration, design, function, available finishes, components, accessories, dimensions, shape and style.
  - 3. Comparable products of the following manufacturers will be considered if it can be clearly shown that their products are equal to or will exceed the construction quality requirements and other design attributes listed above.
    - a. Buckstaff.
    - b. Worden.
    - c. Or approved equal.
- B. The use of Brodart's catalog numbers, and the specific requirements set forth in drawings and specifications, are not intended to preclude the use of other manufacturer's products or procedures which may be equivalent, but are given for the purpose of establishing a standard of design and quality for materials, construction and workmanship.
- C. In case of awarding the Contract to a General Contractor, the General Contractor will not award subcontract to a Library Furniture and Equipment supplier who is not on the approved list, unless the Architect has approved that supplier's samples, certificates, individual product drawings, and proof of ability to perform.
- D. Test of Enamel Finish: Provide testing of 5 random samples of enamel finish on sheet steel, taken from the work fabricated and finished for project. Arrange tests to be performed by an independent testing laboratory, complying with ASTM D 968, including analysis and report of results.
- E. Regulatory Requirements:
  - 1. Products and finished installations to be used by persons with disabilities must comply

with requirements of the Uniform Construction Code, American National standard, Accessible and Usable Buildings and Facilities, ICC / ANSI A117.1-2009.

### 1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications and installation instructions for each type of library equipment.
- B. Samples: Submit 6" x 6" samples of each exposed finish required.
- C. Shop Drawings: Submit shop drawings for each type of library equipment, showing details, dimensions, and layout of installation.
  - 1. Submit catalog cuts of all components to be furnished, together with a floor plan showing locations of all furnishings and verified dimensions and clearances.
  - 2. Provide roughing layouts within 30 days from notice to proceed, to be distributed to other prime contractors.
- D. Delivery, Storage, and Handling
  - 1. Delivery and Storage: Keep materials dry at all times. Protect against exposure to weather and against contact with damp or wet surfaces.
    - a. Protect materials from excessive moisture in shipment, storage, and handling.
    - b. Deliver materials in manufacturer's unopened packages, and store in dry place with adequate air circulation.
    - c. Do not deliver plastic materials to site in advance of installation time, and avoid exposure of plastic materials to sunlight; complete installation and concealment as rapidly as possible in each area of work.
    - d. Stack products of this section carefully to provide air circulation within stacks.
- E. Project Conditions
  - 1. Environmental Requirements: Do not proceed with installation until areas to receive the work have been enclosed and until temperature and relative humidity have been stabilized and will be maintained within values established by the manufacturer for optimum quality control.
- F. Warranty
  - 1. Special Project Warranty: Submit a written warranty signed by the manufacturer, the contractor, and the installer, guaranteeing to correct failures in materials and workmanship which occur within the warranty period, including those attributable to abnormal aging, without reducing or otherwise limiting any other rights to correction which the owner may have under the contract documents.
  - 2. The warranty shall include responsibility for removing and replacing other work as necessary to accomplish repairs or replacement of materials covered by the warranty.
  - 3. Submit proof of manufacturer's standard warranty: minimum **five (5) years** for furniture:  
.

- G. Submit certification that fabric complies with California Technical Bulletin #117 for flame resistance.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Lumber shall be northern grown hardwood, free of imperfections, kiln dried to a moisture content of 5-7%. Glued up panels will have two surfaces faced and will be uniform in color, using random widths not less than 1" or more than 4". All exposed wood shall be grade A red oak, selected for uniformity of grain and color.
- B. Plywood shall be constructed with an odd number of plies to resist warpage. All inner plies shall be sound and cross-banded. Face veneers shall be selected for uniformity of grain and color, on one or both sides as each component requires.
- C. Lumber Core shall be 5-ply of the best grade with tight glue joints and controlled strip width to minimize warpage. Lumber core table and carrel tops shall be 1-3/16" thick, 5 ply construction meeting American National Standards Institute, Inc. standards for "clear grade".
- D. Center Core of Lumber Core Panel shall be constructed of wood strips 1" thick and not less than 2" nor more than 4" wide. Wood strips shall be full length of the panel, with no butt joints, and shall run in the longest dimension of the panel. The wood strips shall be free of knots and other defects. All wood strips shall be glued together on all edges to form "tight joint" construction, creating a solid core panel. Panels shall be made of solid poplar hardwood.
- E. Cross Bands of Lumber Core Panel shall be a minimum of 1/10" thick poplar, applied to the top and bottom of the center core, with grain direction running at a 90 degree angle to the grain of the center core.
- F. Plastic Laminate shall be .050 thick balanced with a backing sheet not less than .020 on the reverse side to prevent warpage. Low glare or matte finish shall be used to provide a low reflection surface with a gloss meter reading of 4-10 machine direction. All laminate will be bonded to core with hybond #80 contact cement under high pressure.
- G. Finishing Procedure: Prior to finishing, all furniture shall be hand sanded, cleaned, and inspected for imperfections. Furniture shall be treated with a pre-stain conditioner to promote surface penetration of special formulated stains designed for maximum penetration and adhesion.
  - 1. Selected stain shall be applied on all visible surfaces in a uniform manner, and allowed to dry. Catalyzed conversion sealer shall then be applied, allowed to dry, and sanded. Furniture will then be inspected for imperfections, prior to application of top coat. A top coat of catalyzed conversion varnish shall then be applied.

### **2.2 FABRICATION**

#### **A. Reprise Circulation Desk Components:**

- 1. Desktop:

- a. Standard desktop is 1-3/16" thick, MDF core, with a high-pressure laminate top surface .050" thick and a backing sheet .020" thick for balanced construction. The desk top receives a 2mm PVC edgeband. All edges are applied to the desktop after the laminate and backer sheets are applied, constituting an external edge band. Desktop is positioned over the end panels of the desk module, flush with the outside edges of the end panels.
2. End Panels:
  - a. Desk module end panels are 1" thick, thermally-fused laminate with an MDF core. The end panel and front panel are joined with 3/4" x 3/4" thick solid hardwood cleats screwed to the inside surface of the panel. Each end panel receives a 3" diameter egress grommet to provide for wire passage and two adjustable glides to allow leveling of the individual units.
3. Front Panel:
  - a. The front panel is 3/4" thick, thermally-fused laminate with an MDF core. Exposed edges are externally banded with a 2mm PVC edgeband. A 6"H x 3/4"D recessed, ebonized toe space is incorporated at the bottom of the panel. The front panel is positioned over the end panels of the desk module, flush with the outside edges of the end panels. Double wide units have two front panels to give the appearance of two individual units.
4. Work Surface:
  - a. Work surface is 1-3/16" thick, MDF core, with a high-pressure laminate top surface .050" thick and a backing sheet .020" thick for balanced construction. The exposed edge receives a 2mm PVC edgeband. The back edge of the work surface has a plastic black strip, 1-1/2"W, which projects above the work surface 1/4" to act as a retainer. The work surface is 24-1/2"D and is positioned 1-1/2" away from the front panel, creating a cord drop space. Adjustable work surfaces positioned at heights of 36", 32" or 27" are available in single wide standing height desks.

Note: See Brodart's optional electrical accessories for electrical power-distribution system for desk modules (below).
5. Laminate Shelves:
  - a. Shelves are 3/4" thick, thermally-fused laminate, banded on front and back with matching 2mm PVC edgebanding.
6. Drawers:
  - a. Drawers are constructed of thermally-fused laminate with 1/4" thick wood bottom panel. Box drawer has extension slides with 100# load capacity. File drawer has full-extension slides with 100# load capacity.
7. Electrical Accessories:
  - a. Power-Entry Assemblies
    - 1) Single-circuit power-entry assembly consist of a wood chase that is fastened to the unit with modular fasteners, a PVC plastic liner fastened to the wood chase, and the power-entry cable which is fastened inside of the PVC liner. The power entry cable has a 24" STO cord fitted with a 20-amp plug at the bottom of the assembly and a flexible metal conduit with a quick-connect

coupling at the top. This power-entry assembly is used for single-circuit power distribution systems and provides access to circuit #1. The assembly can be plugged into any 20-amp outlet.

- b. Panel-Mount, Power-Distribution Channel:
  - 1) The panel-mount power-distribution channel is constructed of 20-gauge steel and is finished using a black electrostatically applied epoxy powder paint. The channel is open at the top to allow excess wire to be stored behind the power blocks and the duplex receptacles. Front of the channel has cutouts so two duplex outlets can be mounted. The duplex outlets are rated 15-amps at the receptacle with 20-amps though power. The duplex outlets are connected to each other and the power entry by means of 3/4" flexible metal conduit, which has a quick-connect coupling. The cable consists of an eight-wire, four-circuit system with three standard utility circuits and one isolated circuit with a dedicated ground (computer circuit). If a channel is ordered with one duplex outlet, a plastic cover is provided to cover the unused hole. Units mount to back panels or table keels.
- c. J-Channel:
  - 1) J-Channel is constructed using 18-gauge steel and is finished using a black electrostatically applied epoxy powder paint. The J-Channel attaches to the bottom of the power-distribution channel with the same screws that attach the power-distribution channels to the unit. The channel is 3-1/8"H x 4" D; the front lip of the channel is 2"H. The J-Channel provides additional wire-storage capacity or a data wire-management channel when data lines are required. J-Channel has four square holes that hold either communication or data jacks. Unit uses modular insert data jacks, which must be ordered separately.
- d. Duplex Outlet Receptacles:
  - 1) Duplex outlets can be ordered to access any four circuits available in the power-distribution channel. You must specify the number of the circuit to be accessed for each duplex outlet ordered. Circuit IV outlets access the isolated circuit with the dedicated ground. If circuit numbers are not specified, the power-distribution channels are shipped with circuit one duplex outlet receptacles. Duplex outlets are easily interchanged within the power-distribution assembly by pushing the duplex receptacle sideways and then pulling it out.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Assemble and place all furnishings at locations indicated on furniture plans. Install all furniture items at locations shown on furniture drawing. Unless otherwise noted, shelving shall be assembled in continuous ranges, made up of the number of units indicated, complying with manufacturer's instructions. All units shall be set level and plumb. Only non-corrosive shims shall be permitted.
- B. Anchor all single-faced ranges to walls, using manufacturers recommended hardware and methods.

- C. Install adjustable shelves at equal spacings unless otherwise indicated.
- D. Install end -panels and canopy tops with concealed fasteners.
- E. Install shelves at spacings indicated or, if not indicated, at equal spacing in each unit.
- F. Install accessory items in locations indicated.
- G. Verify that all moving parts are operating freely.

### **3.2 ADJUST AND CLEAN**

- A. Verify that moving parts are operating freely. Clean exposed surfaces and touch-up marred finishes to replace components as necessary to eliminate evidence of damage or deterioration.
- B. Clean exposed surfaces and touch up marred finishes where required. Remove all cartons, debris, sawdust, scraps, etc., leaving all spaces clean and ready for owner's use.

**END OF SECTION 11050**

## **SECTION 12495 – INTERIOR ROLLER SHADES**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Manual single operated Interior Roller Window Shades.

#### **1.2 RELATED SECTIONS**

- A. Section 06100 - Rough Carpentry: Wood blocking for mounting roller shades and accessories.

#### **1.3 REFERENCES**

- A. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- B. NFPA 70 - National Electrical Code.
- C. NFPA 701-99 - Fire Tests for Flame-Resistant Textiles and Films.

#### **1.4 SUBMITTALS**

- A. Submit under provisions of AIA A232 and Section 00800. Submit Environmental Certification and Third-Party Evaluation per Section 1.5 Qualifications.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Styles, material descriptions, dimensions of individual components, profiles, features, finishes and operating instructions.
  - 3. Storage and handling requirements and recommendations.
  - 4. Mounting details and installation methods.
  - 5. Typical wiring diagrams including integration of motor controllers with building management system, audiovisual and lighting control systems as applicable.
- C. Shop Drawings: Plans, elevations, sections, product details, installation details, operational clearances, wiring diagrams and relationship to adjacent work.
  - 1. Prepare shop drawings on Autocad or Microstation format using base sheets provided electronically by the Architect.
- D. Window Treatment Schedule: For all roller shades. Use same room designations as indicated on the Drawings and include opening sizes and key to typical mounting details.
- E. Selection Samples: For each finish product specified, one set of shade cloth options and aluminum finish color samples representing manufacturer's full range of available colors and patterns.
- F. Verification Samples: For each finish product specified, one complete set of shade components, unassembled, demonstrating compliance with specified requirements. Shadecloth sample and aluminum finish sample as selected. Mark face of material to indicate interior faces.
- G. Maintenance Data: Methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.



## 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Obtain roller shades through one source from a single manufacturer with a recommended minimum of twenty years' experience in manufacturing products comparable to those specified in this section.
- B. Installer Qualifications: Installer trained and certified by the manufacturer with a recommended minimum of ten years' experience in installing products comparable to those specified in this section.
- C. Fire-Test-Response Characteristics: Passes NFPA 701-99 small and large-scale vertical burn. Materials tested shall be identical to products proposed for use.
- D. Anti-Microbial Characteristics: 'No Growth' per ASTM G 21 results for fungi ATCC9642, ATCC 9644, ATCC9645.
- E. Environmental Certification: Submit written certification from the manufacturer, including third party evaluation, recycling characteristics, and perpetual use certification as specified below. Initial submittals, which do not include the Environmental Certification, below will be rejected. Materials that are simply 'PVC free' without identifying their inputs shall not qualify as meeting the intent of this specification and shall be rejected.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis of Design Manufacturer: "Urban Shade" as manufactured by MechoShade Systems, Inc.; or approved equal.
- B. Requests for substitutions will be considered in accordance with provisions of AIA A232 and Section 00800.

### 2.2 APPLICATIONS/SCOPE

- A. Manual Roller Shades: Manual operating single, chain drive, interior window roller shades, as shown on the Drawings.

### 2.3 SHADE CLOTH

- A. Visually Transparent Single-Fabric Shadecloth: MechoShade Systems, Inc., Non-raveling vinyl/polyester yarn.
  - 1. EcoVeil Screen "1350" Series, 5 percent open.
  - 2. Color: As selected from manufacturer's standard colors.

### 2.4 SHADE BAND

- A. Shade Bands: Construction of shade band includes the fabric, the hem weight, hem-pocket, shade roller tube, and the attachment of the shade band to the roller tube. Sewn hems and open hem pockets are not acceptable.
  - 1. Hem Pockets and Hem Weights: Fabric hem pocket with RF-welded seams (including welded ends) and concealed hem weights. Hem weights shall be of appropriate size and weight for shade band. Hem weight shall be continuous inside a sealed hem pocket.

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Hem pocket construction and hem weights shall be similar, for all shades within one room.

2. Shade band and Shade Roller Attachment:
  - a. Use extruded aluminum shade roller tube of a diameter and wall thickness required to support shade fabric without excessive deflection. Roller tubes less than 1.55 inch (39.37 mm) in diameter for manual shades, and less than 2.55 inches (64.77 mm) for motorize shades are not acceptable.
  - b. Provide for positive mechanical engagement with drive / brake mechanism.
  - c. Provide for positive mechanical attachment of shade band to roller tube; shade band shall be made removable / replaceable with a "snap-on" snap-off" spline mounting, without having to remove shade roller from shade brackets.
  - d. Mounting spline shall not require use of adhesives, adhesive tapes, staples, and/or rivets.
  - e. Any method of attaching shade band to roller tube that requires the use of: adhesive, adhesive tapes, staples, and/or rivets are not acceptable.

## 2.5 SHADE FABRICATION

- A. Fabricate units to completely fill existing openings from head to sill and jamb-to-jamb, unless specifically indicated otherwise.
- B. Fabricate shadecloth to hang flat without buckling or distortion. Fabricate with heat-sealed trimmed edges to hang straight without curling or raveling. Fabricate unguided shadecloth to roll true and straight without shifting sideways more than 1/8 inch (3.18 mm) in either direction per 8 feet (2438 mm) of shade height due to warp distortion or weave design. Fabricate hem as follows:
  1. Bottom hem weights.
- C. Provide battens in standard shades as required to assure proper tracking and uniform rolling of the shade bands. Contractor shall be responsible for assuring the width-to-height (W:H) ratios shall not exceed manufacturer's standards or, in absence of such standards, shall be responsible for establishing appropriate standards to assure proper tracking and rolling of the shade cloth within specified standards. Battens shall be roll-formed stainless steel or tempered steel, as required.
- D. For railroaded shade bands, provide seams in railroaded multi-width shade bands as required to meet size requirements and in accordance with seam alignment as acceptable to Architect. Seams shall be properly located. Furnish battens in place of plain seams when the width, height, or weight of the shade exceeds manufacturer's standards. In absence of such standards, assure proper use of seams or battens as required to, and assure the proper tracking of the railroaded multi-width shade bands.
- E. Provide battens for railroaded shades when width-to-height (W:H) ratios meet or exceed manufacturer's standards. In absence of manufacturer's standards, be responsible for proper use and placement of battens to assure proper tracking and roll of shade bands.

## 2.6 COMPONENTS

- A. Access and Material Requirements:
  1. Provide Urban Shade hardware allowing for the removal of shade roller tube from brackets without removing hardware from opening and without requiring end or center supports to be removed.
  2. Provide shade hardware that allows for removal and re-mounting of the shade bands without having to remove the shade tube, drive or operating support brackets.

3. Use only Delrin engineered plastics by DuPont for all plastic components of shade hardware. Styrene based plastics, and /or polyester, or reinforced polyester will not be acceptable.
- B. Manual Operated Chain Urban Drive Hardware and Brackets:
1. Provide for universal, regular and offset drive capacity, allowing drive chain to fall at front, rear or non-offset for all shade drive end brackets. Universal offset shall be adjustable for future change.
  2. Provide hardware capable for installation of a removable fascia, for both regular and/or reverse roll, which shall be installed without exposed fastening devices of any kind.
  3. Provide shade hardware system that allows for removable regular and/or reverse roll fascias to be mounted continuously across two or more shade bands without requiring exposed fasteners of any kind.
  4. Provide shade hardware system that allows for operation of multiple shade bands (multi-banded shades) by a single chain operator, subject to manufacturer's design criteria. Connectors shall be offset to assure alignment from the first to the last shade band.
  5. Provide shade hardware system that allows multi-banded manually operated shades to be capable of smooth operation when the axis is offset a maximum of 6 degrees on each side of the plane perpendicular to the radial line of the curve, for a 12 degrees total offset.
  6. Provide positive mechanical engagement of drive mechanism to shade roller tube. Friction fit connectors for drive mechanism connection to shade roller tube are not acceptable
  7. Provide shade hardware constructed of minimum 1/8-inch (3.18 mm) thick plated steel or heavier as required to support 150 percent of the full weight of each shade.
  8. Drive Bracket / Brake Assembly:
    - a. MechoShade Drive Bracket model "Urban Shade" shall be fully integrated with all MechoShade accessories, including, but not limited to: SnapLoc fascia, room darkening side / sill channels, center supports and connectors for multi-banded shades.
    - b. Urban drive sprocket and brake assembly shall rotate and be supported on a welded 3/8 inch (9.525 mm) steel pin.
    - c. The brake shall be an over -running clutch design which disengages to 90 percent during the raising and lowering of a shade. The brake shall withstand a pull force of 50 lbs. (22 kg) in the stopped position.
    - d. The braking mechanism shall be applied to an oil-impregnated hub on to which the brake system is mounted. The oil impregnated hub design includes an articulated brake assembly, which assures a smooth, non-jerky operation in raising and lowering the shades. The assembly shall be permanently lubricated. Products that require externally applied lubrication and or not permanently lubricated are not acceptable.
    - e. The entire Urban assembly shall be fully mounted on the steel support bracket, and fully independent of the shade tube assembly, which may be removed and reinstalled without effecting the roller shade limit adjustments.
- C. Drive Chain: #10 qualified stainless steel chain rated to 90 lb. (41 kg) minimum breaking strength. Nickel plate chain shall not be accepted.

## 2.7 ACCESSORIES

1. Fascia
2. Continuous removable extruded aluminum fascia that attaches to shade mounting brackets without the use of adhesives, magnetic strips, or exposed fasteners.

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3. Fascia shall be able to be installed across two or more shade bands in one piece.
  4. Fascia shall fully conceal brackets, shade roller and fabric on the tube.
  5. Provide bracket / fascia end caps where mounting conditions expose outside of roller shade brackets.
  6. Notching of fascia for manual chain shall not be acceptable
- B. Third-Party Evaluation: Provide documentation stating the shade cloth has undergone third party evaluation for all chemical inputs, down to a scale of 100 parts per million, that have been evaluated for human and environmental safety. Identify any and all inputs, which are known to be carcinogenic, mutagenic, teratogenic, reproductively toxic, or endocrine disrupting. Also identify items that are toxic to aquatic systems, contain heavy metals, or organohalogens. The material shall contain no inputs that are known problems to human or environmental health per the above major criteria, except for an input that is required to meet local fire codes.
- C. Recycling Characteristics: Provide documentation that the shade cloth can and is part of a closed loop of perpetual use and not be required to be down cycled, incinerated or otherwise thrown away. Scrap material can be sent back to the mill for reprocessing and recycling into the same quality yarn and woven into new material, without down cycling. Certify that this process is currently underway and will be utilized for this project.
- D. Perpetual Use Certification: Certify that at the end of the useful life of the shade cloth, that the material can be sent back to the manufacturer for recapture as part of a closed loop of perpetual use and that the material can and will be reconstituted into new yarn, for weaving into new shade cloth. Provide information on each shade band indicating that the shade band can be sent back to the manufacturer for this purpose.
- E. Mock-Up: Provide a mock-up (manual shades only) of one roller shade assembly for evaluation of mounting, appearance and accessories.
1. Locate mock-up in window designated by Architect.
  2. Do not proceed with remaining work until, mock-up is accepted by Architect.

## 2.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver shades in factory-labeled packages, marked with manufacturer and product name, fire-test-response characteristics, and location of installation using same room designations indicated on Drawings and in the Window Treatment Schedule.

## 2.9 PROJECT CONDITIONS

- A. Environmental Limitations: Install roller shades after finish work including painting is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

## 2.10 WARRANTY

- A. Roller Shade Hardware, Chain and Shadecloth (except EcoVeil™): Manufacturer's standard non-depreciating **twenty-five (25) year** limited warranty.
1. EcoVeil standard non-depreciating **ten (10) year** limited warranty.
- B. Special Roller Shade Installation: **Two (2) years** from date of Substantial Completion, not including scaffolding, lifts, or other means to reach inaccessible areas.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### **3.2 PREPARATION**

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### **3.3 INSTALLATION**

- A. Install roller shades level, plumb, square, and true according to manufacturer's written instructions, and located so shade band is not closer than 2 inches (50 mm) to interior face of glass. Allow proper clearances for window operation hardware.
- B. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.
- C. Clean roller shade surfaces after installation, according to manufacturer's written instructions.
- D. Engage Installer to train Owner's maintenance personnel to adjust, operate and maintain roller shade systems.

### **3.4 PROTECTION**

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

**END OF SECTION 12495**