ADDENDUM NO. 1
to
CONTRACT DOCUMENTS

for
NEW SECURITY VESTIBULES AT PRINCETON HIGH SCHOOL
located at 151 Moore Street, Princeton, NJ 08540

for the
PRINCETON PUBLIC SCHOOLS
Princeton, Mercer County, New Jersey

Issued: February 6, 2024

FVHD PROJECT NO. 5499A1

FRAYTAK VEISZ HOPKINS DUTHIE, P.C.
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License No. 21AI01299200

INTENT
This Document supersedes all conflicting and contrary information in said Contract Documents. Said documents are hereby amended in certain particulars as described herein after. Unless specifically noted or specified hereinafter all work shall conform to the applicable provisions of the Contract Documents. Bidders shall acknowledge receiving this document on the Bid Proposal Form.

This Addendum includes five (5) pages and the following:

1. Revised Bid Proposal Form (3-pages).
2. Revised Specification(s): 08700 (16-pages).
3. New Specification Sections: 02071 (7-pages), 02110 (3-pages), 02200 (9-pages), 02485 (7-pages), 03300 (9-pages), 08174 (7-pages).
4. Revised Drawings: G001, A101, A102, A103, A104, A601.

CLARIFICATIONS

1. Princeton Public School's Security Vendor contact information:

   Princeton Access Control Vendor:
   Secuni (formerly Dynamic Security)
   Office (844) 985-3331
   Cell (609) 610-4937
   bruce.pullen@secuni.com
   29 Northfield Avenue, Edison NJ 08837
   Security License #34BL00000500

   Princeton Security Alarm Vendor:
   Vector Security®
   15 Roszel Road, Suite #102, Princeton, NJ 08540
   Office: 609-896-9101 Ext. 58111
   OPOC - David R. Berger, CET
   Sr. Sales Consultant NNJ/NY

REFER TO DRAWINGS

The following Drawings and/or Sketches are attached to this Addendum:

DRAWING NO.	TITLE
G001	TITLE SHEET AND DRAWING INDEX
A101	CODE ANALYSIS, EGRESS PLANS, DEMOLITION PLANS, AND NOTES
A102	MAIN ENTRY AND PAC ENTRY NEW WORK PLANS, STEEL AND MASONRY WALL PLANS, AND NOTES
A103	MAIN ENTRY AND PAC VESTIBULE ELECTRIC PLANS, NOTES AND DETAILS
A104	ALUMINUM STOREFRONT AND TRANSACTIONAL WINDOW ELEVATIONS AND SECTIONS
A601	DOOR SCHEDULES, ALUMINUM STOREFRONT, DETAILS AND NOTES

The following Drawings to be revised or corrected as follows:

DRAWING NO.	CHANGES AND CORRECTIONS
G001, A101, A102, A103, A104, A601	Delete the referenced drawings in their entirety and substitute with the enclosed revised drawings.

PROPOSAL FORM

Delete the Bid Proposal Form in its entirety and substitute with the enclosed revised document.

REFER TO SPECIFICATIONS

TABLE OF CONTENTS

Under Part - 2 General Construction Work, add the following new section which is attached to this Addendum:

02071	Selective Site Demolition	7-pages
02110	Site Clearing	3-pages
02200	Earthwork	9-pages
02485	Finish Grading and Seeding	7-pages
03300	Concrete Work	9-pages
08174	FRP/Aluminum Hybrid Doors	7-pages

PART 1 - SECTION 01010 - SUMMARY OF WORK

Page Paragraph

01010-1 1.4, B Add the following subparagraphs:

2. Alternate Bid No. 2: Additional Door and Frame Replacement with Security Window Film

3. Alternate Bid No. 2A: Additional Door and Frame Replacement with Security Glazing

4. Alternate Bid No. 3: Amplified Speak-Thru Intercom System

PART 1 - SECTION 01030 - ALTERNATE BIDS

Page Paragraph

01030-2 1.2 Add the following subparagraphs:

B. Alternate Bid No. 2: Additional Door and Frame Replacement with Security Window Film

State the amount to be added to the base bid to remove and replace an additional exterior door (New Door #S11-1), frame, threshold and hardware with security window film; prepare existing opening for new frame, patch/repair all damage to adjacent walls and floors caused by the selective demolition (match adjacent surfaces), as shown on various drawings and as indicated in various specification sections.

C. Alternate Bid No. 2A: Additional Door and Frame Replacement with Security Glazing

State the amount to be added to the base bid to remove and replace an additional exterior door (New Door #S11-1), frame, threshold and hardware with security glazing; prepare existing opening for new frame, patch/repair all damage to adjacent walls and floors caused by the selective demolition (match adjacent surfaces), as shown on various drawings and as indicated in various specification sections.

D. Alternate Bid No. 3: Amplified Speak-Thru Intercom System

State the amount to be added to the base bid to provide and install "Model SC-100L - Ticket Window Intercom System" and all associated work in lieu of the base bid "6 inch Round Heavy Stainless-Steel Level 3 Speak-Thru", as shown on various drawings and as indicated in various specification sections.

PART 2 - SECTION 02071 - SELECTIVE SITE DEMOLITION

Add new Section 02071, attached to this Addendum.

PART 2 - SECTION 02110 - SITE CLEARING

Add new Section 02110, attached to this Addendum.

PART 2 - SECTION 02200 - EARTHWORK

Add new Section 02200, attached to this Addendum.

PART 2 - SECTION 02485 - FINISH GRADING AND SEEDING

Add new Section 02485, attached to this Addendum.

PART 2 - SECTION 03300 - CONCRETE WORK

Add new Section 03300, attached to this Addendum.

PART 2 - SECTION 08174 - FRP/ALUMINUM HYBRID DOORS

Add new Section 08174, attached to this Addendum.

PART 2 - SECTION 07900 - JOINT SEALER ASSEMBLIES

Page	Paragraph	
07900-1	1.2	Add the following subparagraph:

B. Exterior joints in the following horizontal traffic surfaces:

4. Control, expansion, and isolation joints in cast-in-place concrete slabs.

07900-4	2.2,C	Add the following subparagraph:

2. Joint Fillers for Concrete Slab on Grade: Provide "Fiber", as manufactured by WR. Meadows Sealtight Ceramar; or approved equal.
   a. Nonextruding bituminous type: ASTM D 1751.

PART 2 - SECTION 08582 - TRANSACTION WINDOW UNITS

Page	Paragraph	
08582-7	2.6, A.1	Add the following subparagraph:

b. Amplified Speak-Thru Intercom System (**Alternate Bid**)
   1) Model SC-100L - Ticket Window Intercom System
      a) Two-way communication is accomplished through the use of speakers and microphones located on each side of the partition of this ticket window. The inside operator controls the operation by speaking into the gooseneck microphone. The SC-100L is 4" in diameter with a gooseneck microphone, on/off switch, volume control for both “talk” mode and “listen” mode, and operates with a rechargeable battery pack.

PART 2 - SECTION 08700 - DOOR HARDWARE

Delete Section 08700 in its entirety and substitute with the enclosed revised document.

END OF ADDENDUM NO. 1

ADDENDUM NO. 1

BID PROPOSAL FORM

SINGLE OVERALL CONTRACT

DPMC Classifications: C008 or C009 Prime Contractor
with C047 Subcontractor

Princeton Public Schools
25 Valley Road
Princeton, NJ 08540

1. The undersigned, having familiarized himself / herself 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 **New Security Vestibules at Princeton High School (FVHD#5499A1)**, 151 Moore Street, Princeton, NJ 08540, 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:

   SINGLE OVERALL CONTRACT - BASE BID: 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 ALLOWANCE: $_____
   (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 Proposal(s) - Section 01030** 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: Security Glazing ADD $_____
(Numerical)

_____
(Written)

Alternate Bid No. 2: Additional Door and Frame Replacement with Security Window Film ADD $_____
(Numerical)

_____
(Written)

Alternate Bid No. 2A: Additional Door and Frame Replacement with Security Glazing ADD $_____
(Numerical)

_____
(Written)

Alternate Bid No. 3: Amplified Speak-Thru Intercom System ADD $_____
(Numerical)

_____
(Written)

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Submitted by:_____
(Firm Name)

3. Bidder hereby acknowledges receipt of the following Addenda:
   No Addenda Issued ☐

Addendum No. 1,	issued_____	received_____	(initial)
Addendum No.___,	issued_____	received_____	(initial)
Addendum No.___,	issued_____	received_____	(initial)
Addendum No.___,	issued_____	received_____	(initial)

4. 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, 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.

5. 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.

6. 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)

SECTION 02071 - SELECTIVE SITE 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 WORK INCLUDED

A. Remove, except as specifically excluded by provisions of this section:

1. Existing work obstructing new work.

2. Existing work indicated on drawings to be removed.

3. Existing work below grade obstructing new construction.

B. Remove from the project site, and dispose of, materials and equipment removed as selective demolition work, except:

1. Materials and equipment to be incorporated into new work.

2. Materials and equipment to be delivered to Owner.

C. Phasing: Perform selective demolition in phases as required by Owner's use of portions of the site.

D. Install 6 foot high temporary construction security fencing around the perimeter of all construction areas to protect the general public. No exact amount of fencing is shown on the drawings and the Owner and/or Architect reserve the right to require as much fencing as needed to maintain construction site safety.

E. Private underground utility location mark out and survey to verify the location and alignment of all underground utilities within the scope of work. Conduct test pits as needed to verify the depth and finite location/alignment of underground utilities where subsurface excavations will occur.

1.3 RELATED SECTION(S)

A. Section 02110 - Site Clearing

1.4 SUBMITTALS

A. Schedule of Operations: Include coordination to ensure uninterrupted progress of Owner's on-site operations.

B. Details: Proposed modifications to removal work as required by the Contract Documents.

C. Proof of obtaining PRIVATE underground utility mark-out and survey prior to any land disturbance that results into the excavation of subgrade soils, per NJ State regulations governing subsurface excavations.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Supervision: Perform selective demolition under the direct supervision of a qualified construction superintendent, experienced in type of construction involved.

2. Skills: Where selective demolition terminates at existing work to remain, perform work using craftsmen skilled in materials and systems involved.

B. Pre-demolition Work:

1. Engage the services of a private underground utility location company to mark the location of all underground utilities present within construction areas and at least 50 feet beyond, where subgrade earthwork is proposed.

   Note: The NJ One Call Utility Mark out service will not provide on-site utility mark out inside a property, in most instances, which is why the Contractor must engage its own mark out service.

2. Compare the utility locations shown on the Existing Conditions plan with those locations marked in the field. Using a licensed professional land surveyor, survey the location of any utility found to be in a significantly different location, a location not identified on the plan, or in a location that will conflict with future construction. Provide a drawing (to scale) to the Architect illustrating the utility locations found in the field, versus those represented on the Existing Conditions Plan at least 1 week prior to demolition or earthwork.

3. Test Pits: Perform open excavation test pits in areas where the mark out shows underground utilities conflict with or pass within 25 feet of proposed construction, to verify the depth, size, and alignment of underground utilities that may be in conflict with future construction or are found to be located significantly different than the Existing Conditions plan depicts. Survey the size, depth, and alignment of the affected utility and report this information to the Engineer (overlay this information on a copy of the Existing Conditions plan). Include all costs associated with at least 8 test pits in base bid. No separate payment will be made for test pits.

4. All utilities shall be field verified by the Contractor prior to the ordering of materials, or the procurement of equipment related to the installation of underground utilities.

C. Compaction of Demolition Areas.

1. The Contractor's Geotechnical Engineer shall verify the compaction of all backfill, fill, and other earthwork relative to disturbance caused by demolition work. See Section 02200 for soil compaction, testing and Geotechnical Engineering oversight.

2. If demolition work occurs in areas slated for lawn construction, do not over compact the subgrade soils or fill. Use only light duty earthwork equipment in lawn areas.

1.6 PROJECT CONDITIONS

A. Coordinate this work with the work of other sections to avoid any delay or interference with other work.

B. Condition of Structure(s): By submitting its bid, the Contractor represents that it has fully examined the conditions of the building, grounds, and other existing site improvements surrounding all work areas. The Owner assumes no responsibility for actual condition of items or structure to be selectively demolished.

1. Conditions existing at time of inspection for bidding will be maintained by Owner insofar as practicable. However, variations within the site and surrounding structures may occur by Owner's and/or adjacent property owner's daily use of the premises prior to start of selective demolition work. No claims for additional cost due to such variations shall be considered.

2. The Contractor shall continually assess the structural adequacy of nearby structures as demolition proceeds and conditions are uncovered. If previously unseen or unknown structural elements are encountered, promptly advise the Architect and wait for instructions before proceeding further.

3. The Contractor shall photograph and catalog the structural condition of each adjacent structure, paying particular attention to the condition of existing foundations, evidence of cracks, poor condition of masonry, cracking in plaster or walls, or other poor site conditions that exist before demolition and construction begins. The purpose of this exercise is to obtain a record of adjacent site conditions before work begins, in order to evaluate potential future claims for property damage caused by vibrations, noise, seismic disturbances, or direct impact.

   NOTE: The Contractor is encouraged to video record the condition of each work area in addition to obtaining a photographic record.

4. The Contractor shall periodically assess the structural condition of adjoining areas throughout demolition and construction, in order to insure that the condition of the neighboring area is not being compromised. The Contractor shall repair any damage to neighboring areas, to the satisfaction of the Owner and the local Building Department, at no additional cost to the Owner.

5. If the Contractor fails to photographically document the condition of existing structures as noted above, then, by default, it assumes all responsibility for mitigating claims of property damage. Photographically documenting the condition of neighboring areas does not relieve the Contractor from any responsibility for repairing subsequent damage to the property. The Contractor will be held responsible for repairing any property damage that can be justifiably linked to the contractor's demolition or construction activities.

C. Protection:

1. Provide protective measures as required to provide free and safe passage of persons to and from occupied portions of the site and around areas of demolition.
   a. Ensure that adequate illumination, exit signs and warning signs, included as Temporary Facilities work, are in place whenever such passage is required.
   b. Ensure that all areas are kept in a clean and safe condition at all times. Install temporary construction fencing as needed, and as directed by the Owner's representative to insure the safety of the public.
   c. If pavements or other hard surfaces are to be removed in public areas, and not immediately restored, install temporary bituminous pavement patch, and maintain said patch until permanent hard surfaces are installed.

2. Provide necessary shoring, bracing, and support to prevent movement, settlement, or collapse of structures or elements adjacent to areas being demolished, and adjacent facilities and neighboring structure to remain.

3. Protect existing finished work to remain in place that becomes exposed during demolition operations from damage.

4. Protect existing curbing, fencing and walls that are designated to remain. Terminate demolition at clean control joints or if joints or seams are not present, carefully trim or sawcut materials to provide a mendable edge that can be re-secured or otherwise treated for assimilation into future work or work to remain.

5. Provide temporary weather protection during interval between demolition, removal of existing construction on exterior surfaces and installation of new construction, to ensure that no water leakage or weather related damage occurs to subgrades or subbases.

D. Traffic: Conduct demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Comply with requirements of authorities having jurisdiction.

E. Utility Services: Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations. Do not interrupt existing utilities serving occupied or facilities in use, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

1. If utility systems, including mechanical or electrical systems, are encountered, that are not indicated to remain but give evidence of being in use, promptly advise the Architect for instructions before proceeding.

F. Advise the Owner, in writing, of encounter with materials suspected to be of a hazardous nature. These materials are not to be handled or removed under this Contract.

PART 2 - PRODUCTS [NOT USED]

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas in which work is to be performed. Report to the Owner all prevailing conditions that will adversely affect satisfactory execution of work. Do not proceed with work until unsatisfactory conditions have been corrected.

B. Starting work constitutes acceptance of the existing conditions and the Contractor shall then be responsible for correcting all unsatisfactory and defective work encountered at his/her expense.

C. The following is repeated from another section in these specifications to insure that the contractor recognizes this provision of the contract:

1. The Contractor shall photograph and catalog the structural condition of each adjacent structure, paying particular attention to the condition of existing foundations, evidence of cracks, poor condition of masonry, cracking in plaster or gypsum wall board, or other poor site conditions that exist before demolition and construction begins. The purpose of this exercise is to obtain a record of adjacent site conditions before work begins, in order to evaluate potential future claims of property damage caused by vibrations, noise, seismic disturbances, or direct impact.

   NOTE: The Contractor is encouraged to video record the condition of each area in addition to obtaining a photographic record.

2. The Contractor shall periodically assess the structural condition of neighboring areas throughout demolition and construction, in order to insure that the condition of the neighboring areas is not being compromised. The Contractor shall repair any damage to neighboring areas, to the satisfaction of the Owner and the local Building Department, at no additional cost to the Owner.

3. If the Contractor fails to photographically document the condition of existing structures as noted above, then, by default, it assumes all responsibility for mitigating claims for property damage. Photographically documenting the condition of neighboring areas does not relieve the Contractor from any responsibility for repairing subsequent damage to the property. The Contractor will be held responsible for repairing any property damage that can be justifiably linked to the contractor's demolition or construction activities.

3.2 PREPARATION

A. Prior to commencement of work, the Contractor and Owner's Representative shall inspect respective demolition areas and:

1. Tabulate and, if appropriate, photograph (and video record or digitally record if feasible) existing conditions which could be misconstrued as damage resulting from selective demolition work and,

2. File record photographs with Owner's Representative prior to starting work and,

3. Confirm that items to be removed by the Owner have been removed.

4. Contact NJ One Call service and appropriate utility companies to schedule utility location mark-outs. If the service refuses to provide utility mark-out on-site, then the Contractor shall engage the services of an independent utility location service to identify and mark the location of all utilities within the scope of construction where excavation will occur. All costs associated with the location of utilities shall be borne by the Contractor. The Contractor may not excavate down below pavement courses and into soil without having obtained an underground utility mark out in said area. The demolition of pavements and walkways does not require underground utility mark out, unless said demolition extends into stone subbase or soils below.

3.3 SITE DEMOLITION

A. General: Perform work using methods which comply with governing regulations, and which produce proper surfaces to receive new work.

1. Demolish to limits not less than what is depicted on the demolition plan or to the nearest seam or joint if within 5 feet thereof. If no seam or joint exists within 5 feet of the depicted demolition limit then saw cut (uniformly) along the designated line. The Contractor may elect to increase the limits of demolition work to extend to a nearby control joint to avoid saw-cutting work, however, all additional areas that are demolished must be restored in-kind to a "like new" condition at no additional project cost.

B. Concrete and Masonry: Demolish in small sections. Cut at junctures near construction to remain by using power driven saws or hand tools; do not use power driven impact tools.

C. Locate equipment and promptly remove debris to avoid imposing excessive loads on structures.

D. Demolish foundations, footings, and slabs, in their entirety, in all areas where the new construction will occur or where underground utilities will be constructed to provide required clearances for new work.

E. Do not open and expose subgrades when inclement weather is forecast and areas cannot be reasonably restored and protected from damage. Make necessary provisions to ensure continuous watertight integrity of work to remain.

F. Explosives: Use of explosives is not permitted.

3.4 DUST CONTROL

A. Comply with governing regulations pertaining to prevention of raising excessive dust and dirt.

B. Use water sprinkling, temporary enclosures, and other suitable methods to minimize amounts of dust and dirt rising and scattering in the air.

1. Do not use water sprinkling when it may create hazardous or objectionable conditions such as ice, flooding, polluted runoff, or damage.

3.5 SALVAGE MATERIALS

A. Verify that the Owner has salvaged all materials from the site that they want to retain.

B. Carefully dismantle (retain hardware and fasteners in re-sealable containers) all features that the Owner asks to retain including but not limited to signs, fencing, equipment, etc. Store salvaged materials off-site and/or deliver salvaged materials to a location specified by the Owner.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove debris, rubbish and other materials resulting from demolition operations from project site. Do not bury demolished materials on the project site. Transport and legally dispose of materials off- site.

B. On-site burning of removed materials is not permitted.

C. Storage or sale of removed materials shall not be permitted on the site, except storage of materials to be reused or furnished to Owner.

3.7 CLEAN UP AND REPAIR

A. Return structure and surfaces to remain to their condition existing prior to start of demolition work. Repair adjacent construction and surfaces soiled or damaged by excessive demolition work to original or better condition.

B. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave work areas broom clean.

END OF SECTION 02071

SECTION 02110 - SITE CLEARING

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 site clearing is shown on drawings.

B. Site clearing work includes, but is not limited to the following:

1. Topsoil stripping.
2. Clearing and grubbing.
3. Protection of existing trees and vegetation.
4. Removal of trees and other vegetation.
5. Removing above - grade improvements.
6. Disconnecting, capping or sealing, abandoning in place, and/or removing below - grade improvements.

1.3 QUALITY ASSURANCE

A. Governing Regulations: Comply with applicable requirements of "Standards for Soil Erosion and Sediment Control, in New Jersey", latest edition.

1.4 SUBMITTALS

A. Photographs or Videotape: Submit sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

B. Record Drawings: In accordance with Section 01700 - Project Closeout.

1. Identify and accurately locate capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.5 JOB CONDITIONS

A. The Contractor shall accept the site with the conditions of the same existing at the time of bidding.

B. Contractor shall verify that the existing topographical conditions prior to any sitework being done. Starting of sitework shall be construed as acceptance of given topographical elevations.

C. Contractor shall be responsible for providing temporary drainage facilities to maintain the entire site in a well drained dry condition during all phases of construction.

D. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place.

1. Protect improvements on adjoining properties and on Owner's property.

2. Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.

E. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

1. Water trees and other vegetation to remain within limits of contract work, as required, to maintain their health during course of construction operations.

2. Provide protection for roots over 1-1/2" diameter cut during construction operations. Coat cut faces with an emulsified asphalt, or other acceptable coating, formulated for use on damaged plant tissues.
   a. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

3. Repair or replace trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to Architect. Employ licensed arborist to repair damages to trees and shrubs.

PART 2 - PRODUCTS (Not applicable to work of this section)

PART 3 - EXECUTION

3.1 SITE CLEARING

A. General: Remove trees, shrubs, grass and other vegetation, improvements, or obstructions interfering with installation of new construction. Removal includes digging out stumps and roots.

1. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction.

3.2 STRIPPING TOPSOIL

A. Remove sod and grass before stripping topsoil.

B. Remove all topsoil from existing lawn areas that are where finished grades are to be changed and/or disturbed. Store within the contract area for future use in the finished grading work surround with siltation control fence.

C. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other object over 1" in diameter, and without weeds, roots, and other objectionable material.

D. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

1. Remove heavy growths of grass from areas before stripping.

E. Stockpile topsoil in storage piles in areas shown, or where directed. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind-blown dust. Surround pile with Siltation Control Fence.

3.3 REMOVAL OF SITE IMPROVEMENTS

A. Remove existing above - and below - grade improvements as indicated or as necessary to facilitate new construction.

3.4 CLEARING AND GRUBBING

A. In all areas within the Contract Limit Lines, including areas receiving paving and seeding, except as otherwise specified or indicated, grubbing shall consist of removal and disposal of all trees, stumps and roots larger than 1" in diameter, and all matted vegetation, to a depth of 18" below new finish grade in cut areas and 18" below existing finish grade at fill areas.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding 6" loose depth, and thoroughly compact to a density equal to adjacent original ground.

3.5 DISPOSAL OF WASTE MATERIALS

A. Burning is not permitted on Owner's property.

B. Remove waste materials and unsuitable and excess subsoil from Owner's property and dispose of off-site in a legal manner.

END OF SECTION 02110

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 housekeeping pads and lawns is included as part of this work.

3. Porous fill course for support of equipment pads is included as part of this work.

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.

B. Testing and Inspection Service:

1. Employ, at Contractor's expense an independent testing laboratory acceptable to the Architect to perform soil testing and inspection service for quality control testing during earthwork operations. Include the services of a qualified Licensed Soils Engineer, as specified.

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.

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.S. Standard Sieve Size	Percent Finer by Weight
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.S. Standard Sieve Size	Percent Finer by Weight
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. 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. All excavations within 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.

2. Provide 4 inches of porous fill under exterior concrete housekeeping pads.

F. 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.

G. 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.

H. 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.

I. Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F.

J. 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. Housekeeping pads: 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.

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 housekeeping pad(s), use compacted structural fill or on site materials permitted for use as structural fill.

B. Backfill excavations as promptly as work permits, but not until completion of the following:

1. Acceptance of construction below finish grade.

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. 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. 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.

B. 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.

C. 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 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. All work within the above section shall be performed as approved by the Soils Engineer. The Contractor shall cooperate in every way with the Soils Engineer, as required for the performance of this work and shall give not less than 48 hours notice to schedule operations requiring sampling, inspection certification and testing.

B. The Soils Engineer shall provide direction and all equipment and apparatus necessary for laboratory and field testing, sampling, inspection and reports on soil inspection. He / She will identify and document the removal of unsuitable material which may remain within the bottom of excavation after limits of the excavated area have been reached.

1. Field density testing and soil analysis at the rate of one compaction test per 2500 square feet minimum for each lift of compacted fill within building area(s).

2. Laboratory compaction tests for each type of on-site soil and/or borrow material to be used throughout the site.

3. Field C.B.R. testing in pavement areas at the rate of one per 500 square yard of pavement.

4. Field inspection control and certification of bottom of footings, trenches, subgrades or under slabs, parking area, athletic areas and landscaped areas, as applicable.

5. When required, soil materials and rock-definition testing to be performed in accordance with ASTM E 329 and documented according to ASTM D 3740 and ASTM E 548.

C. The Soils Engineer shall provide a signed and certified written report at the completion of each phase of construction, verifying that all soils operations have been completed within the design parameters as noted in the contract documents and in accordance with accepted engineering practices.

D. The soil engineering firm must show adequate credentials as approved by the Owner, but as a minimum, shall be as follows:

1. Must have as a Principal a Professional Engineer registered in New Jersey, with a recommended 10 years responsible experience in soil engineering.

2. Provide certificates of professional liability insurance of $750,000.00 minimum.

3. All technical staff personnel performing services on the project are to be under the direct supervision of the Soils Engineer.

3.6 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.

3.7 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.

3.8 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 housekeeping pads 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 indicted 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:

Quantity Percent oven dry weight	**Size Fraction**	**Range of Particle Diameter in Inches**
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	½" 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, recleaned 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. 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. 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 cris-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 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 housekeeping pads.

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 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 Contractor 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.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.

B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

C. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

2.2 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. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. "Air-Mix"; Euclid Chemical Co.
   b. "Sika Aer"; Sika Corp.
   c. "MB-VR or MB-AE"; Master Builders.
   d. "Darex AEA" or "Daravair"; W.R. Grace.
   e. Or approved equal

Prohibited Admixtures: Calcium chloride thyocyanates 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. Joint-Filler Strips: ASTM D 1752, cork or self-expanding cork.

2.5 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes for 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 mix to provide normal weight concrete with the following properties, as indicated on drawings:

1. 4500 psi 28-day compressive strength; W/C ratio, 0.45 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 air-entraining admixture in exterior exposed concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having air content within following limits.
   a. 5% for maximum 2" aggregate
   b. 6% for maximum 3/4" aggregate
   c. 7% for maximum 1/2" aggregate

F. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

1. Reinforced foundation systems: Not less than 1" and 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 FORMS

A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structure are of correct size, shape, alignment, elevations and position.

B. Construct forms to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keywarp, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features, required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.

3.2 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.

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.

3.3 JOINTS

A. Construction Joints: Locate and install construction joints as indicated or required.

B. Control Joints: Locate and install control joints as indicated or required.

C. Joint filler and sealant materials are specified in Section 07900.

3.4 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.

3.5 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.

3.6 MONOLITHIC SLAB FINISHES

A. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish, unless 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 12 - Fl 9 For noncritical areas: mechanical rooms and surfaces to have thick-set tile.
2. Ff 15 - Fl 12 For carpeted areas
3. Ff 21 - Fl 15 For thin-set flooring
4. Ff 27 - Fl 21 For warehouse, gymnasiums.
5. Ff 30 - Fl 30 For TV studios

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.

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 20 - Fl 15 For noncritical areas: mechanical rooms and surfaces to have thick-set tile.
2. Ff 25 - Fl 20 For carpeted areas
3. Ff 35 - Fl 25 For thin-set flooring
4. Ff 45 - Fl 35 For warehouse, gymnasiums.
5. Ff 50 - Fl 50 For TV studios

Grind smooth surface defects which would telegraph through supplied floor covering system.

E. Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete platforms, steps and ramps and elsewhere, as indicated.

3.7 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. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing method.

H. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture retaining cover, unless otherwise directed.

3.8 MISCELLANEOUS CONCRETE ITEMS

A. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.

3.9 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.

3.10 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. The Contractor 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 , Construction Manager, Architect 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 08174 - FRP/ ALUMINUM HYBRID DOORS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Sandstone Texture FRP/ Aluminum Hybrid Doors.

1.02 RELATED SECTIONS

A. Section 08800 – Glass & Glazing.
B. Section 08700 – Door Hardware.
C. Section 08870 – Security Window Film

1.03 REFRENCES

A. AAMA 1304 – Voluntary Specification for Forced Entry Resistance of Side-Hinged Door Systems.
B. ASTM-B209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
C. ASTM-B221 – Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
D. ASTM-C518 – Standard test Method for Steady-State Thermal Transmission Properties by Means of Heat Flow Meter Apparatus.
E. ASTM-D256 – Standard Test Methods for Determining the Pendulum Impact Resistance of Plastics.
F. ASTM-D570 – Standard Test Method for Water Absorption of Plastics.
G. ASTM-D638 – Standard Test Method for Tensile Properties of Plastics.
H. ASTM-D790 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
I. ASTM-D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
J. ASTM-D1622 – Standard Test Method for Apparent Density of Rigid Cellular Plastics.
K. ASTM-D1623 – Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
L. ASTM-D2126 – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
M. ASTM-D2583 – Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
N. ASTM-D3029 – Test Methods for Impact Resistance of Flat Rigid Plastic Specimens by Means of a Tup (Falling Weight) (Withdrawn 1995) (Replaced by ASTM-D5420).
O. ASTM-D5116 - Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/ Products.
P. ASTM-D6670 – Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/ Products.
Q. ASTM-E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
R. ASTM-E283 – Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
S. ASTM-E330 – Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
T. NFRC 100 – Procedure for Determining Fenestration Products U-Factors.
U. NFRC 400 – Procedure for Determining Fenestration Products Air Leakage.
V. TAS 201 – Impact Test Procedures.
W. TAS 202 – Criteria for Testing Impact & Nonimpact Resistant Building Envelope Components Using Uniform Static Air Pressure.

X. TAS 203 – Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.

1.04 SUBMITTALS

A. Must comply with AIA 232 and Section 00800 for Submittal Procedures.
B. Action Submittals/ Informational Submittals.
    1. Product Data.
        a. Submit manufacturer's product data sheets, catalog pages illustrating the products, description of materials, components, fabrication, finishes, installation instructions, and applicable test reports.
    2. Shop Drawings.
        a. Submit manufacturer's shop drawings, including elevations, sections, and details indicating dimensions, tolerances, materials, fabrication, doors, panels, framing, hardware schedule, and finish.
    3. Samples.
        a. Submit manufacturer's door sample composed of door face sheet, core, framing and finish.
        b. Submit manufacturer's sample of standard colors for door face and frame.
    4. Testing and Evaluation Reports.
        a. Submit testing reports and evaluations provided by manufacturer conducted by and accredited independent testing agency certifying doors and frames comply with specified performance requirements listed in Section 2.04.
    5. Manufacturer Reports.
        a. Manufacturer's Project References.
            1. Submit list of successfully completed projects including project name, location, name of architect, type, and quantity of doors manufactured.
C. Closeout Submittals.
    1. Operation and Maintenance Manual.
        a. Submit manufacturer's maintenance and cleaning instructions for doors, including maintenance and operating instructions for hardware.
    2. Warranty Documentation.
        a. Submit manufacturer's standard warranty.

1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications.
    1. Continuously engaged in manufacturing of doors of similar type to that specified, with a recommended minimum of 10 years concurrent successful experience.
    2. Door components must be fabricated by the same manufacturer.
    3. Evidence of a documented complaint resolution quality management system.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery.
    1. Deliver materials to site in manufacturer's original, unopened, containers and packaging.
    2. Labels clearly identifying opening, door mark, and manufacturer.
B. Storage.
    1. Store materials in a clean, dry area, indoors in accordance with manufacturer's instructions.
C. Handling.

1. Protect materials and finish from damage during handling and installation.

1.07 WARRANTY

A. Warrant doors and factory installed hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.
B. Standard Period.
   1. **Ten (10) years** starting on date of shipment.
C. **Limited Lifetime**
   1. Covers failure of corner joinery, core deterioration, and delamination or bubbling of door skin and corrosion of all-fiberglass products while the door is in its specified application in its original installation.
D. Finish
   1. Fluropan painted aluminum: **Ten (10) years**.

PART 2 - PRODUCTS

2.01 FRP/ALUMINUM HYBRID DOORS

A. Basis of Design Manufacturer.
   1. Special-Lite, Inc.; or approved equal.

2.02 DESCRIPTION

A. Basis of Design Model.
   1. SL-20 Sandstone Texture FRP/ Aluminum Hybrid Door; or approved equal.
B. Door Opening Size: Refer to drawings.
C. Construction.
   1. Door Thickness.
      a. 1-3/4".
   2. Stiles & Rails.
      a. Aluminum extrusions made from 6063 aluminum alloys with a minimum temper of T5.
      b. Minimum 2-5/16" deep one-piece extrusion with integral reglets to accept face sheet on both interior and exterior side of door which secure face sheet into place and permit flush appearance.
      c. Screw or snap in place applied caps are not acceptable.
      d. Top rails must have integral legs for interlocking continuous extruded aluminum flush cap.
      e. Bottom rails must have integral legs for interlocking continuous weather bar with single nylon brush weather stripping or manually adjustable SL-301 door bottom with two nylon brush weather stripping.
      f. Meeting stiles to include integral pocket to accept pile brush weather seal.
   3. Corners.
      a. Mitered.
      b. Secured with 3/8" diameter full-width steel tie rod through extruded splines top and bottom which are integral to standard tubular shaped rails.
      c. 1-1/4" x 1-1/4" x 3/16" 6061 aluminum angle reinforcement at corner to give strong, flat surface for locking hex nut to bear on.
      d. Weld, glue, or other methods of corner joinery are not acceptable.

4. Core.
    a. Poured-in-place polyurethane foam.
    b. Laid in foam cores are not acceptable.
    c. Foam Plastic Insulated Doors: IBC 2603.4.
        1. Foam plastic shall be separated from the interior of a building by an approved thermal barrier.
        2. Approved thermal barrier must meet the acceptance criteria of the Temperature Transmission Fire Test and Integrity Fire Test as stated in NFPA 275.
        3. IBC 2603.4.1.7 foam plastic insulation, having a flame spread index less than 75 and a smoke developed index of not more than 450 shall be permitted as a door core when the face is metal minimum 0.032″ aluminum or 0.016″ steel.
        4. Standard door assembly can be tested to show it meets these requirements without the use of thermal barrier. If no independent testing conducted all doors with foam plastic core must have a thermal barrier.
5. Face Sheet.
    a. Exterior
        1. 0.120″ thick, Sandstone texture, through color FRP sheet.
        2. Class C standard.
    b. Interior
        1. 0.120″ thick, Sandstone texture, through color FRP sheet.
        2. Class C standard.
    c. Attachment of face sheet.
        1. Extruded stiles and rails to have integral reglets to accept face sheet on both interior and exterior side of door which secure face sheet into place and permit flush appearance.
        2. Use of glue to bond face sheet to core or extrusions is not acceptable.
6. Cutouts.
    a. Manufacture doors with cutouts for required vision lites.
7. Hardware.
    a. Pre-machine doors in accordance with templates from specified hardware manufacturers.
    b. Surface mounted closures will be reinforced for but not prepped or installed at factory.
    c. Factory install door hardware.
8. Reinforcements.
    a. Aluminum extrusions made from 6061 or 6063 aluminum alloys.
    b. Sheet and plate to conform to ASTM-B209.
    c. Alloy and temper to be selected by manufacturer for strength, corrosion resistance, and application of required finish, and control of color.
    d. Bars and tubes to meet ASTM-B221.

2.03 PERFORMANCE

A. Face Sheet.
    1. Standard Interior and Exterior Class C 0.120″ thick, Sandstone texture, through color FRP sheet.
        a. Flexural Strength, ASTM-D790: 27 x 10^3 psi.
        b. Flexural Modulus, ASTM-D790: 0.7 x 10^6 psi.
        c. Tensile Strength, ASTM-D638: 18 x 10^3 psi.
        d. Tensile Modulus, ASTM-D638: 1.0 x 10^6 psi.
        e. Barcol Hardness, ASTM-D2583: 40.
        f. Izod Impact, ASTM-D256: 7.0 ft-lb/in.
        g. Gardner Impact Strength, ASTM-D5420: 30 in-lb.

h. Water Absorption, ASTM-D570: 0.16%/24hrs at 77°F.
i. Surface Burning, ASTM-E84: Flame Spread ≤ 200, Smoke Developed ≤ 450.
j. Chemical Resistance.
1. Excellent Rating.
a. Acetic Acid, Concentrated.
b. Acetic Acid, 5%.
c. Bleach Solution.
d. Detergent Solution.
e. Distilled Water.
f. Ethyl Acetate.
g. Formaldehyde.
h. Heptane.
i. Hydrochloric Acid, 10%.
j. Hydrogen Peroxide, 3%.
k. Isooctane.
l. Lactic Acid, 10%.
k. USDA/FSIS Requirements.
1. FRP face sheet with surfaseal is a finished outer surface material that is rigid; durable; non-toxic; non-corrosive; moisture resistant; a light, solid color such as white; easily inspected; smooth or an easily cleaned texture.
2. FRP face sheet with surfaseal does not contain any known carcinogen, mutagen, or teratogen classified as hazardous substances; heavy metals or toxic substances; antimicrobials; pesticides or substances with pesticidal characteristics.

B. Door Core.
1. Density, ASTM-D1622: ≤ 5.0 pcf.
2. Compressive Properties, ASTM-D1621: Compressive Strength ≥ 60 psi, Compressive Modulus ≥ 1948 psi.
3. Tensile and Tensile Adhesion Properties, ASTM-D1623: Tensile Adhesion, 3″ x 3″ FRP Facers ≥ 53 psi, Tensile Adhesion, 1″ x 1″ Foam ≥ 104 psi.
4. Thermal and Humid Aging, ASTM-D2126: Volume Change at 158 °F, 100% humidity, 14 days ≤ 13%.
5. Thermal Conductivity, ASTM-C518, Thermal Resistance ≥ 0.10 m^2K/W.

C. Door Panel.
1. Indoor Air Quality, ASTM-D5116, ASTM-D6607: GreenGuard, GreenGuard Gold.

D. Door Assembly.
1. Structural Performance, ASTM E-330.
a. Single or Pair of Doors, 6′4″ x 7′2″ overall size, single point latching.
1. ± 90 psf design pressure, pass.

E. Door Assembly.
1. Thermal Transmittance, NFRC 100.
a. Opaque Swinging Door (< than 50% glass)
1. U-Factor = 0.33 $Btu/hr{\cdot}ft^2{\cdot}°F$.
b. Commercially Glazed Swinging Entrance Door (> than 50% glass)
1. U-Factor = 0.62 $Btu/hr{\cdot}ft^2{\cdot}°F$.
2. Air Leakage, NFRC 400, ASTM-E283.
a. Opaque Swinging Door (< than 50% glass)
1. 0.02 cfm/sqft @ 1.57 psf.
2. 0.02 cfm/sqft @ 6.24 psf.
b. Commercially Glazed Swinging Entrance Door (> than 50% glass)
1. 0.22 cfm/sqft @ 1.57 psf.
2. 0.42 cfm/sqft @ 6.24 psf.

3. Sound Transmission, ASTM-E90: STC = 30, OITC = 30.

2.04 MATERIALS

A. Aluminum Members.
   1. Aluminum extrusions made 6061 or 6063 aluminum alloys.
   2. Sheet and plate to conform to ASTM-B209.
   3. Alloy and temper to be selected by manufacturer for strength, corrosion resistance, and application of required finish, and control of color.

B. Fiberglass.
   1. See 2.02.C.5.

C. Fasteners.
   1. All exposed fasteners will have a finish to match materials being fastened.
   2. 410 stainless steel or other non-corrosive metal.
   3. Must be compatible with items being fastened.

2.05 FABRICATION

A. Factory Assembly.
   1. Door components from the same manufacturer.
   2. Required size for door units, shall be as indicated on the drawings.
   3. Complete cutting, fitting, forming, drilling, and grinding of metal before assembly.
   4. All cut edges to be free of burs.
   5. Welding of doors is not acceptable.
   6. Maintain continuity of line and accurate relation of planes and angles.
   7. Secure attachments and support at mechanical joints with hairline fit at contact surfaces.

B. Shop Fabrication
   1. All shop fabrication to be completed in accordance with manufactures process work instructions.
   2. Quality control to be performed before leaving each department.

2.06 FINISHES

A. Door.
   1. FRP Face Sheets
      a. Through color. Color as selected by the Architect.

2.07 ACCESSORIES

A. Vision Lites.
   1. Factory Glazing.
      a. Model.
         1. FL Standard.
         2. Glazing Thickness 1".
      b. Rectangular Lites. Size, as indicated on drawings.

B. Hardware.
   1. Pre-machine doors in accordance with templates from specified hardware manufactures and hardware schedule.
   2. Factory install hardware.
   3. Hardware Schedule.
      a. Refer to Section 08700.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas to receive doors.
B. Notify Construction Manager and Architect of conditions that would adversely affect installation or subsequent use.
C. Do not proceed with installation until unsatisfactory conditions are corrected.

3.02 ERECTION

A. Install doors in accordance with manufacturer's instructions.
B. Install exterior doors to be weathertight in closed position.
C. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
D. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

3.03 FIELD QUALITY CONTROL

A. Manufacture's Field Services.
    1. Manufacturer's representative shall provide technical assistance and guidance for installation of doors.

3.04 ADJUSTING

A. Adjust doors, hinges, and locksets for smooth operation without binding.

3.05 CLEANING

A. Clean doors promptly after installation in accordance with manufacturer's instructions.
B. Do not use harsh cleaning materials or methods that would damage finish.

3.06 PROTECTION

A. Protect installed doors to ensure that, except for normal weathering, doors will be without damage or deterioration at time of substantial completion.

END OF SECTION 08174

SECTION 08700 - DOOR HARDWARE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Hardware for non-rated doors.

B. Lock cylinders for doors with balance of hardware specified in other sections.

C. Thresholds.

1.02 RELATED REQUIREMENTS

A. Section 08415 - Aluminum-Framed Storefronts: Door hardware, except as noted in section.

B. Section 08416 – Aluminum Doors.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.

B. BHMA A156.3 - Exit Devices 2020.

C. BHMA A156.4 - Door Controls - Closers 2019.

D. BHMA A156.5 - Cylinders and Input Devices for Locks 2020.

E. BHMA A156.6 - Standard for Architectural Door Trim 2021.

F. BHMA A156.16 - Auxiliary Hardware 2018.

G. BHMA A156.18 - Materials and Finishes 2020.

H. BHMA A156.21 - Thresholds 2019.

I. BHMA A156.26 - Standard for Continuous Hinges 2021.

J. BHMA A156.28 - Standard for Recommended Practices for Mechanical Keying Systems 2018.

K. DHI (H&S) - Sequence and Format for the Hardware Schedule 2019.

L. DHI (KSN) - Keying Systems and Nomenclature 2019.

M. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

N. ITS (DIR) - Directory of Listed Products Current Edition.

O. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2022.

P. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives 2022.

Q. UL (DIR) - Online Certifications Directory Current Edition.

R. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.

S. UL 1034 - Standard for Safety Burglary-Resistant Electrical Locking Mechanisms Current Edition, Including All Revisions.

T. UL 1784 - Standard for Air Leakage Tests of Door Assemblies Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.

B. Sequence installation to ensure facility services connections are achieved in an orderly and expeditious manner.

C. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by affected installers and the following:

1. Construction Manager and Architect.
2. Installer's Architectural Hardware Consultant (AHC).

3. Hardware Installer.
4. Owner's Security Consultant.

D. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

E. Keying Requirements Meeting:
1. Attendance Required:
2. Agenda:
a. Establish keying requirements.
b. Verify locksets and locking hardware are functionally correct for project requirements.
c. Verify that keying and programming complies with project requirements.
d. Establish keying submittal schedule and update requirements.
3. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:
4. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.
5. Deliver established keying requirements to manufacturers.

1.05 SUBMITTALS

A. See AIA A232 and Section 00800 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.

C. Shop Drawings - Door Hardware Schedule: A detailed listing that includes each item of hardware to be installed on each door.
1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
2. Comply with DHI (H&S) using door numbering scheme and hardware set numbers as indicated in Contract Documents.
a. Submit in vertical format.
3. Include complete description for each door listed.

D. Shop Drawings - Electrified Door Hardware: Include diagrams for power, signal, and control wiring for electrified door hardware that include details of interface with building safety and security systems. Provide elevations and diagrams for each electrified door opening as follows:
1. Prepared by or under supervision of Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC).
2. Elevations: Include front and back elevations of each door opening showing electrified devices with connections installed and an operations narrative describing how opening operates from either side at any given time.
3. Diagrams: Include point-to-point wiring diagrams that show each device in door opening system with related colored wire connections to each device.

E. Samples for Verification:
1. Submit minimum size of 2 by 4 inch (51 by 102 mm) for sheet samples, and minimum length of 4 inch (102 mm) for other products.
2. Submit one (1) sample of hinge, latchset, lockset, closer, and pulls illustrating style, color, and finish.
3. Include product description with samples.

F. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

G. Manufacturer's qualification statement.

H. Installer's qualification statement.

I. Supplier's qualification statement.

J. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

K. Keying Schedule:
   1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.

L. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

M. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.

N. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01700 - Product Requirements, for additional provisions.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a recommended minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with a recommended minimum of three years of documented experience.

C. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC) to assist in work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

1.08 WARRANTY

A. See Section 01900 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide manufacturer warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion. Complete forms in Owner's name and register with manufacturer.
   1. Closers: **Five (5) years**, minimum.
   2. Exit Devices: **Three (3) years**, minimum.
   3. Locksets and Cylinders: **Three (3) years**, minimum.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

B. Provide individual items of single type, of same model, and by same manufacturer.

C. Closers:
   1. Provide door closer on each exterior door, unless otherwise indicated.
   2. Spring hinges are not an acceptable self-closing device, unless otherwise indicated.

D. Fasteners:
   1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
      a. Aluminum fasteners are not permitted.
      b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.
   2. Provide machine screws for attachment to reinforced hollow metal and aluminum frames.
      a. Self-drilling (Tek) type screws are not permitted.

3. Provide stainless steel machine screws and lead expansion shields for concrete and masonry substrates.
4. Provide wall grip inserts for hollow wall construction.

2.02 PERFORMANCE REQUIREMENTS

A. Provide door hardware products that comply with the following requirements:
   1. Applicable provisions of federal, state, and local codes.
   2. Accessibility: ADA Standards and ICC A117.1.
   3. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified.

2.03 HINGES

A. Manufacturers: Conventional butt hinges.
   1. BEST; dormakaba Group; or approved equal.

B. Properties:
   1. Continuous Hinges: As applicable to each item specified.
      a. Geared Continuous Hinges: As applicable to each item specified.
         1) Non-handed.
         2) Anti-spinning through-fastener.
         3) Sufficient size to permit door to swing 180 degrees

C. Sizes: See Door Hardware Schedule.
   1. Hinge Widths: As required to clear surrounding trim.
   2. Sufficient size to allow 180 degree swing of door.

D. Finishes: See Door Hardware Schedule.
   1. Fully polish hinges; front, back, and barrel.

E. Grades:
   1. Continuous Hinges: Comply with BHMA A156.26, Grade 1.

F. Types:
   1. Continuous Hinges: Include geared hinges.

G. Options: As applicable to each item specified.

H. Quantities:
   1. Continuous Hinges: One per door leaf.

I. Applications: At swinging doors.

J. Products:
   1. Continuous Hinges:
      a. Aluminum geared hinges.

2.04 EXIT DEVICES

A. Manufacturers:
   1. BEST, dormakaba Group; or approved equal.

B. Properties:
   1. Actuation: Crossbar.
   2. Touchpads: 'T" style metal touchpads and rail assemblies with matching chassis covers end caps.
   3. Latch Bolts: Stainless steel deadlocking with 3/4 inch (19 mm) projection using latch bolt.
   4. Lever Design: Match project standard lockset trims.
   5. Cylinder: Include where cylinder dogging or locking trim is indicated.
   6. Strike as recommended by manufacturer for application indicated.

7. Sound dampening on touch bar.
8. Dogging:
   a. Non-Fire-Resistance-Rated Devices: Cylinder 1/4 inch (6 mm) hex key dogging.
9. Touch bar assembly on wide style exit devices to have a 1/4 inch (6.3 mm) clearance to allow for vision frames.
10. All exposed exit device components to be of architectural metals and “true” architectural finishes.
11. Handing: Field-reversible.
12. Fasteners on Back Side of Device Channel: Concealed - exposed fasteners not allowed.
13. Vertical Latch Assemblies' Operation: Gravity, without use of springs.

C. Grades: Complying with BHMA A156.3, Grade 1.
   1. Provide exit devices tested and certified by UL or by a recognized independent laboratory for mechanical operational testing to 10 million cycles minimum with inspection confirming Grade 1 Loaded Forces have been maintained.

D. Products:
   1. 2000; or approved equal

2.05 ELECTRIC STRIKES

A. Manufacturers:
   1. RCI; dormakaba Group; or approved equal.

B. Properties:
   1. Provide UL (DIR) listed burglary-resistant devices.
   2. Provide UL 1034 compliant devices.
   3. Provide UL 10C compliant devices.
   4. Non-handed devices suitable for door frame material and scheduled lock configuration.
   5. Include transformer and rectifier as necessary for complete installation.
   6. Holding Force: 1,500 lbs (680.4 kg).
   7. Accommodating latch projections of 1/2 inch (13 mm) or 5/8 inch (16 mm).

C. Options: As applicable to each item specified.
   1. Voltage: 12 VAC.

D. Installation: Connect electric strikes into fire alarm where non-rated doors are scheduled to release with fire or sprinkler alarm condition.

E. Products:
   1. 0 Series (0161, 0162, F0162, 0163); or approved equal.

2.06 LOCK CYLINDERS

A. Manufacturers:
   1. BEST, dormakaba Group; or approved equal.

B. Properties:
   1. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
      a. Provide cylinders from same manufacturer as locking device.
      b. Provide cams and/or tailpieces as required for locking devices.
      c. Provide cylinders with appropriate format interchangeable cores where indicated.

C. Grades:
   1. Standard Security Cylinders: Comply with BHMA A156.5.

D. Material:

E. Types: As applicable to each item specified.

F. Applications: At locations indicated in hardware sets, and as follows

1. As required for items with locking devices provided by other sections, including at elevator controls and cabinets.
    a. When provisions for lock cylinders are referenced elsewhere in the Project Manual to this Section, provide compatible type of lock cylinder, keyed to building keying system, unless otherwise indicated.

G. Products:
    1. Rim/mortise.

2.07 MORTISE LOCKS

A. Manufacturers:
    1. BEST, dormakaba Group; or approved equal.

B. Properties:
    1. Mechanical Locks: Manufacturer's standard.
        a. Fitting modified ANSI A115.1 door preparation.
        b. Door Thickness Coordination Fitting 1-3/4 inch (44 mm) to 2-1/4 inch (57 mm) thick doors.
        c. Latch: Solid, one-piece, anti-friction, self-lubricating stainless steel.
            1) Latchbolt Throw: 3/4 inch (19 mm), minimum.
        d. Auxiliary Deadlatch: One piece stainless steel, permanently lubricated.
        e. Backset: 2-3/4 inch (70 mm).
        f. Lever Trim:
            1) Functionality: Allow the lever handle to move up to 45 degrees from horizontal position prior to engaging the latchbolt assembly.
            2) Strength: Locksets outside locked lever designed to withstand minimum 1,400 inch-lbs (158.2 Nm) of torque. In excess of that, a replaceable part will shear. Key from outside and/or inside lever will still operate lockset.
            3) Spindle: Designed to prevent forced entry from attacking of lever.
            4) Independent spring mechanism for each lever.
                (a) Trim to be self-aligning and thru-bolted.
            5) Handles: Made of forged or cast brass, bronze, or stainless steel construction. Levers that contain a hollow cavity are not acceptable.
            6) Levers to operate a roller bearing spindle hub mechanism.
    2. Electrified Locks: Same properties as standard locks, and as follows:
        a. Voltage: 12 VDC.
        b. Function: Electrically locked (Fail Safe) or unlocked (Fail Secure), as indicated for each lock in Door Hardware Schedule.

C. Finishes: See Door Hardware Schedule.
    1. Core Faces: Match finish of lockset.

D. Options:
    1. Provide locksets made in a manufacturing facility to compliant with ISO 9001-Quality Management and ISO 14001-Environmental Management.

E. Products: Mortise locks, including standard and electrified types.
    1. 40H; or approved equal.

2.08 DOOR PULLS AND PUSH PLATES

A. Manufacturers:
    1. Trimco; or approved equal.

B. Properties:
    1. Pull Type: Straight, unless otherwise indicated.
    2. Push Plate Type: Flat, with square corners, unless otherwise indicated.

a. Edges: Beveled, unless otherwise indicated.

C. Grades: Comply with BHMA A156.6.

D. Material: Stainless steel, unless otherwise indicated.

E. Products: 1191-3; or approved equal

2.09 CLOSERS

A. Manufacturers:
1. BEST, dormakaba Group; or approved equal.

B. Properties:
1. Surface Mounted Closers: Manufacturer's standard.
a. Construction: R14 high silicon aluminum alloy.
b. Maximum Projection from Face of Door: 2-7/16 inches (62 mm).
c. Mechanism: Separate tamper-resistant adjusting valves for closing and latching speeds.
1) Include advanced backcheck feature.
2) Include delayed action feature.
d. Hydraulic Fluid: All-weather type.
e. Arm Assembly: Standard for product specified.
1) Include hold-open, integral stop, or spring-loaded stop feature, as specified in Door Hardware Schedule.
2) Parallel arm to be a heavy-duty rigid arm.
3) Where “IS” or “S-IS” arms are specified in hardware sets, if manufacturer does not offer this arm provide a regular arm mount closer in conjunction with a heavy-duty overhead stop equal to a dormakaba 900 Series.
f. Covers:
1) Type: Standard for product selected.
(a) Full.
2) Material: Plastic.
3) Finish: Painted.

C. Grades:
1. Closers: Comply with BHMA A156.4, Grade 1.
a. Underwriters Laboratories Compliance:
1) Product Listing: UL (DIR) and ULC for use on fire-resistance-rated doors.
(a) UL 228 - Door Closers-Holders, With or Without Integral Smoke Detectors.

D. Types:
1. Rack-and-pinion, surface-mounted. 1-1/2 inches (38 mm) minimum bore.

E. Installation:
1. Mounting: Includes surface mounted installations.
2. Mount closers on non-public side of door and stair side of stair doors unless otherwise noted in hardware sets.
3. At outswinging exterior doors, mount closer on interior side of door.
4. Provide adapter plates, shim spacers, and blade stop spacers as required by frame and door conditions.
5. Where an overlapping astragal is included on pairs of swinging doors, provide coordinator to ensure door leaves close in proper order.

F. Products:
1. Surface Mounted:
a. HD8000; or approved equal.

2.10 STOPS AND HOLDERS

A. Manufacturers:
   1. Trimco; or approved equal.

B. General: Provide overhead stop/holder when wall or floor stop is not feasible.

C. Grades:
   1. Door Holders, Wall Bumpers, and Floor Stops: Comply with BHMA A156.16 and Resilient Material Retention Test as described in this standard.

D. Material: Base metal as indicated for each item by BHMA material and finish designation.

E. Types:
   1. Wall Bumpers: Bumper, concave, wall stop.

F. Installation:
   1. Non-Masonry Walls: Confirm adequate wall reinforcement has been installed to allow lasting installation of wall bumpers.

G. Products:
   1. Wall Bumpers.

2.11 THRESHOLDS

Manufacturers: dormakaba Group; or approved equal.

A. Properties:
   1. Threshold Surface: Fluted horizontal grooves across full width.

B. Grades: Thresholds: Comply with BHMA A156.21.

C. Types: As applicable to project conditions. Provide barrier-free type at every location where specified.

D. Products:
   1. dormakaba or approved equal.

2.12 KEYS AND CORES

A. Manufacturers:
   1. BEST, dormakaba Group; or approved equal.

B. Properties: Complying with guidelines of BHMA A156.28.
   1. Provide small format interchangeable core.
   2. Provide Patented CORMAX keys and cores.
   3. Provide keying information in compliance with DHI (KSN) standards.
   4. Keying Schedule: Arrange for a keying meeting, with Architect, Owner and hardware supplier, and other involved parties to ensure locksets and locking hardware, are functionally correct and keying complies with project requirements.
   5. Keying: Master keyed.
   6. Include construction keying and control keying with removable core cylinders.
   7. Supply keys in following quantities:
      a. Master Keys: 4 each.
      b. Construction Master Keys: 6 each.
      c. Construction Keys: 15 each.
      d. Construction Control Keys: 2 each.
      e. Control Keys if New System: 2 each.
   8. Provide key collection envelopes, receipt cards, and index cards in quantity suitable to manage number of keys.
   9. Deliver keys with identifying tags to Owner by security shipment direct from manufacturer.

10. Permanent Keys and Cores: Stamped with applicable key marking for identification. Do not include actual key cuts within visual key control marks or codes. Stamp permanent keys "Do Not Duplicate."
11. Include installation of permanent cores and return construction cores to hardware supplier. Construction cores and keys to remain property of hardware supplier.

C. Products:
1. Patented:
a. CORMAX; or approved equal.

2.13 KEY CONTROL SYSTEMS

A. Manufacturers:
1. BEST, dormakaba Group; or approved equal.

B. Properties: Manufacturer's scalable system for keeping track of keys, users, and doors.
1. Key Management System: For each keyed lock on project, provide one set of consecutively numbered duplicate key tags with hanging hole and snap catch.
2. Password Policy for Logins: Configurable.
3. User Interface: Tile icons and customizable dashboard.
4. Importing and Appending Data: At any time.
5. User Directory Synchronization: Active, reducing manual entry.
6. Email Notifications: Configurable for keys and other items currently due back on a designated day, notifications when keys and items are issued, and notifications when keys and other items are returned.
7. Global Search Functionality: Capable of listing cores and their location, building, and doors.
8. Relational Database: Allowing cross-referencing of people to cores and keys, doors, and buildings they access.
9. Reports: Customizable.
10. Self-service Password retrieval functionality.
11. Program Installation: Standalone.
12. Software Access: Allowing authorized users secure access to the software from anywhere, provided user can access their organization’s secure network.
13. Minimum Installation Requirements: As indicated in manufacturer's written installation instructions.

2.14 KEY CABINETS

A. Manufacturers:
1. Telkee; or approved equal.

B. Properties:
1. Key Management System: For each keyed lock on project, provide one set of consecutively numbered duplicate key tags with hanging hole and snap catch.
2. Security Key Tags: For each keyed lock on project, provide one set of matching key tags for permanent attachment to one key of each set.
3. Provide key collection envelopes, receipt cards, and index cards in quantity suitable to manage number of keys.
4. Mounting: Wall surface mounted.
5. Capacity: Actual quantity of keys, plus 25 percent additional capacity.
6. Key cabinet lock to facility's keying system.

C. Finishes: Baked enamel, manufacturer's standard color.

D. Material: Sheet steel.

E. Products:
1. Telkee RWC-50-5; or approved equal.

2.15 FINISHES

A. Finishes: Identified in Hardware Sets.

B. Finishes: Provide door hardware of same finish, unless otherwise indicated.

1. Finish: 630; satin stainless steel, with stainless steel 3000 series base material (former US equivalent 32D), 652; satin chromium plated over nickel, with steel base material (former US equivalent 26D), and 689; aluminum painted, with any base material (former US equivalent US28); BHMA A156.18.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.

B. Correct all defects prior to proceeding with installation.

C. Verify that electric power is available to power operated devices and of correct characteristics.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Install hardware using the manufacturer’s fasteners provided. Drill and tap all screw holes located in metallic materials. Do not use “Riv-Nuts” or similar products.

C. Use templates provided by hardware item manufacturer.

D. Do not install surface mounted items until application of finishes to substrate are fully completed.

E. Wash down masonry walls and complete painting or staining of doors and frames.

F. Complete finish flooring prior to installation of thresholds.

G. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list, unless noted otherwise in Door Hardware Schedule or on drawings.

1. For Aluminum-Framed Storefront Doors and Frames: See Section 084313.
2. Mounting heights in compliance with ADA Standards:
    a. Locksets: 40-5/16 inch (1024 mm).
    b. Push Plates/Pull Bars: 42 inch (1067 mm).
    c. Deadlocks (Deadbolts): 48 inch (1219 mm).
    d. Exit Devices: 40-5/16 inch (1024 mm).
    e. Door Viewer: 43 inch (1092 mm); standard height 60 inch (1524 mm).

H. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

I. Include in installation for existing doors and frames any necessary field modification and field preparation of doors and frames for new hardware. Provide necessary fillers, reinforcements, and fasteners for mounting new hardware and to cover existing door and frame preparations.

3.03 CLEANING

3.04 PROTECTION

J. Protect finished Work under provisions of Section 01700 - Execution and Closeout Requirements.

K. Do not permit adjacent work to damage hardware or finish.

END OF SECTION 08700

Manufacturer List

Code	Name
BE	BEST ACCESS SYSTEMS
BY	BY RELATED SECTION
DM	DORMA DOOR CONTROLS
NA	NATIONAL GUARD
PR	BEST PRECISION EXIT DEVICES
ST	BEST HINGES AND SLIDING
TR	TRIMCO

Option List

Code	Description
B4E-HEAVY-KP	BEVELED 4 EDGES - KICK PLATES
CA-03	CYLINDER ATTACHMENT KIT (RIM/SVR DEVICE)
CD	CYLINDER DOGGING
CSK	COUNTER SINKING OF KICK AND MOP PLATES
FC	FULL PLASTIC COVER
LBR	LESS BOTTOM ROD

Finish List

Code	Description
626	SATIN CHROMIUM PLATED
628	SATIN ALUMINUM, CLEAR ANODIZED
630	SATIN STAINLESS STEEL
689	ALUMINUM PAINTED
AL	ALUMINUM

Hardware Sets

Set #AL01 - CARD READER ELECTRIC STRIKE

EXTERIOR, - DOOR 100A-1, S11-1

1	Continuous Hinge	661HD UL 'HEIGHT TO SUIT'	AL	ST
1	Rim Exit Device	2103 CA-03	630	PR
1	Rim Cylinder	12E-72 PATD	626	BE
1	Construction Core	7190224		BE
1	Core	1CX-7 TO SUIT EXISTING KEY SYSTEM	626	BE
1	Electric Strike	BES-F0162		BE
1	Door Pull	1191-4	630	TR
1	Closer	HD8016 SDS	689	DM
1	Card Reader	CARD READER BY OWNER'S SECURITY VENDOR		BY
1	Power Supply	DKPS-2A		DM
1	Request To Exit	REQUEST TO EXIT		BY
1	Door Position Switch	DPS BY OWNER'S SECURITY VENDOR		BY
1	Remote Release	REMOTE RELEASE SYSTEM BY OWNERS SECURITY VENDOR		BY
1	Drip Cap	16 A X LAR		NA
1	Gasketing	WEATHERSTRIP BY ALUM AND GLASS MFG		BY
1	Door Sweep	BY ALUM AND GLASS MFG		BY
1	Threshold	THRESHOLD AS DETAILED BY ARCHITECT		BY

NOTE:
1. CARD READER TO RELEASE ELECTRIC STRIKE TO ALLOW AUTORIZED ENTRY.
2. ACCESS CONTROL SYSTEM TO BE PROGRAMMED FOR OPEN AND CLOSED TIMES.
3. OWNERS SECURITY VENDOR TO PROVIDE REMOTE RELEASE DESK TOP SWITCH AT MAIN DESK.
4. ALWAYS FREE EGRESS.
NEW DOOR X EXISTING FRAME

DOOR NEEDS TO HAVE FULL SIZE STILES FOR REG HEAD EXIT DEVICE
GC TO FILL AND PATCH EXISTING FRAME PREPS THAT WILL NO LONGER BE USED WITH NEW DOOR HARDWARE.
GC TO PREP EXISTING FRAME FOR NEW DOOR HARDWARE

Set #AL01.1 - CARD READER ELECTRIC STRIKE

EXTERIOR, - DOOR 100A-2

1	Continuous Hinge	661HD UL 'HEIGHT TO SUIT'	AL	ST
1	Rim Exit Device	2103 CA-03	630	PR
1	Rim Cylinder	12E-72 PATD	626	BE
1	Construction Core	7190224		BE
1	Core	1CX-7 TO SUIT EXISTING KEY SYSTEM	626	BE
1	Electric Strike	BES-F0162		BE
1	Door Pull	1191-4	630	TR

1	Closer	HD8016 SDS	689	DM
1	Power Supply	DKPS-2A		DM
1	Request To Exit	REQUEST TO EXIT		BY
1	Door Position Switch	DPS BY OWNER'S SECURITY VENDOR		BY
1	Remote Release	REMOTE RELEASE SYSTEM BY OWNERS SECURITY VENDOR		BY
1	Drip Cap	16 A X LAR		NA
1	Gasketing	WEATHERSTRIP BY ALUM AND GLASS MFG		BY
1	Door Sweep	BY ALUM AND GLASS MFG		BY
1	Threshold	THRESHOLD AS DETAILED BY ARCHITECT		BY

NOTE:
1. NO CARD READER REQUIRED
2. ACCESS CONTROL SYSTEM TO BE PROGRAMMED FOR OPEN AND CLOSED TIMES.
3. OWNERS SECURITY VENDOR TO PROVIDE REMOTE RELEASE DESK TOP SWITCH AT MAIN DESK.
4. ALWAYS FREE EGRESS.
NEW DOOR X EXISTING FRAME

DOOR NEEDS TO HAVE FULL SIZE STILES FOR REG HEAD EXIT DEVICE
GC TO FILL AND PATCH EXISTING FRAME PREPS THAT WILL NO LONGER BE USED WITH NEW DOOR HARDWARE.
GC TO PREP EXISTING FRAME FOR NEW DOOR HARDWARE

Set #AL02 - CARD READER ELECTRIC STRIKE

DOOR 100B-1 VESTIBULE CARD READER
DOOR 092.1A-2 SECURED VESTIBULE

1	Continuous Hinge	661HD UL 'HEIGHT TO SUIT'	AL	ST
1	Rim Exit Device	2103 CA-03	630	PR
1	Rim Cylinder	12E-72 PATD	626	BE
1	Perm Core	1CX-7 TO SUIT EXISTING KEY SYSTEM	626	BE
1	Construction Core	7190224		BE
1	Electric Strike	BES-F0162		BE
1	Door Pull	1191-4	630	TR
1	Closer	HD8016 SDS	689	DM
1	Card Reader	CARD READER BY OWNER'S SECURITY VENDOR		BY
1	Power Supply	DKPS-2A		DM
1	Request To Exit	REQUEST TO EXIT		BY
1	Door Position Switch	DPS BY OWNER'S SECURITY VENDOR		BY
1	Remote Release	REMOTE RELEASE SYSTEM BY OWNERS SECURITY VENDOR		BY
1	Gasketing	WEATHERSTRIP BY ALUM AND GLASS MFG		BY
1	Door Sweep	BY ALUM AND GLASS MFG		BY

NOTE:
DOOR NEEDS TO HAVE FULL SIZE STILES FOR REG HEAD EXIT DEVICE

---
1. CARD READER TO RELEASE ELECTRIC STRIKE TO ALLOW AUTORIZED ENTRY.
2. ACCESS CONTROL SYSTEM TO BE PROGRAMMED FOR OPEN AND CLOSED TIMES.
3. OWNERS SECURITY VENDOR TO PROVIDE REMOTE RELEASE DESK TOP SWITCH AT MAIN DESK.
4. ALWAYS FREE EGRESS.

Set #AL03 - RIM DEVICE CYL DOGGING

DOOR 100B-2 VESTIBULE CYLINDER DOGGING

1	Continuous Hinge	661HD UL 'HEIGHT TO SUIT'	AL	ST
1	Rim Exit Device CD	2103 CA-03 CD	630	PR
1	Rim Cylinder	12E-72 PATD	626	BE
1	Mortise Cylinder	1E-74 PATD	626	BE
2	Construction Core	7190224		BE
2	Core	1CX-7 TO SUIT EXISTING KEY SYSTEM	626	BE
1	Door Pull	1191-4	630	TR
1	Closer	HD8016 SDS	689	DM
1	Gasketing	WEATHERSTRIP BY ALUM AND GLASS MFG		BY
1	Door Sweep	BY ALUM AND GLASS MFG		BY

NOTE:
1. RIM EXIT DEVICE DEVICES EQUIPPED WITH CLINDER DOGGING.
2. WHEN DOOR IS DOGGED OPEN UNLOCKED DOOR IS PUSH PULL
3. WHEN CYLINDERS ARE LOCKED DOOR IS ENTER BY KEY ONLY
4. ALWAYS FREE EGRESS.

DOOR NEEDS TO HAVE FULL SIZE STILES FOR REG HEAD EXIT DEVICE

NEW DOOR X EXISTING FRAME
DOOR NEEDS TO HAVE FULL SIZE STILES FOR REG HEAD EXIT DEVICE

GC TO FILL AND PATCH EXISTING FRAME PREPS THAT WILL NO LONGER BE USED WITH NEW DOOR HARDWARE.
GC TO PREP EXISTING FRAME FOR NEW DOOR HARDWARE

Set #AL04– PAIR

2	Continuous Hinge	661HD UL 'HEIGHT TO SUIT'	AL	ST
1	SVR Exit Device LBR CD	2203 CA-03 CD LBR	630	PR
1	SVR Exit Device LBR CD	2203 CD LBR	630	PR
2	Door Pull	1191-4	630	TR
1	Rim Cylinder	12E-72 PATD	626	BE
3	Perm Core	1CX-7 TO SUIT EXISTING KEY SYSTEM	626	BE
3	Construction Core	7190224		BE

2	Mortise Cylinder	1E-74 PATD	626	BE
2	Closer	HD8016 SDS	689	DM
2	Weatherstrip	WEATHERSTRIP BY ALUM AND GLASS MFG	628	BY

NOTE:

1. SURFACE VERTICAL ROD EXIT DEVICE DEVICES EQUIPPED WITH CLINDER DOGGING.
2. WHEN DOORS ARE DOGGED OPEN UNLOCKED DOORS ARE PUSH PULL
3. WHEN CYLINDERS ARE LOCKED DOORS ARE ENTER BY KEY ONLY
4. ALWAYS FREE EGRESS.

NEW DOOR X EXISTING FRAME
DOOR NEEDS TO HAVE FULL SIZE STILES FOR REG HEAD SVR EXIT DEVICE

GC TO FILL AND PATCH EXISTING FRAME PREPS THAT WILL NO LONGER BE USED WITH NEW DOOR HARDWARE.
GC TO PREP EXISTING FRAME FOR NEW DOOR HARDWARE

Set #01 - MORTISE LOCK STOREROOM FUNCTION

1	Continuous Hinge	661HD UL 'HEIGHT TO SUIT'	AL	ST
1	Mortise Lockset Storeroom	45H-7D 15H PATD CORMAX PATENTED KEYING S1	626	BE
1	Construction Core	7190224		BE
1	Perm Core	1CX-7 TO SUIT EXISTING KEY SYSTEM	626	BE
1	Closer	HD8016 AF80P FC	689	DM
1	Kick Plate	K0050 10" X 2" LDW B4E, HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CV	626	TR
1	Weatherstrip	WEATHERSTRIP BY ALUM AND GLASS MFG	628	BY

NOTE:
ALUM AND GLASS DOOR TO HAVE A 6" WIDE DOOR STILE TO ACCOMODATE THE MORTISE LOCK

1. MORTISE LOCK STOREROOM FUNCTION (ALWAYS NEED A KEY TO ENTER)
2. ALWAYS FREE EGRESS.

Set #EXIST - EXISTING TO REMAIN

1	Hardware Existing to Remain	ALL OTHER	
EXISTING HARDWARE TO REMAIN			BY

Opening List

Opening	Hdw Set
100C	CR01
100A-1	AL01
100A-2	AL01.1
100B-1	AL02
100B-2	AL03
100B-3	AL04
092.1A-1	EXIST
092.1A-2	AL02
S11-1	AL01

NEW SECURITY VESTIBULES AT

PRINCETON HIGH SCHOOL

151 MOORE ST PRINCETON, NJ 08540

PRINCETON PUBLIC SCHOOLS

25 VALLEY ROAD PRINCETON, NJ 08540

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Pennsylvania: 140 Whitaker Ave - Mont Clare - Pennsylvania 19453
F V H D P C . C O M

Project Name	NEW SECURITY VESTIBULES AT PRINCETON HIGH SCHOOL
Project Owner Name	PRINCETON PUBLIC SCHOOLS
Project Location	151 MOORE ST PRINCETON, NJ 08540
Project Number	5499A1
Project Date	12.18.2023
Checked By	GRD
Drawn By	SJK
Scale	AS NOTED
Drawing Name	TITLE SHEET AND DRAWING INDEX

Revisions

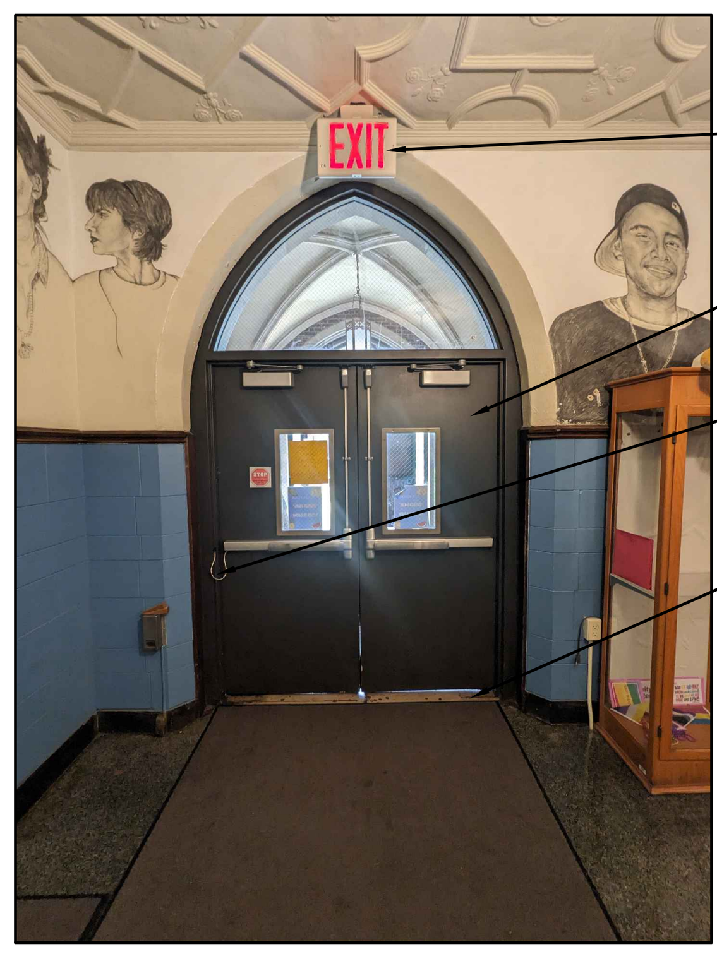
No.	Date	Description
1	02.06.24	ADDENDUM NO.1

Drawing Number

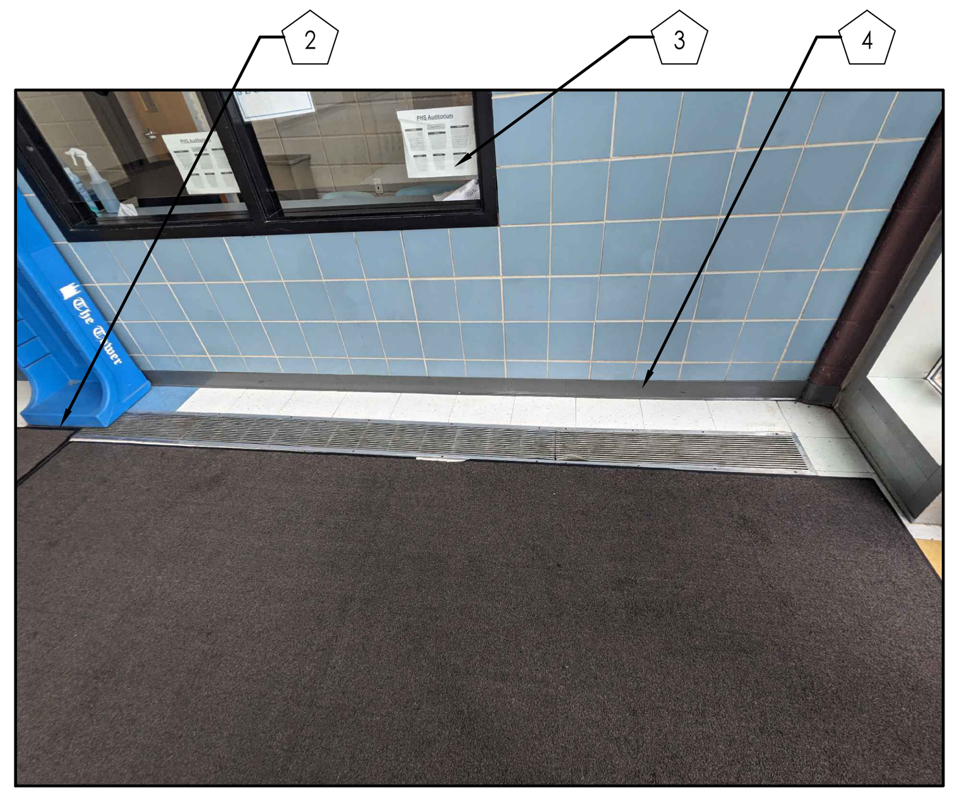
G001

A PHOTOGRAPH (DEMOLITION)

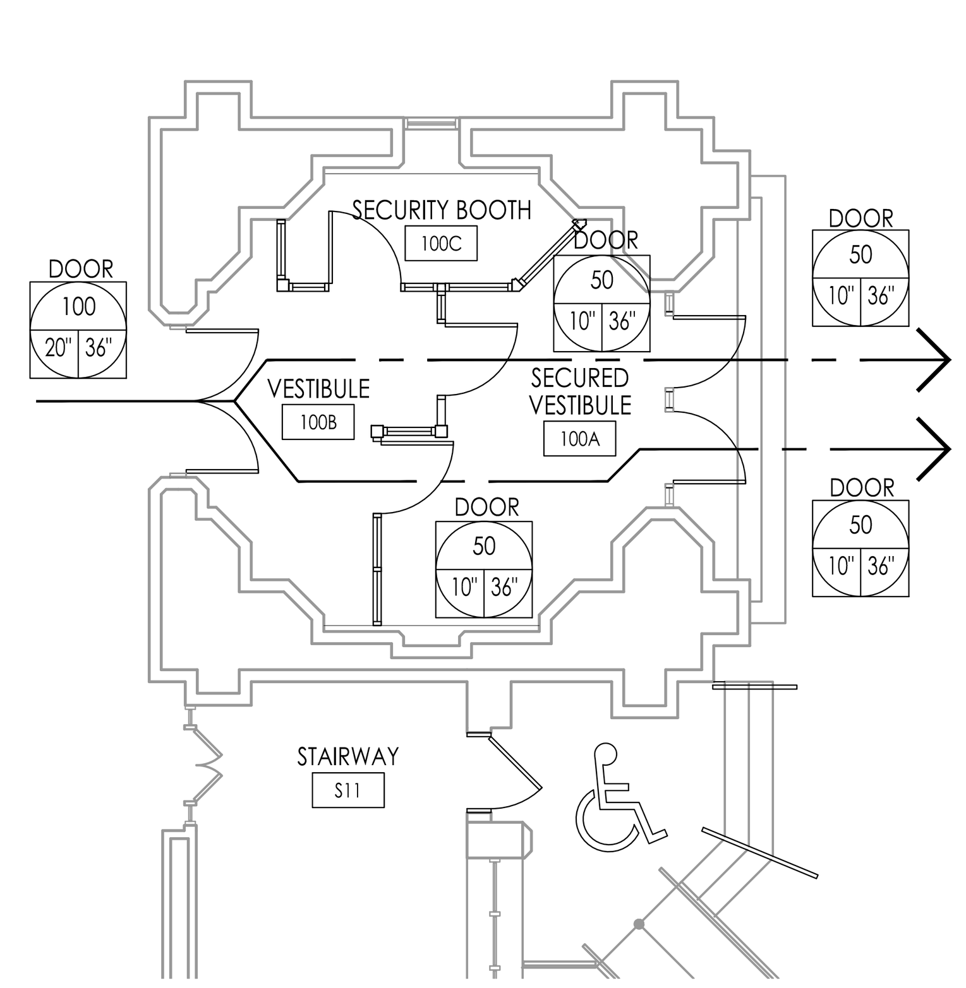
B PHOTOGRAPH (DEMOLITION)



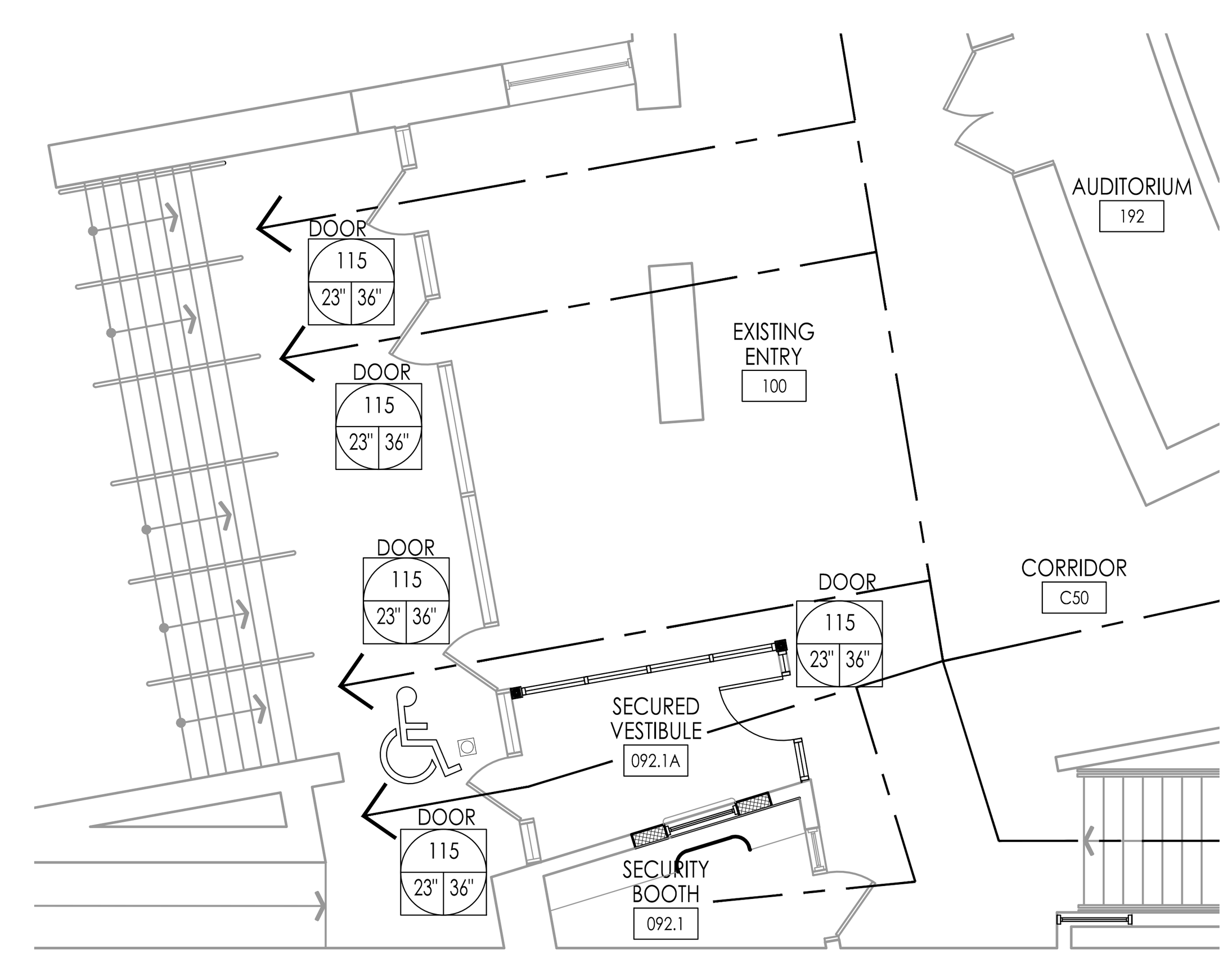
C PHOTOGRAPH (DEMOLITION)



D PHOTOGRAPH (DEMOLITION)



1 TOWER ENTRY VESTIBULE EGRESS
Scale: 1/4" = 1' - 0"



2 PAC ENTRY VESTIBULE EGRESS
Scale: 1/4" = 1' - 0"

BUILDING EXIT CAPACITY

- OCCUPANT LOAD - NJ REHAB. SUBCODE
- UNITS OF EGRESS WIDTH PROVIDED
- UNITS OF EGRESS WIDTH REQUIRED

EGRESS/DEMOLITION LEGEND

- EXISTING PATH OF EGRESS TRAVEL (UNCHANGED)
- BARRIER-FREE BUILDING ENTRANCE
- XXXX 000 — ROOM NAME/NUMBER
- WALLS OR ITEMS TO BE DEMOLISHED
- EXISTING WALL TO REMAIN
- NEW STOREFRONT
- # — PHOTOGRAPH NUMBER
- X — DEMOLITION KEYNOTE

SCOPE OF WORK

1. THE FOLLOWING PROJECT IS CONSIDERED AN ALTERATION PROJECT AS DEFINED BY THE NEW JERSEY UNIFORM CONSTRUCTION CODE, REHABILITATION SUBCODE 5:23-6.6, LATEST EDITION.
2. ALL EXISTING STRUCTURAL FRAMING IS TO REMAIN (I.E. ALL LOAD BEARING WALLS, FLOOR AND ROOF CONSTRUCTION) UNLESS OTHERWISE NOTED.
3. EXISTING CONSTRUCTION ADJACENT TO AREAS OF DEMOLITION WORK SHALL BE PROTECTED. ALL CUTS SHALL BE MADE OF A NEAT FASHION. ALL SURFACES LEFT ROUGH OR UNFINISHED BY DEMOLITION WORK AND WHICH ARE EXPOSED TO VIEW, SHALL BE PATCHED TO MATCH ADJACENT SURFACES AND FINISHED TO PROVIDE A UNIFORM APPEARANCE WITH REGARD TO SIZE, SHAPE, COLOR, TEXTURE AND MATERIAL. A PHYSICAL BARRIER TO CONTAIN DUST AND DIRT AROUND THE DEMOLITION AREA SHALL BE PROVIDED.
4. ALL NEW WALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE WALL TYPES, WALL SECTIONS AND FINISH SCHEDULE INDICATED ON THIS DRAWING. INTERIOR WALL FINISHES CONSISTING OF GYPSUM WALLBOARD SHALL BE TAPED, AND SPACKLED TO A PAINTABLE FINISH.
5. ALL EXISTING FLOOR FINISHES TO REMAIN IN THEIR ENTIRETY, UNLESS NOTED OTHERWISE.
6. ALL ELECTRICAL AND DATA WORK (I.E. LIGHTING FIXTURES, RECEPTACLES, ETC.) SHALL BE DONE BY A LICENSED ELECTRICAL CONTRACTOR. ANY ELECTRICAL RELOCATION WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, 2020 EDITION, ALL LOCAL CODES AND GOVERNING REGULATIONS.
7. THE EXISTING MECHANICAL SYSTEM SHALL REMAIN INTACT AND OPERATIONAL WITH SLIGHT MODIFICATION TO EXISTING FLOOR DIFFUSER.
8. THERE IS NO PROPOSED PLUMBING WORK. THE EXISTING SYSTEMS ARE TO REMAIN UNDISTURBED.

APPLICABLE CODES:

THIS PROJECT WAS DESIGNED UNDER THE FOLLOWING CODES:

CONSTRUCTION CODE (ALTERATIONS) -	NEW JERSEY REHABILITATION SUBCODE 5:23-6
BUILDING SUBCODE -	INTERNATIONAL BUILDING CODE 2021 - NEW JERSEY EDITION
BARRIER-FREE SUBCODE -	N.J.A.C. 5:23-7 AND ICC-ANSI A117.1-2017
MECHANICAL SUBCODE -	INTERNATIONAL MECHANICAL CODE 2021
ELECTRICAL SUBCODE -	NATIONAL ELECTRICAL CODE 2020

BUILDING ANALYSIS

(FROM INTERNATIONAL BUILDING CODE 2021 NEW JERSEY EDITION)

THE FLOOR PLAN AREA AND HEIGHT OF THE SCHOOL BUILDING IS NOT CHANGED UNDER THIS PROJECT, THEREFORE NO ANALYSIS OF THE EXISTING BUILDING HAS BEEN PROVIDED.

CONSTRUCTION TYPE: 2B
OCCUPANT CLASSIFICATION: "E" (EDUCATIONAL)

THE EXISTING BUILDING IS PROTECTED AND HAS AN AUTOMATIC SPRINKLER SYSTEM.

EGRESS ANALYSIS

(FROM NEW JERSEY REHABILITATION SUBCODE 5:23-6)

THE OCCUPANT LOAD OF THE SCHOOL IS NOT CHANGED UNDER THIS PROJECT, THEREFORE NO ANALYSIS OF EGRESS HAS BEEN PROVIDED.

THE EGRESS LOADS PROVIDE ON THIS PLAN ARE BASED ON CALCULATED LOADS BY A PREVIOUS ARCHITECT AND ARE PROVIDED HERE TO SHOW THE EGRESS CAPACITIES ARE UNCHANGED.

FIRE EXTINGUISHER SCHEDULE

(FROM NATIONAL FIRE PROTECTION ASSOCIATION CODES)

THE FLOOR PLAN AREA OF THE SCHOOL IS NOT CHANGED UNDER THIS PROJECT, THEREFORE NO ANALYSIS OF FIRE EXTINGUISHERS HAS BEEN PROVIDED.

TABULATION OF PLUMBING FIXTURES

THE FUNCTIONAL CAPACITY OF THE SCHOOL IS NOT CHANGED UNDER THIS PROJECT. NO PLUMBING FIXTURES ARE ADDED OR REMOVED. THEREFORE NO ANALYSIS OF PLUMBING FIXTURES HAS BEEN PROVIDED.

EXISTING FIRE ALARM SYSTEM NOTE

IF ANY PORTION OF THE EXISTING FIRE ALARM SYSTEM MUST BE TAKEN OUT OF SERVICE FOR ANY LENGTH OF TIME, THE LOCAL FIRE MARSHAL MUST BE CONTACTED AND MUST APPROVE SHUTDOWN PLANS, PROCEDURES AND FIRE WATCH PLANS THAT WILL BE IMPLEMENTED.

CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COMPLYING WITH THE REQUIREMENTS OF THE LOCAL FIRE MARSHAL CONCERNING THE EXISTING FIRE ALARM SYSTEM AND SPRINKLER SYSTEM SHUTDOWN PLANS, PROCEDURES AND FIRE WATCH PLANS THAT WILL BE IMPLEMENTED FOR SYSTEM INTERRUPTIONS DURING CONSTRUCTION.

NOTE THAT TEMPORARILY COVERING EXISTING DETECTION DEVICES TO PREVENT ACCIDENTAL ALARM ACTIVATIONS DUE TO DUST AND DIRT CONSTITUTES A PARTIAL SHUTDOWN OF THE EXISTING FIRE ALARM SYSTEM.

GENERAL DEMOLITION NOTES:

A. ALL CONTRACTORS ARE ADVISED TO VISIT THE SITE AND VERIFY ALL AREAS AND CONDITIONS PRIOR TO SUBMITTING THEIR BIDS. THE CONTRACTOR MUST NOTIFY THE ARCHITECT OF ANY DISCREPANCIES AND/OR OMISSIONS IN WRITING AT LEAST SEVEN DAYS PRIOR TO THE RECEIPT OF BIDS. FAILURE TO SO NOTIFY THE ARCHITECT INDICATES THAT ANY ADDITIONAL COSTS ASSOCIATED WITH THE DISCREPANCIES AND / OR OMISSIONS ARE INCLUDED IN THE CONTRACTOR'S BID AND THAT NO CHANGE TO THE CONTRACT AMOUNT WILL BE MADE AFTER THE RECEIPT OF BIDS OR THE AWARD OF CONTRACTS.

B. ALL ELECTRICAL DISCONNECTS SHALL BE MADE BY THE RESPECTIVE TRADE. ALL EQUIPMENT, DEVICES, FIXTURES, ETC. SHALL BE REMOVED FROM THE SITE BY THE RESPECTIVE CONTRACTOR. NOTE: THE EXISTING FIRE ALARM SYSTEM SHALL NOT BE DIMINISHED NOR SHALL EXISTING FIRE ALARM DEVICES BE REMOVED.

C. UNLESS NOTED OTHERWISE ALL DEMOLITION MATERIAL SHALL BE REMOVED OFF SITE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

D. COORDINATE WITH ARCHITECT FOR SOME SPECIFIC ITEMS THAT MAY BE DESIGNATED FOR SALVAGE. THESE WOULD BE ITEMS THAT ARE INTENDED FOR REUSE IN THE NEW CONSTRUCTION. THE CONTRACTOR MUST TAKE CARE IN THE REMOVAL AND STORAGE OF THESE ITEMS UNTIL THEY ARE NEEDED IN THE NEW CONSTRUCTION.

E. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT PORTIONS OF THE EXISTING CONSTRUCTION WHICH ARE ADJACENT TO AREAS TO BE DEMOLISHED. MAKE ALL CUTS AS NEATLY AS POSSIBLE. REFER TO FLOOR PLAN DRAWINGS FOR FINISHING OF THESE AREAS.

F. IF NOT OTHERWISE NOTED OR DETAILED, ALL SURFACES LEFT ROUGH OR UNFINISHED BY DEMOLITION AND WHICH ARE EXPOSED TO VIEW, SHALL BE PATCHED TO MATCH ADJACENT SURFACES AND FINISHED TO PROVIDE A UNIFORM APPEARANCE WITH REGARD TO SIZE, SHAPE, COLOR, TEXTURE AND MATERIAL.

G. THE CONTRACTOR SHALL PROVIDE A PHYSICAL BARRIER TO CONTAIN DUST AND DIRT AROUND THE DEMOLITION AREA AND SHALL MAKE EVERY EFFORT TO KEEP THE DEMOLITION SITE AND SURROUNDING AREAS AS CLEAN AS POSSIBLE.

H. NO DEMOLITION SHALL BEGIN UNTIL PROPER PROTECTION IS IN PLACE AND APPROVED BY ARCHITECT & OWNER TO ENSURE THE SAFETY OF THE PUBLIC, THE BUILDING OCCUPANTS, CONSTRUCTION WORKERS AND TO CONTAIN DUST AND DIRT WITHIN THE AREA OF DEMOLITION.

I. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS REGARDING THE REMOVAL AND DISPOSAL OF ALL MATERIALS & EQUIPMENT

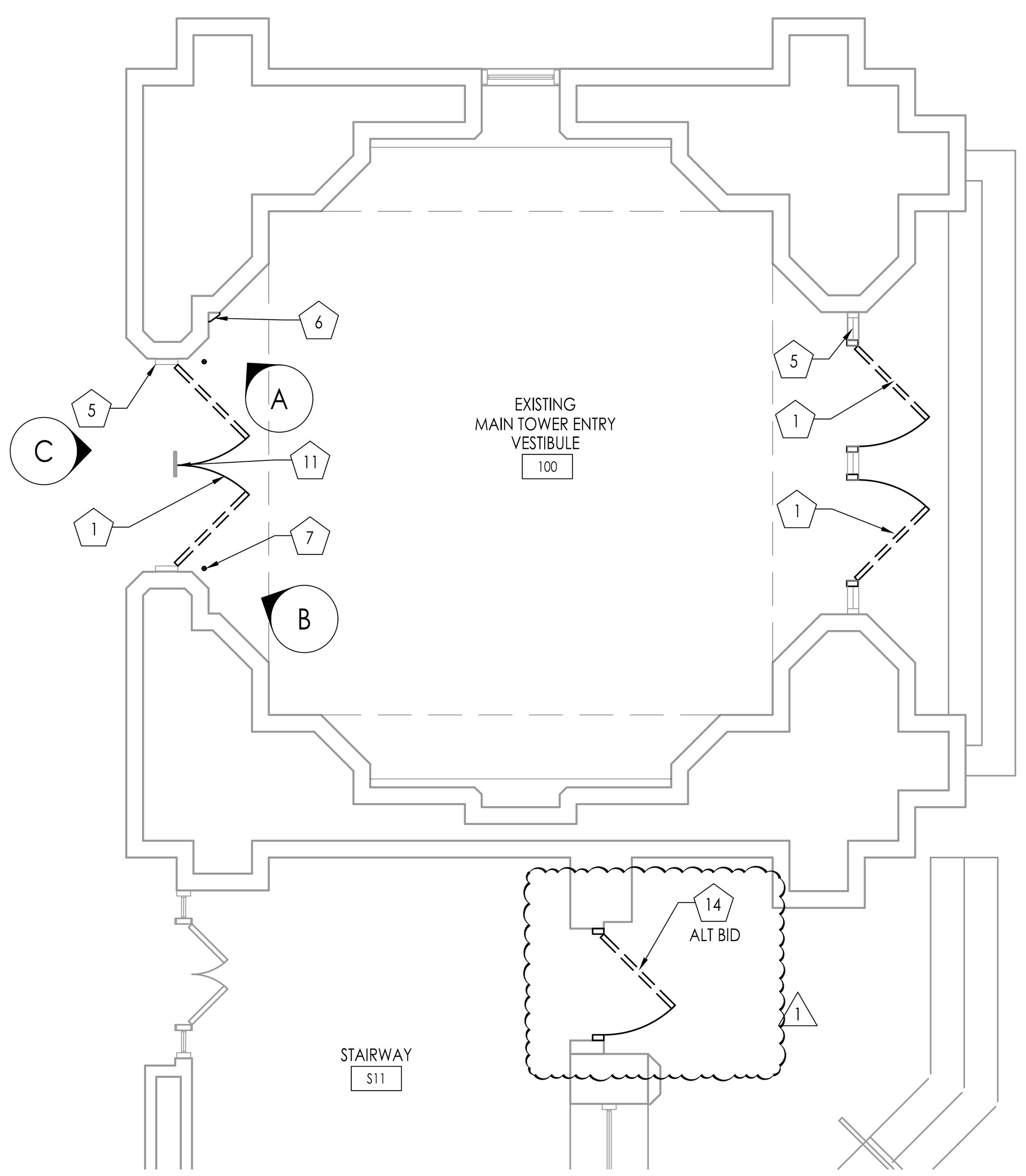
J. THE CONTRACTOR SHALL PROVIDE PROTECTION AGAINST INCLEMENT WEATHER FOR THE EXISTING BUILDING DURING THE INTERIM PERIOD BETWEEN DEMOLITION AND THE COMPLETION OF NEW CONSTRUCTION.

K. THE CONTRACTORS SHALL TAKE INTO ACCOUNT THEIR METHODS OF CONSTRUCTION FOR THE NEW WORK AND INCLUDE IN THEIR BID THE COST OF ADDITIONAL DEMOLITION WORK NECESSARY TO FACILITATE THE CONSTRUCTION. THIS WORK INCLUDES, BUT IS NOT LIMITED TO THE PARTIAL DEMOLITION OF WALLS AT THE POINTS WHERE NEW STEEL CONNECTS TO EXISTING BEAMS OR COLUMNS, THE AREA AROUND JOINTS BETWEEN NEW AND EXISTING CONSTRUCTION IN WALLS, FLOORS AND CEILINGS, AREAS OF SIDEWALK AND PAVING, ETC. MUCH OF THIS WORK IS INDICATED IN SECTIONS AND DETAILS RELATING TO THE NEW CONSTRUCTION.

L. THE DEMOLITION WORK SHOWN ON THIS PLAN IS INTENDED TO BE A GENERAL OVERVIEW OF MAJOR DEMOLITION WORK REQUIRED. IT IS NOT A COMPLETE AND EXCLUSIVE REPRESENTATION OF ALL DEMOLITION WORK NEEDED FOR EXECUTION OF THE PROJECT. WHEN PREPARING THEIR BIDS, CONTRACTORS MUST REFER TO THE FULL SET OF CONSTRUCTION DOCUMENTS FOR VARIOUS MISCELLANEOUS ITEMS WHICH MUST BE REMOVED AND/OR RELOCATED AS PART OF THE WORK.

M. CONTRACTOR IS RESPONSIBLE FOR THEIR OWN CUTTING AND PATCHING - SEE SPECIFICATION.

N. THE OWNER HAS THE RIGHT OF FIRST REFUSAL FOR ALL EQUIPMENT AND FIXTURES (DOORS, HARDWARE, ETC.) REMOVED UNDER CONTRACT. IF THE OWNER DOES NOT EXERCISE THIS RIGHT FOR AN INDIVIDUAL PIECE OF EQUIPMENT, THE GENERAL CONTRACTOR SHALL REMOVE SAID EQUIPMENT FROM SITE.



1 MAIN ENTRY - DEMOLITION PLAN
Scale: 1/4" = 1' - 0"

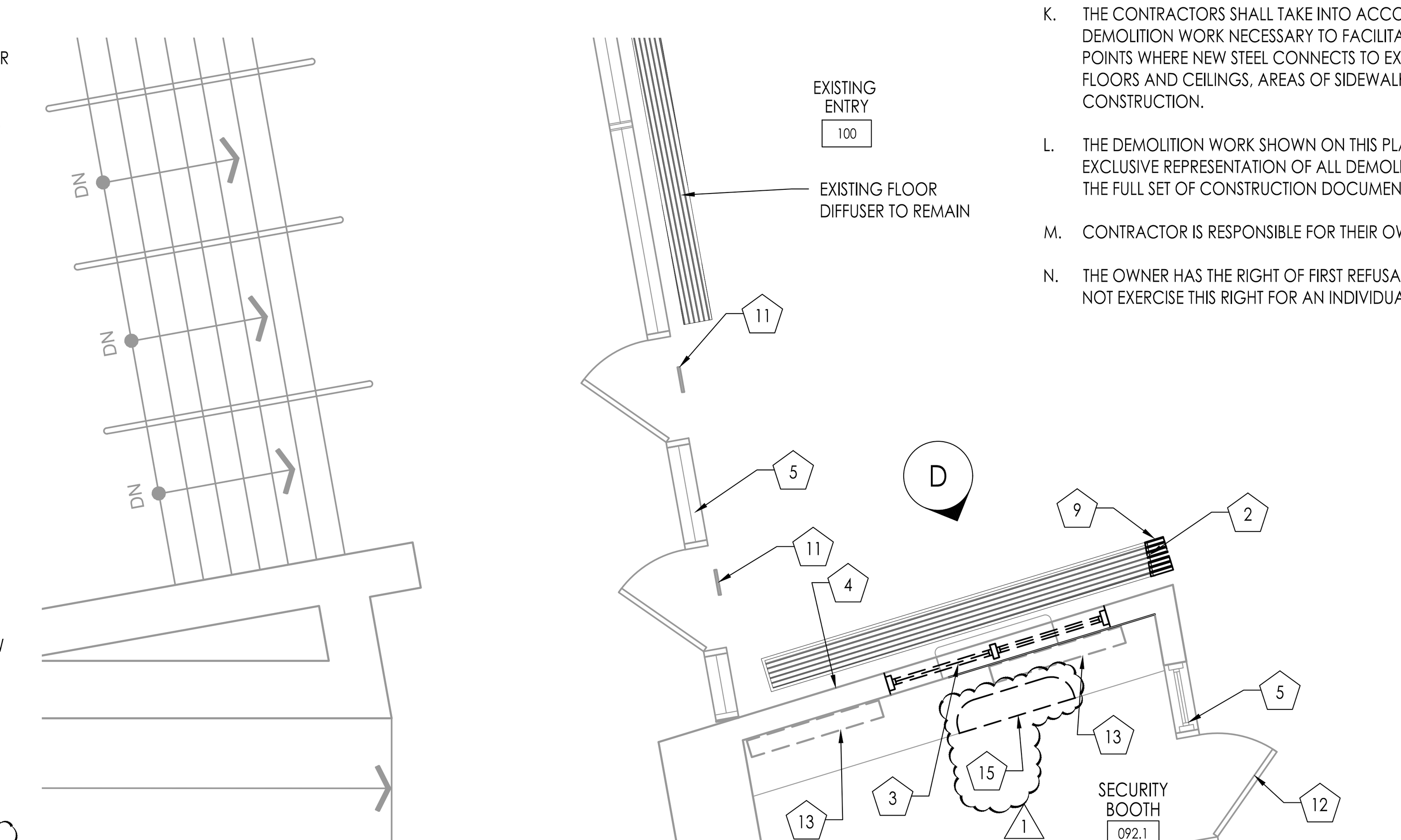
DEMOLITION / RENOVATION NOTES:

SEE GENERAL NOTES ON DEMOLITION ON THIS DRAWING.

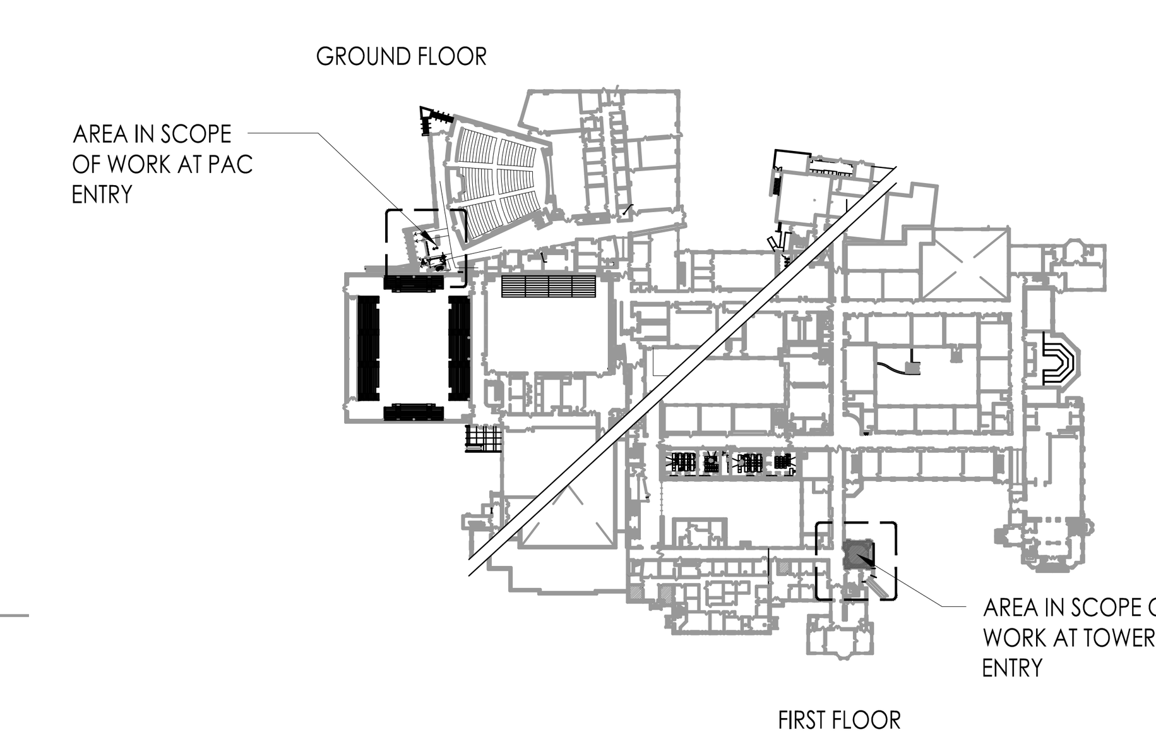
INDICATED BY SYMBOL #

1. REMOVE EXISTING DOOR AND ASSOCIATED HARDWARE, ALUMINUM FRAME TO REMAIN. INSTALL NEW DOOR AND HARDWARE. PATCH ALL DAMAGE TO FRAME FROM HARDWARE REMOVAL. PAINT FRAME. SEE DOOR SCHEDULE.
2. CUT AND REMOVE PORTION OF EXISTING FLOOR DIFFUSER, AS REQUIRED FOR NEW STOREFRONT CONSTRUCTION. PATCH EXISTING HVAC DUCT BELOW FLOOR AND FILL AREA SOLID AND COVER WITH STEEL PLAT, REF DETAIL 5/A102.
3. REMOVE EXISTING TICKET WINDOW FRAME AND ASSOCIATED GLAZING PANELS IN ITS ENTIRETY. PREPARE SURFACES FOR NEW CMU INFILL AND SECURED TRANSACTION WINDOW. PATCH AND REPAIR ALL DAMAGE TO ADJACENT WALLS AND FLOOR CAUSED BY DEMOLITION, MATCH EXISTING ADJACENT FINISHES.
4. REMOVE EXISTING BASE, AS INDICATED, ON EXISTING WALL TO REMAIN. CLEAN AND PREP AREA FOR NEW BASE FINISH.
5. EXISTING STOREFRONT TO REMAIN.
6. REMOVE EXISTING SECURITY INTERCOM EQUIPMENT IN ITS ENTIRETY, REMOVE EXISTING PEDESTAL AND PATCH WALL BEHIND TO A NEW LIKE FINISH. REMOVE WIRING BACK TO NEAREST JUNCTION BOX AND CAP.
7. REMOVE EXISTING UNUSED DOOR STOPS. REMOVE ALL RUSTED MATERIAL AND PATCH FLOOR TO A NEW LIKE FINISH.
8. REMOVE EXISTING WIRE HARNESS THAT IS ABANDONED BACK TO NEAREST JUNCTION BOX AND PATCH ALL HOLES TO MATCH ADJACENT FINISHES.
9. REMOVE EXISTING FLOOR TILE IN AREAS OF DEMOLITION AND NEW CONSTRUCTION, AS REQUIRED FOR A PROPER JOB, MATCH EXISTING.
10. REMOVE EXISTING FLOOR TRANSITION STRIP, CLEAN AND PREP FLOOR FOR NEW TRIM.
11. EXISTING EXIT SIGN TO REMAIN.
12. EXISTING DOOR AND HARDWARE TO REMAIN
13. EXISTING LIGHT FIXTURE TO REMAIN
14. REMOVE EXISTING DOOR ,ASSOCIATED HARDWARE, AND EXISTING ALUMINUM FRAME AND THRESHOLD. PREP OPENING FOR NEW DOOR AND FRAME, SEE DOOR SCHEDULE.
15. CUT AND REMOVE PORTION OF EXISTING COUNTER, REF DETAILS FOR FULL EXTENT OF COUNTER REVISIONS

1



3 PAC ENTRY - DEMOLITION PLAN
Scale: 1/4" = 1' - 0"



PRINCETON HIGH SCHOOL - KEY PLAN
Scale: NTS

WILLIAM D. HOPKINS III, AIA, LEED AP
NJ - 21AI01706000 | PA - RA012520X

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Pennsylvania: 140 Whitaker Ave - Mont Clare - Pennsylvania 19453
FVHDPC.COM

STATE OF NEW JERSEY — GEORGE R. DUTHIE — 12992 — REGISTERED ARCHITECT

Architect — Date 12/18/23

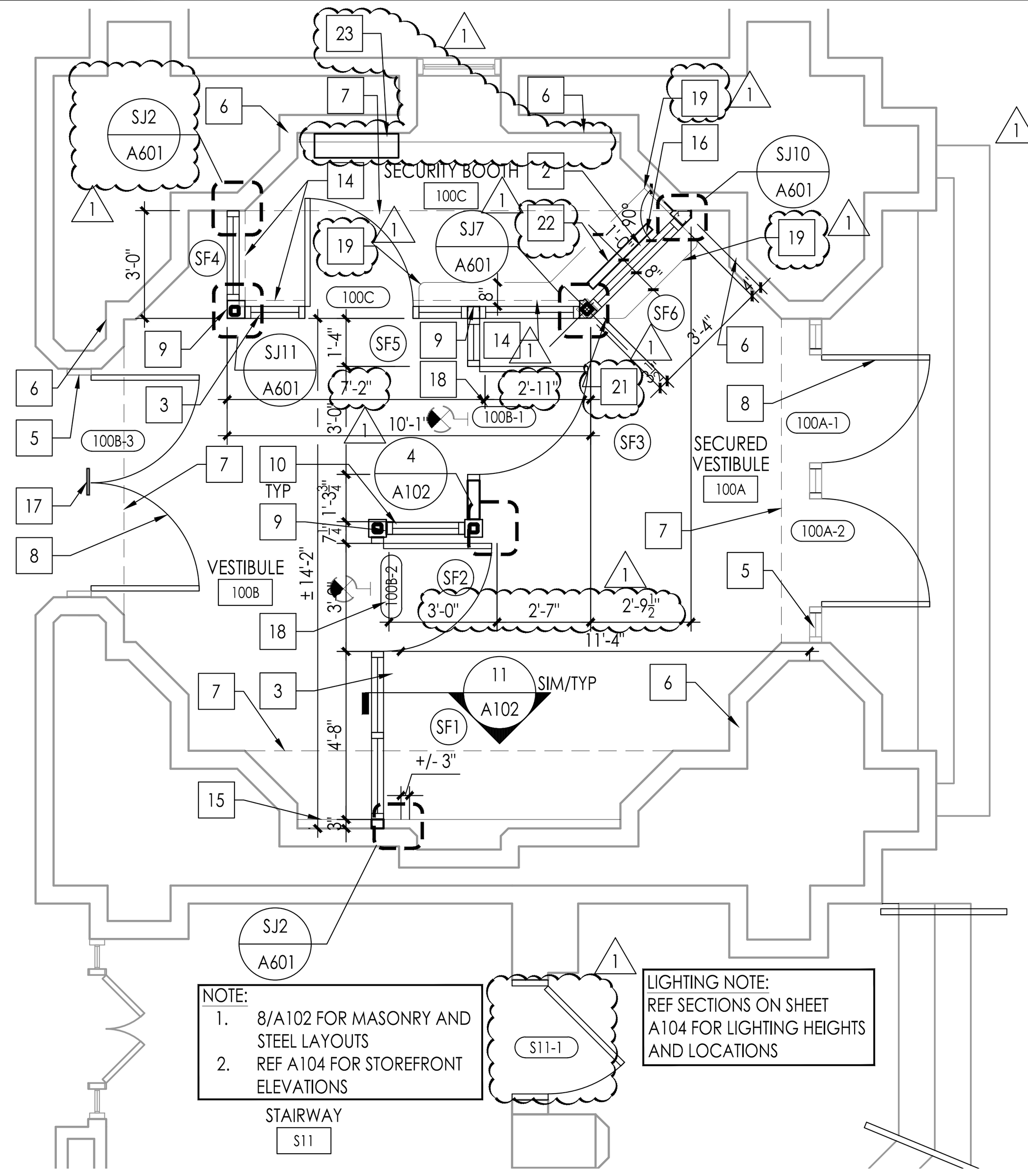
Project Name	NEW SECURITY VESTIBULES AT PRINCETON HIGH SCHOOL
Project Owner Name	PRINCETON PUBLIC SCHOOLS
Project Location	151 MOORE ST PRINCETON, NJ 08540
Project Number	5499A1
Project Date	12.18.2023
Checked By	GRD
Drawn By	SJK
Scale	AS NOTED
Drawing Name	CODE ANALYSIS, EGRESS PLANS, DEMOLITION PLANS AND NOTES

Revisions

No.	Date	Description
1	02.06.24	ADDENDUM NO.1

Drawing Number

A101



1 MAIN ENTRY - SECURED VESTIBULE NEW WORK PLAN

Scale: 1/4" = 1' - 0"

FLOOR PLAN NOTES

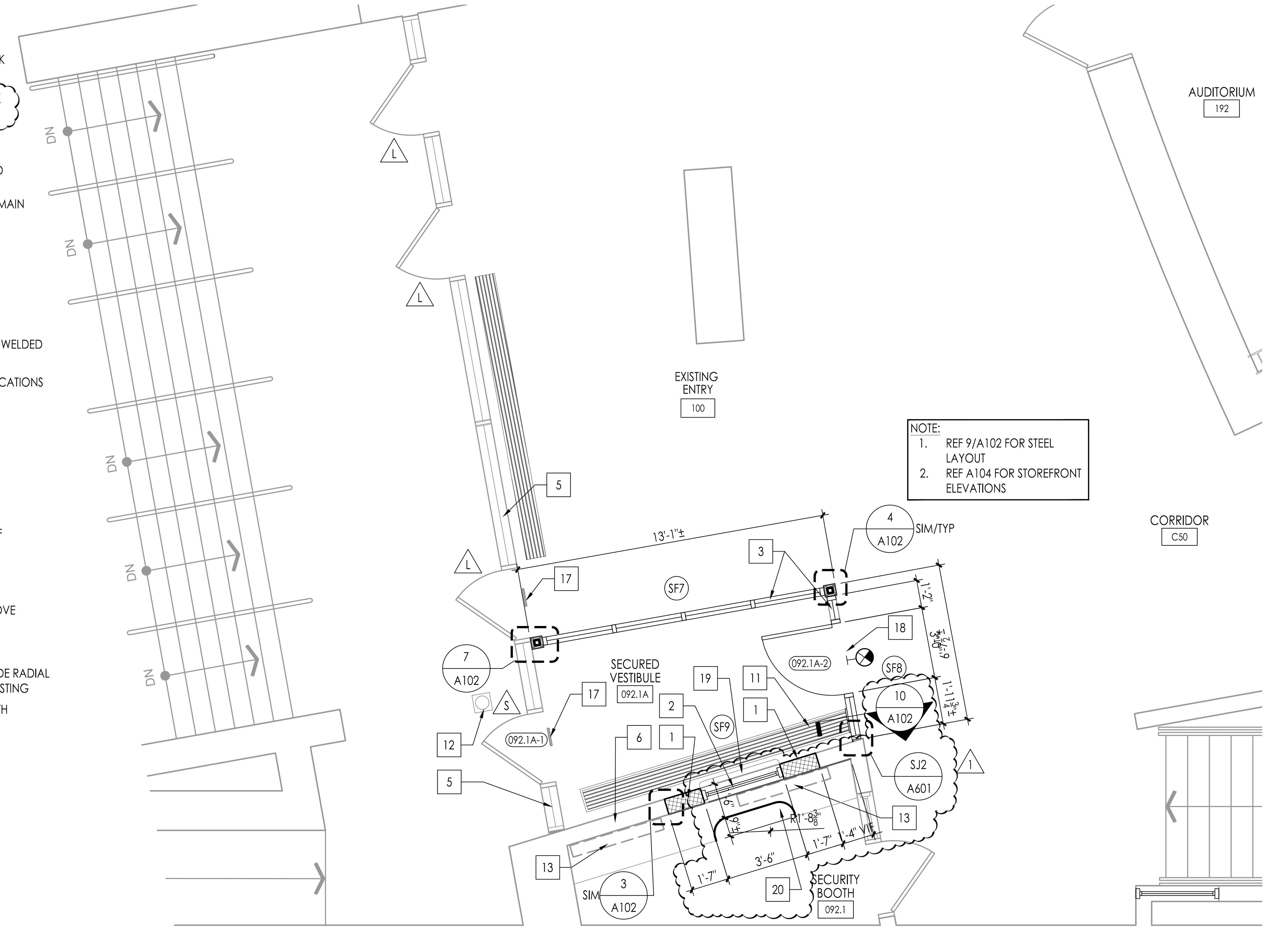
1	INFILL EXISTING OPENING WITH ARCHITECTURAL GLAZED BLOCK CMU BLOCK, SIZE AND THICKNESS TO MATCH EXISTING WALL.
2	NEW SECURED TRANSACTION WINDOW WITH AMPLIFIED SPEAK -THRU AND PASS-THRU TRAY.
3	NEW ALUMINUM STOREFRONT SYSTEM, REFER TO FRAME TYPES FOR DETAILS
4	ARCHITECTURAL GROUND FACE CMU BLOCK, RUNNING BOND
5	EXISTING CURTAIN WALL, AND OR STOREFRONT, SYSTEM TO REMAIN
6	EXISTING STONE/MASONRY WALL
7	INDICATES EXISTING STONE ARCH ABOVE
8	ALUMINUM & GLASS DOOR, REF DOOR SCHEDULE
9	ALUMINUM BREAK METAL
10	HSS 3X3X$\frac{1}{4}$" STEEL COLUMN WITH 5X5X$\frac{3}{8}$" STEEL PLATE AND FULLY WELDED END CAP AT TOP
11	EXISTING FLOOR LOUVER TO REMAIN, REF DETAILS FOR MODIFICATIONS
12	EXISTING EXTERIOR PEDESTAL TO REMAIN
13	EXISTING WALL LIGHTING TO REMAIN
14	INDICATES 6" CMU WALL BELOW
15	EXISTING STONE LEDGE TO REMAIN
16	WALL MOUNTED DOWN LIGHT, MOUNTED TO STOREFRONT, REF ELECTRIC PLAN
17	EXISTING EXIT SIGN TO REMAIN
18	NEW ILLUMINATED EXIT SIGN, CONNECT BACK INTO EXISTING EMERGENCY POWER SYSTEM, MATCH EXISTING EXIT SIGNS ABOVE ADJACENT DOORS, REF ELECTRIC PLAN
19	INDICATES TRANSACTIONAL WINDOW COUNTER
20	CUT EXISTING COUNTER AT TRANSACTIONAL WINDOW. PROVIDE RADIAL CORNERS AND TRIM OUT AND FINISH CUT AREA TO MATCH EXISTING
21	ALIGN SIDE FACE OF TRANSACTIONAL WINDOW COUNTER WITH FACE OF STOREFRONT
22	BASEBOARD HEATER, REF ELECTRIC PLAN, A103
23	HVAC EQUIPMENT, REF HVAC PLAN, A103

PLAN LEGEND

- EXISTING WALL TO REMAIN
- NEW STOREFRONT
- NEW CMU WALL OR INFILL
- SECURED DOOR - INCLUDES ELECTRONIC LOCK AND CARD READER
- LOCKED DOOR - REMAINS LOCKED FROM OUTSIDE, ALLOWS USE DURING EXITING
- EXIT SIGN ABOVE, REF ELECTRIC PLAN

SYMBOLS LEGEND

- section number / WALL SECTION / drawing number
- detail number / DETAIL INFORMATION / drawing number
- STOREFRONT OR CURTAIN WALL TYPE
- CONSTRUCTION NOTE
- DOOR NUMBER SEE DOOR SCHEDULE
- ROOM NAME/NUMBER
- elevation number / INTERIOR ELEVATION / drawing number
- DETAIL, OR ENLARGED PLAN BUBBLE

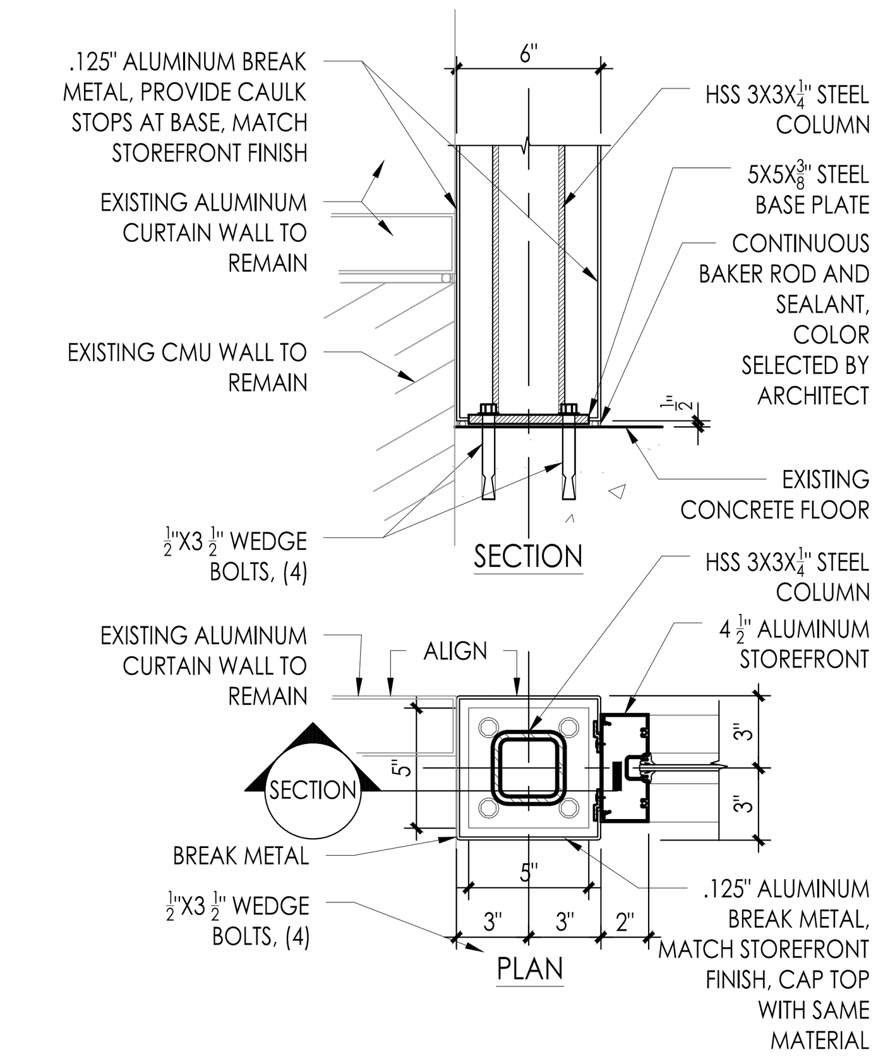


2 PAC ENTRY - SECURED VESTIBULE NEW WORK PLAN

Scale: 1/4" = 1' - 0"

GENERAL NOTES

1. ALL BIDDERS MUST VISIT THE SITE AND VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO SUBMITTING A BID. IF ANY DISCREPANCIES OR OMISSIONS ARE FOUND, THE BIDDER(S) MUST NOTIFY THE ARCHITECT OF THESE, IN WRITING, AT LEAST TEN (10) WORKING DAYS PRIOR TO RECEIPT OF BIDS. IF THEY DO NOT DO SO, ANY MODIFICATION OR CORRECTION SHALL BE PERFORMED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER
2. CONTRACTOR SHALL PROVIDE ALL REQUIRED SAFETY PROTECTION DURING CONSTRUCTION.
3. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE A SUFFICIENT WORK FORCE TO MEET COMPLETION DATES AS OUTLINED IN THE SPECIFICATIONS. NO EXCEPTIONS WILL BE ALLOWED.
4. DO NOT SCALE THE DRAWINGS.
5. DETAILS NOTED "TYPICAL" IMPLY ALL SUCH CONDITIONS BE TREATED SIMILARLY.
6. NOT USED.
7. UNLESS OTHERWISE NOTED AND UNLESS FACTORY FINISHED, ALL EXPOSED SURFACES OF CMU, CONCRETE, PLASTER, WOOD, GYPSUM BOARD, HOLLOW METAL, HARDWOODS, MISC. METALS ETC., ARE TO RECEIVE PRIME AND FINISH COATS OF PAINT OR CLEAR FINISH AS SPECIFIED AND IN COLORS AS SELECTED BY ARCHITECT. EXCLUDED FROM THIS IS BRICK.
8. ALL WORK PERTAINING TO THESE DRAWINGS SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND IN AGREEMENT WITH ALL AGENCIES HAVING JURISDICTION.
9. THE CONTRACTOR IS RESPONSIBLE TO SECURE ALL PERMITS, TO OBTAIN APPROVALS AS REQUIRED AND COORDINATE INSPECTION WITH LOCAL BUILDING INSPECTOR. ALL PERMIT AND APPLICATION FEES WILL BE PAID BY THE OWNER AND DELIVERED BY THE CONTRACTOR.
10. DRAWINGS AND SPECIFICATIONS COMPLEMENT EACH OTHER. WORK NOT SHOWN ON DRAWING BUT CALLED FOR IN THE SPECIFICATIONS IS STILL REQUIRED, AND ALL WORK NOT CALLED FOR IN SPECIFICATIONS, BUT CALLED OUT OR SHOWN IN DRAWINGS IS STILL REQUIRED.
11. THE OWNER WILL REMOVE AND RE-INSTALL ALL MOVEABLE EQUIPMENT. THE CONTRACTOR IS RESPONSIBLE TO REMOVE, STORE AND RE-INSTALL EXISTING BUILT-IN EQUIPMENT REQUIRED TO PERFORM THEIR WORK UNLESS NOTED OTHERWISE.
12. IN ACCORDANCE WITH NJAC 5:23-6.6(i), ALL MATERIALS AND METHODS USED SHALL COMPLY WITH THE REQUIREMENTS SPECIFIED IN N.J.A.C. 5:23-6.8, MATERIALS AND METHODS..



7 BASE PLATE DETAIL

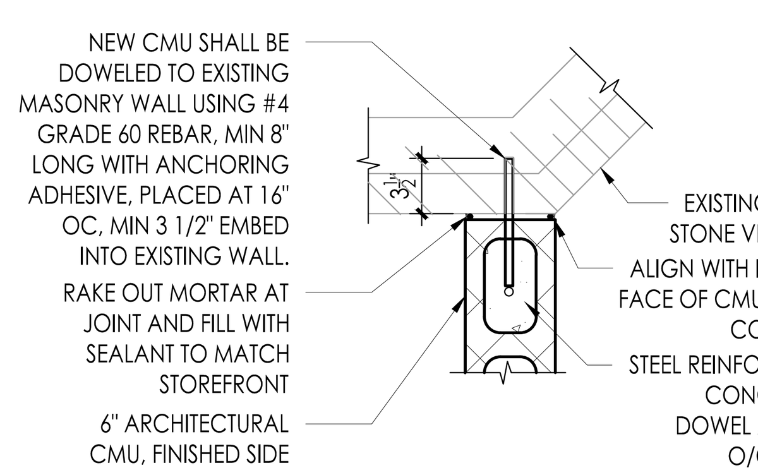
Scale: 1 1/2" = 1' - 0"

STEEL NOTES

1) CONNECTIONS SHALL BE HIGH STRENGTH BOLTS, 1/2" MIN, AT PLATE CONNECTIONS AT CONCRETE. STEEL COLUMN TO STEEL BEAM TO BE FULLY WELDED.
2) ALL TUBES TO BE ASTM A500 GRADE B FY=46KSI
3) SUBMIT SHOP DRAWINGS FOR REVIEW

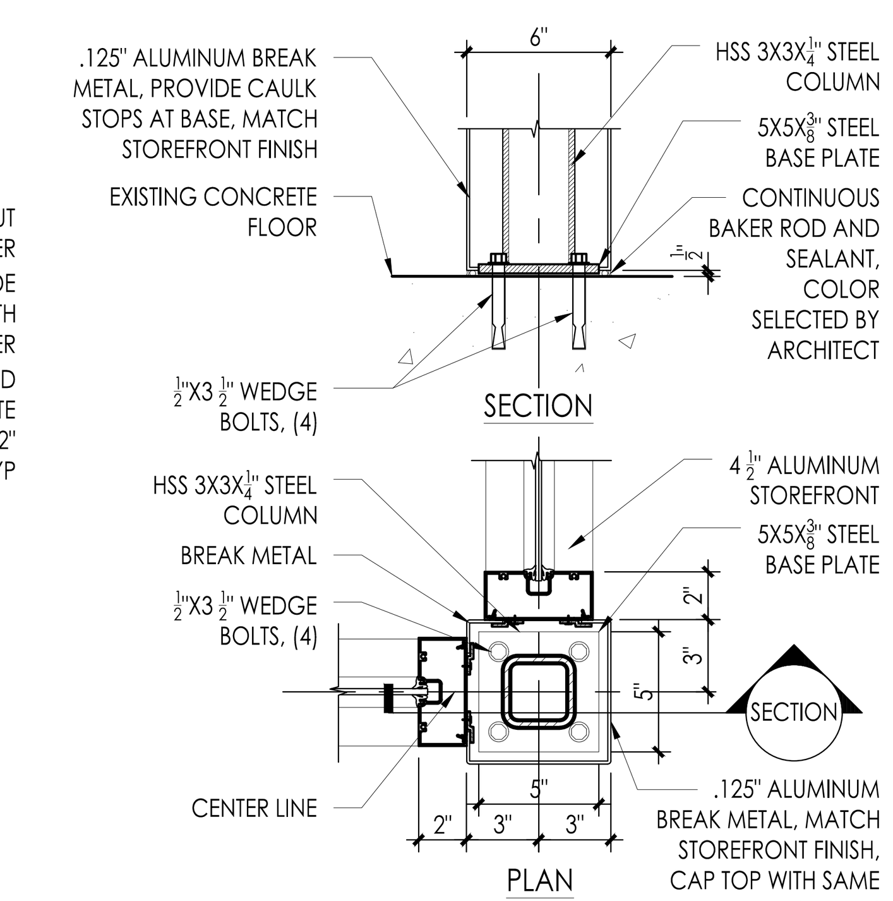
REINFORCING NOTES

1) ALL REINFORCING BAR DETAILS SHALL CONFORM TO THE LATEST ACI CODE AND DETAILING MANUAL.
2) ALL BARS SHALL BE ASTM A-615 GRADE 60.
3) ALL REINFORCEMENT SHALL BE INSPECTED AND APPROVED BY ARCHITECT BEFORE CONCRETE IS POURED.



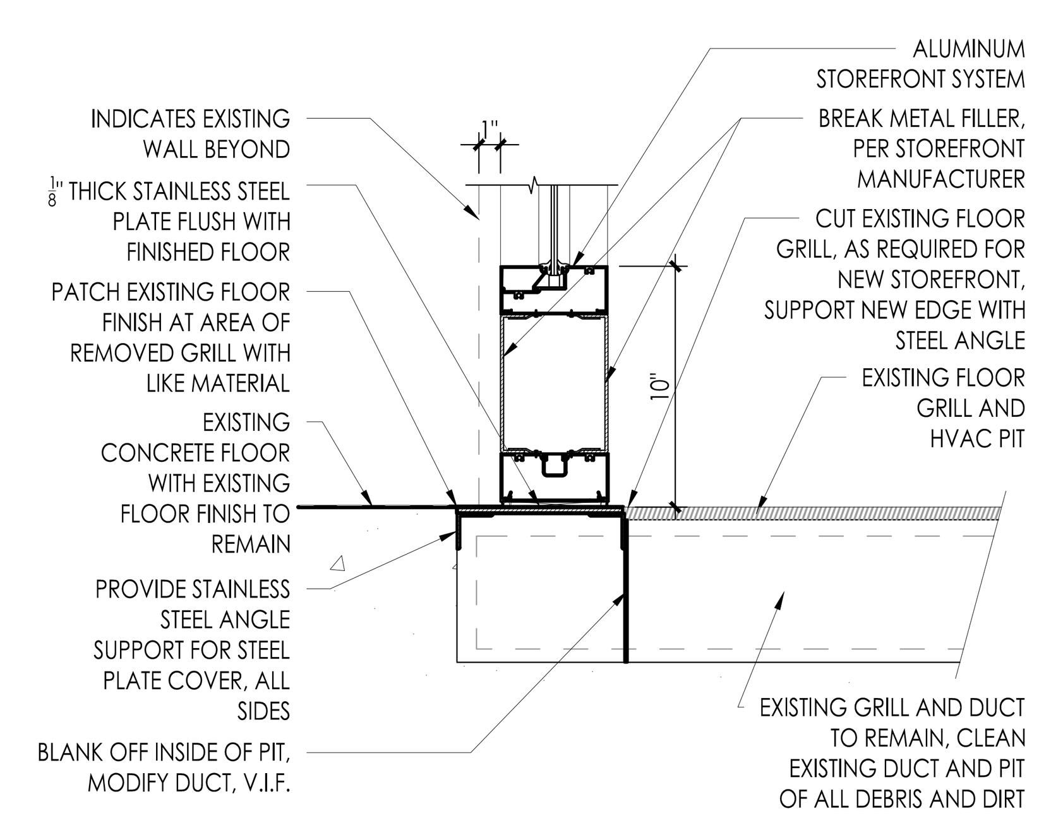
3 CMU PLAN DETAIL

Scale: 1" = 1' - 0"



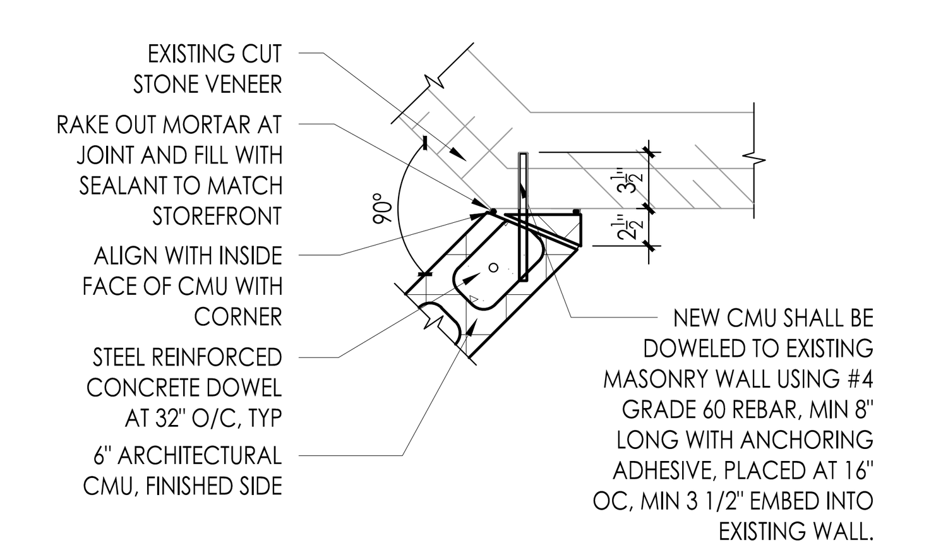
4 BASE PLATE DETAIL

Scale: 1 1/2" = 1' - 0"



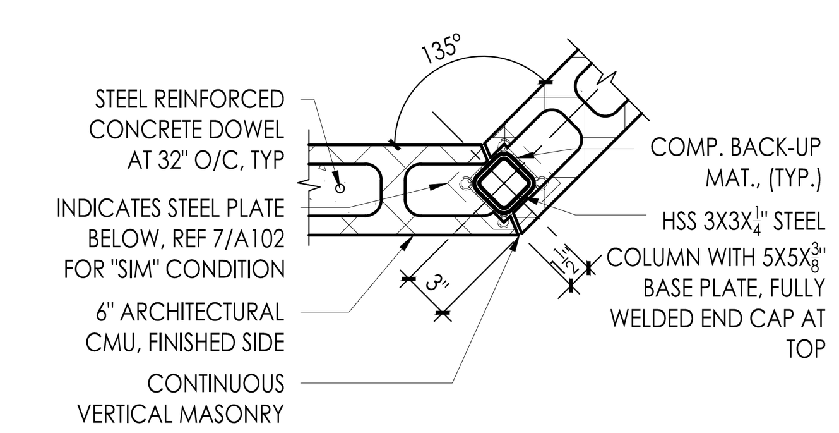
5 BASE PLATE DETAIL

Scale: 1 1/2" = 1' - 0"



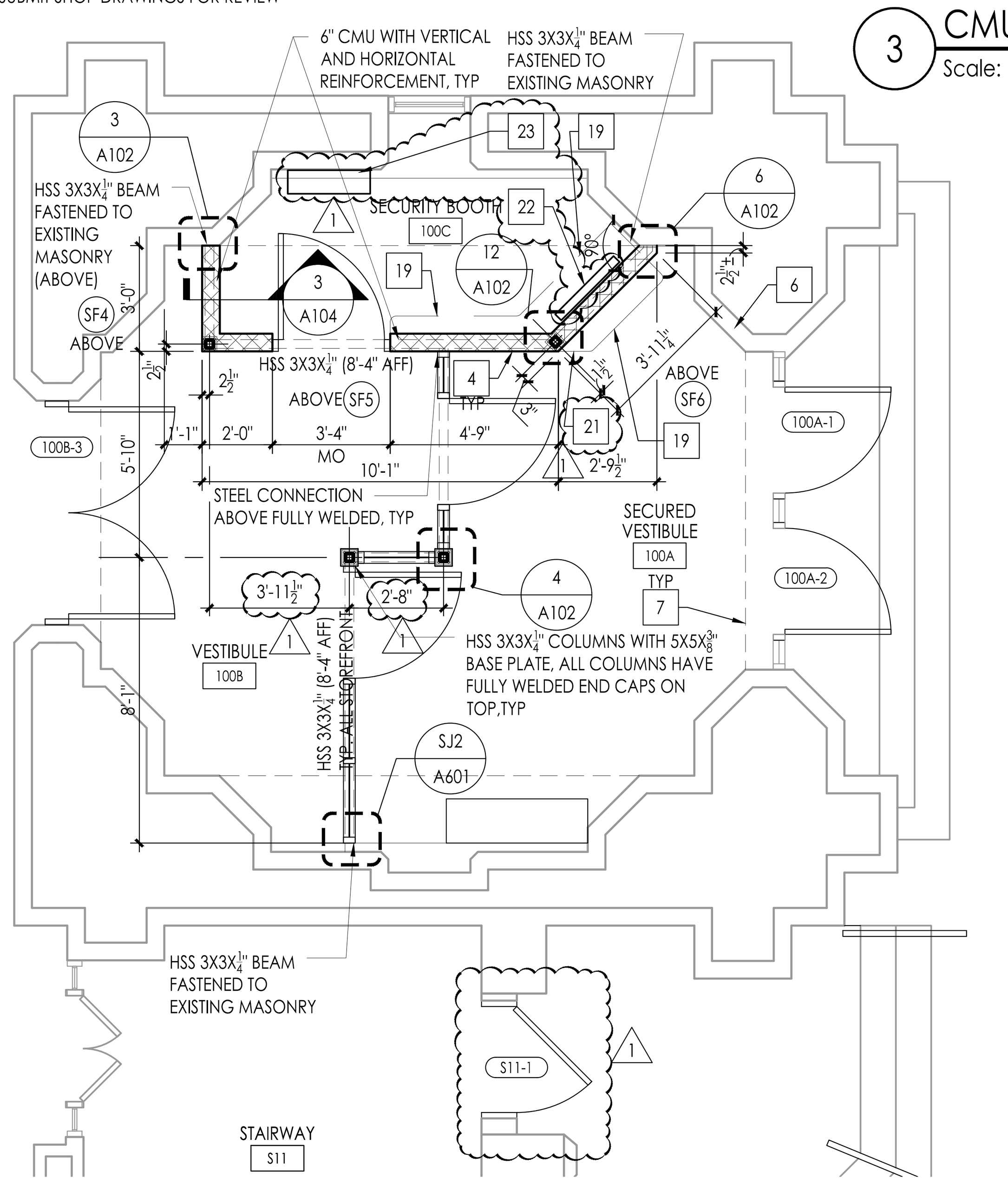
6 CMU PLAN DETAIL

Scale: 1" = 1' - 0"



12 CMU PLAN DETAIL

Scale: 1" = 1' - 0"



8 MAIN ENTRY - STEEL AND MASONRY LAYOUT

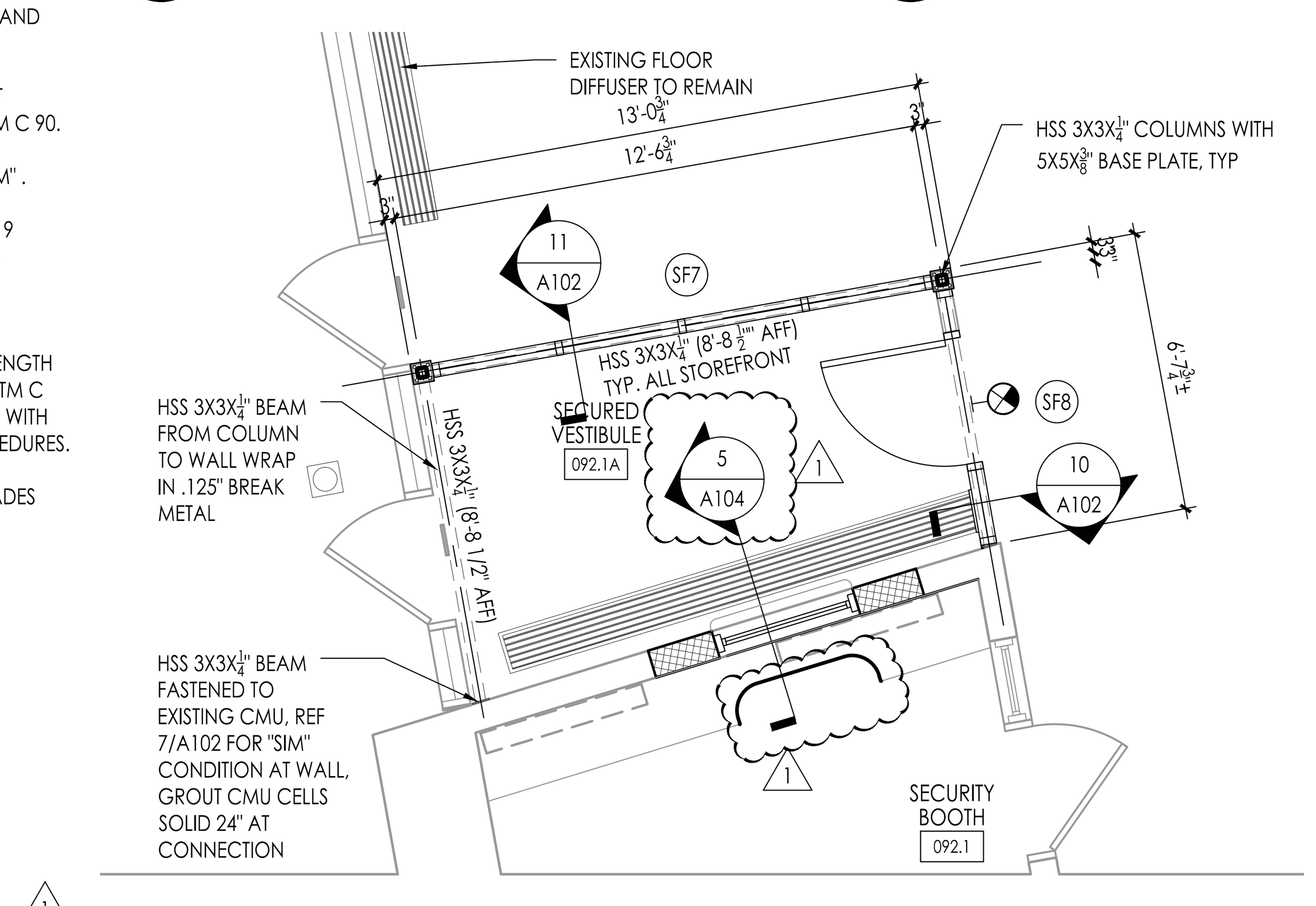
Scale: 1/4" = 1' - 0"

MASONRY NOTES

1) ALL BLOCK WORK SHALL BE IN ACCORDANCE WITH LATEST IBC w/NJ MODIFICATION AND OTHER APPLICABLE CODES.
2) ALL BLOCK SHALL BE NORMAL WEIGHT AGGREGATE AND CONFORM TO ASTM C 90.
3) MORTAR SHALL BE ASTM C 270. TYPE "M" .
4) HORIZONTAL REINFORCING SHALL No. 9 GAGE "DUR-O-WALL" OR EQUIVALENT.
5) WHERE BLOCK FILL IS CALLED FOR ON DRAWINGS, USE TYPE "M" MORTAR OR CONCRETE WITH A COMPRESSIVE STRENGTH OF 2500psi IN ACCORDANCE WITH ASTM C 476 AND INSTALLED IN ACCORDANCE WITH ACI-531 FOR HIGH OR LOW LIFT PROCEDURES.
6) COORDINATE MASONRY WITH ALL TRADES REQUIRING ITEMS TO BE BUILT IN.

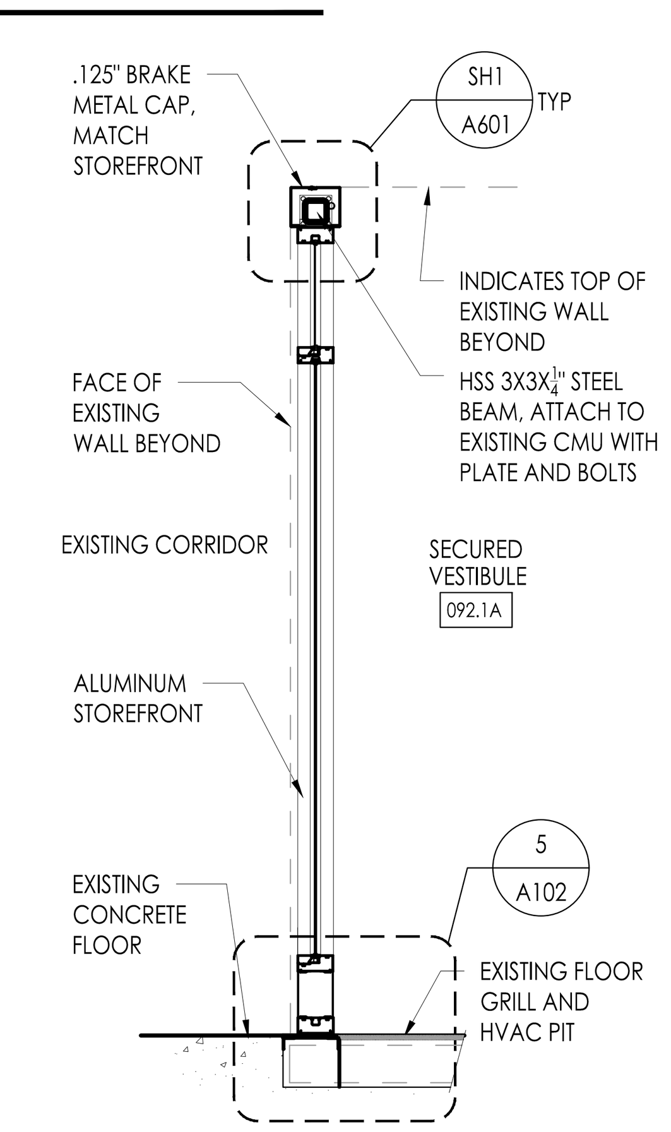
MISCELLANEOUS NOTES

1) CONTRACTOR SHALL VERIFY ALL DIMENSIONS, SECTIONS AND ELEVATIONS ON JOB.



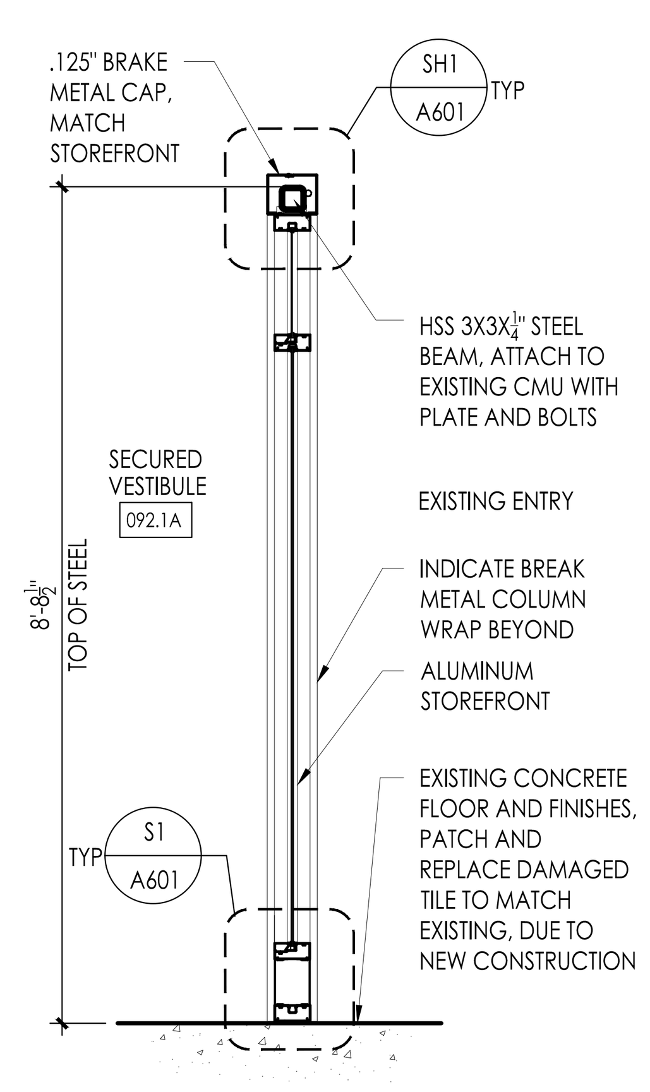
9 PAC ENTRY - STEEL LAYOUT

Scale: 1/4" = 1' - 0"



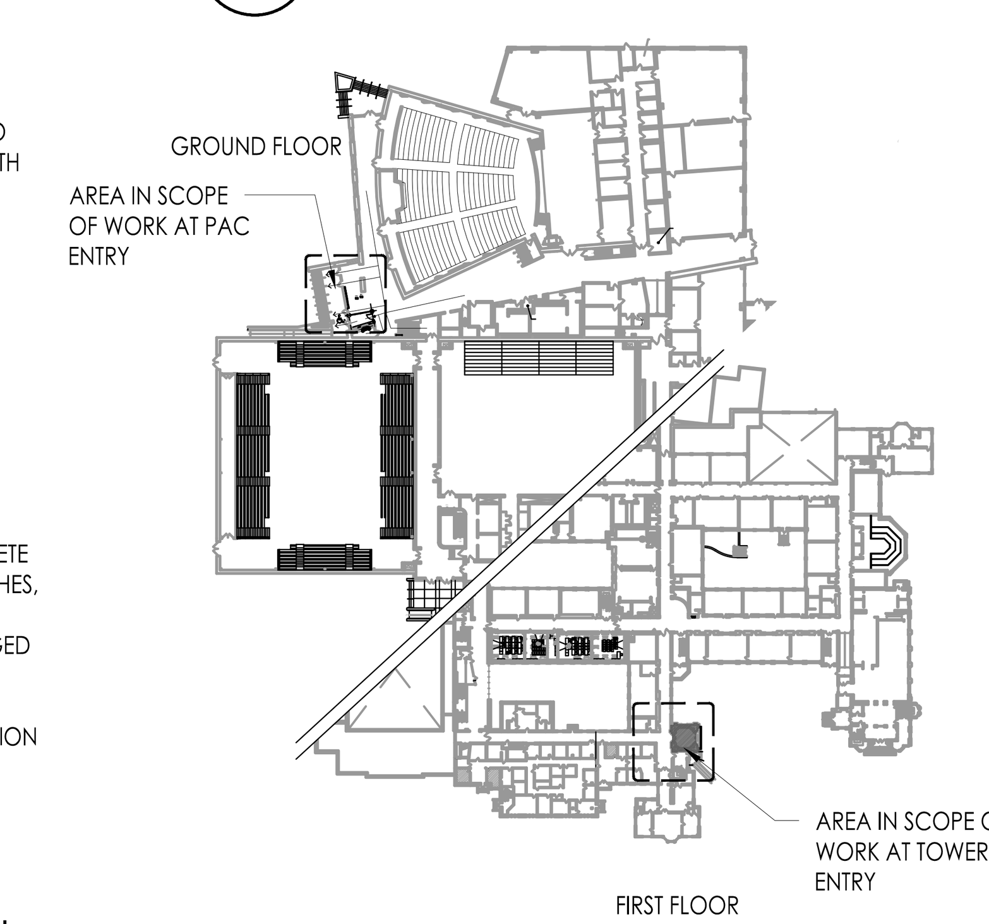
10 STOREFRONT SECTION

Scale: 1/2" = 1' - 0"



11 STOREFRONT SECTION

Scale: 1/2" = 1' - 0"



PRINCETON HIGH SCHOOL - KEY PLAN

Scale: NTS

WILLIAM D. HOPKINS III, AIA, LEED AP

FVHD architects planners

Fraytak Veisz Hopkins Duthie PC

Corporate: 1515 Lower Ferry Road - Trenton - New Jersey 08618

Pennsylvania: 140 Whittaker Ave - Mont Clare - Pennsylvania 19453

FVHDPC.COM

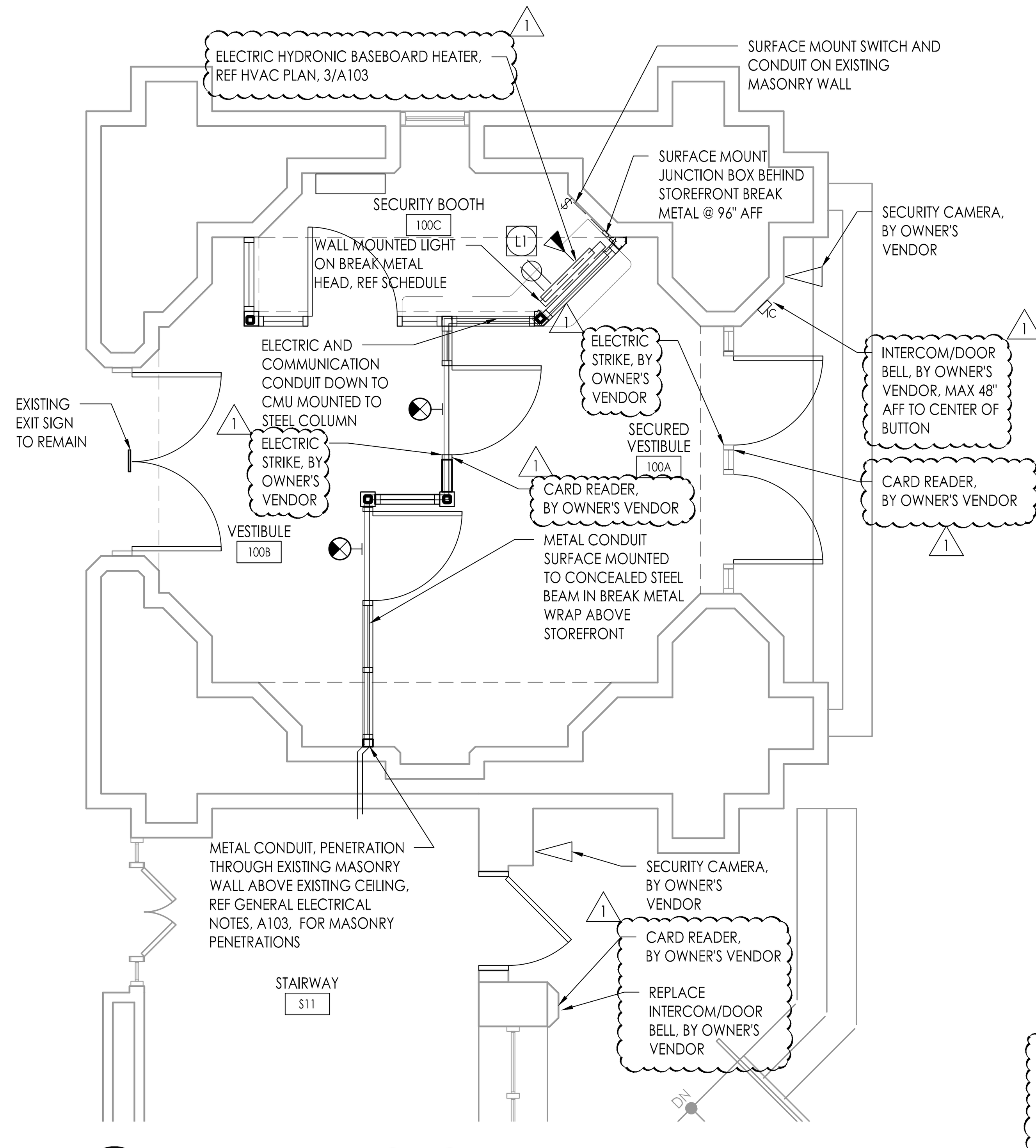
Project Name	NEW SECURITY VESTIBULES AT PRINCETON HIGH SCHOOL
Project Owner Name	PRINCETON PUBLIC SCHOOLS
Project Location	151 MOORE ST PRINCETON, NJ 08540
Project Number	5499A1
Project Date	12.18.2023
Checked By	GRD
Drawn By	SJK
Scale	AS NOTED
Drawing Name	MAIN ENTRY AND PAC ENTRY NEW WORK PLANS, STEEL AND MASONRY WALL PLANS, AND NOTES

Revisions

No.	Date	Description
1	02.06.24	ADDENDUM NO.1

Drawing Number

A102



1 MAIN ENTRY - ELECTRICAL PLAN
Scale: 1/4" = 1' - 0"

LIGHT FIXTURE SCHEDULE									
TYPE	SYMBOL	DESCRIPTION	HOUSING	MANUFACTURER	CATALOG NO.	LAMPS	VOLTS	WATTS	MOUNTING
L1	⊏ ═ ⊐	SURFACE MOUNTED LED FIXTURE WITH ALUMINUM HOUSING AND CLEAR LENS	PURSUIT DIRECT (DOWN LIGHT) 3'-0"	KIMLIGHTING	RN-D-3-15-3K8-WG-CL- UNI -xxx-M-xx (COLOR SELECTED BY ARCHITECT)	LED	120	82	SURFACE

ELECTRICAL SYMBOLS (DEVICES AND COMMUNICATION)

SYMBOL	DESCRIPTION
(outlet symbol)	DUPLEX CONVENIENCE OUTLET
(data symbol)	VOICE DATA OUTLET, COORDINATE WITH OWNER
$	SINGLE POLE LIGHT SWITCH 20A
(exit sign symbol)	WALL MOUNTED EXIT SIGN, MOUNT TOP OF SIGN TO TOP STOREFRONT MULLION CENTERED ON DOOR, SHADED AREA INDICATES FACE, MANUFACTURER-CHLORIDE #VERWEM EDGE-LITE = #ER44RLDU, OR EQUAL, PROVIDE SUBMITTAL. CONNECT TO EXISTING EMERGENCY CIRCUIT.
XX	WALL MOUNTED LIGHT FIXTURE INDICATOR, REF SCHEDULE
(camera symbol)	CAMERA, WALL MOUNTED, BY OWNER'S VENDOR, COORDINATE LOCATION AND MONITOR WITH OWNER.
T	SURFACE MOUNTED THERMOSTAT FOR MINI SPLIT IN JUNCTION BOX , RUN CONCEALED WIRE IN CONDUIT BEHIND BREAK METAL

TYPICAL ELECTRIC NOTES:

1. MOUNTING HEIGHTS TO CENTER OF OUTLETS, UNLESS NOTED OTHERWISE, IN MASONRY WALL CONSTRUCTION WILL BE FOR REFERENCE TO NEAREST BLOCK COURSING.
2. ALL MOUNTING HEIGHTS WILL COMPLY WITH ANSI A117.1-2017
3. CONNECT NEW LIGHTING TO AVAILABLE CIRCUIT SERVED FROM AN EXISTING PANEL. PROVIDE NEW BREAKER IN EXISTING PANEL IF NECESSARY. DO NOT INCREASE THE TOTAL LOAD ON PANEL ABOVE NEC ALLOWED LOAD.
4. ALL NEW WIRING TO BE MINIMUM 12ga. IN MINIMUM $\frac{3}{4}$" CONDUIT.
5. NEW ILLUMINATED EXIST SIGNS SHALL BE WIRED INTO EXISTING EMERGENCY POWER SYSTEM WITH A 90 MINUTE MINIMUM CAPACITY.

LOW VOLT (SECURITY) BY OWNER'S VENDORS:

SECUNI
29 NORTHFIELD AVE.
EDISON, NEW JERSEY 08837
PH# (844 985-3331)

VECTOR SECURITY
15 ROSZEL ROAD, SUITE #102
PRINCETON, NEW JERSEY 08540
PH# (609 896-9101)

REF "CLARIFICATIONS" IN ADDENDUM #1 FOR ADDITIONAL CONTACT INFORMATION.

INTERCOM AND EXTERIOR CAMERA NOTE:

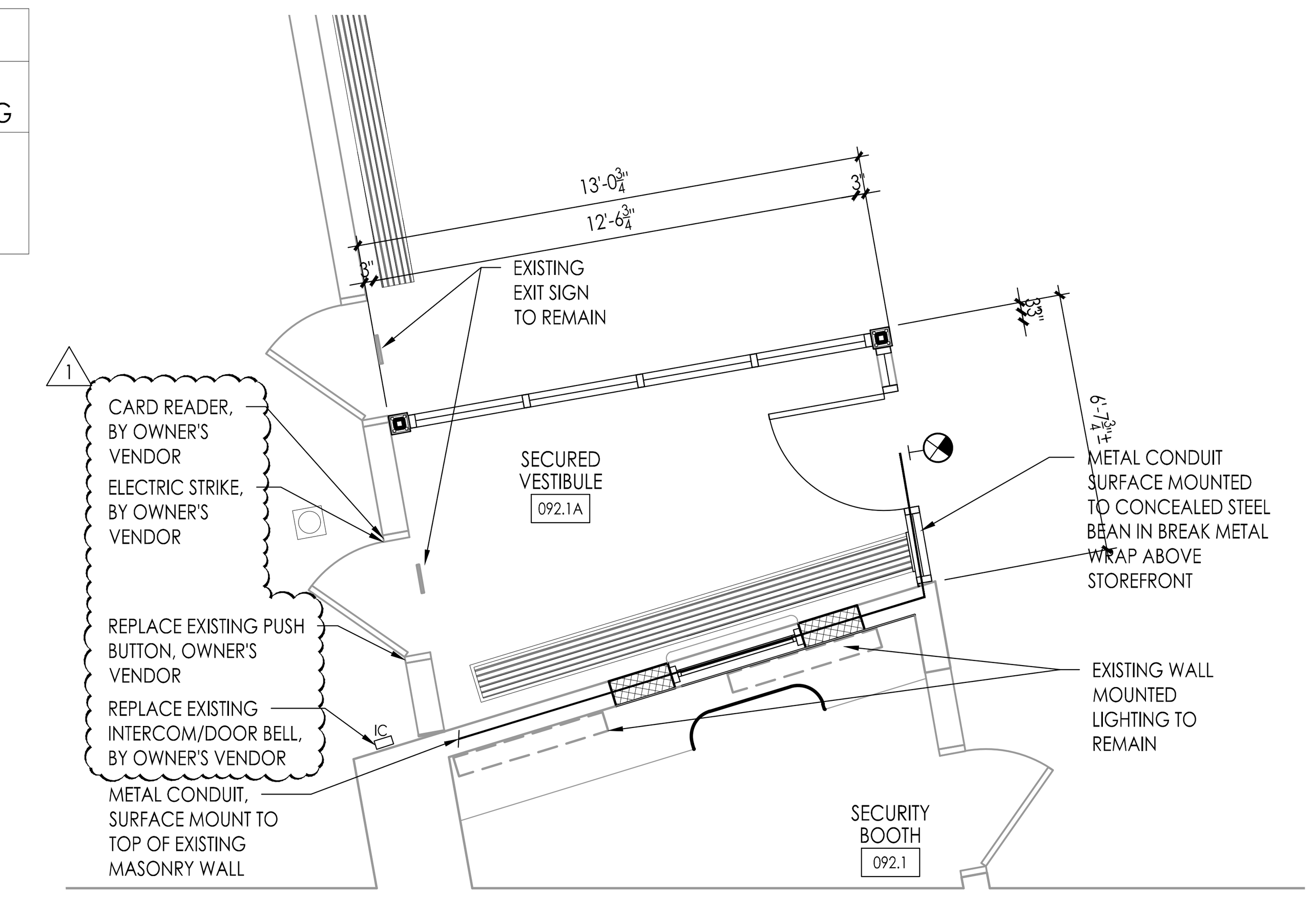
VENDOR FOR CARD READERS AND DOOR BELLS TO COORDINATE WITH OWNER LOCATION OF EQUIPMENT IN MAIN OFFICE/SECURITY BOOTH.

HVAC KEYNOTES

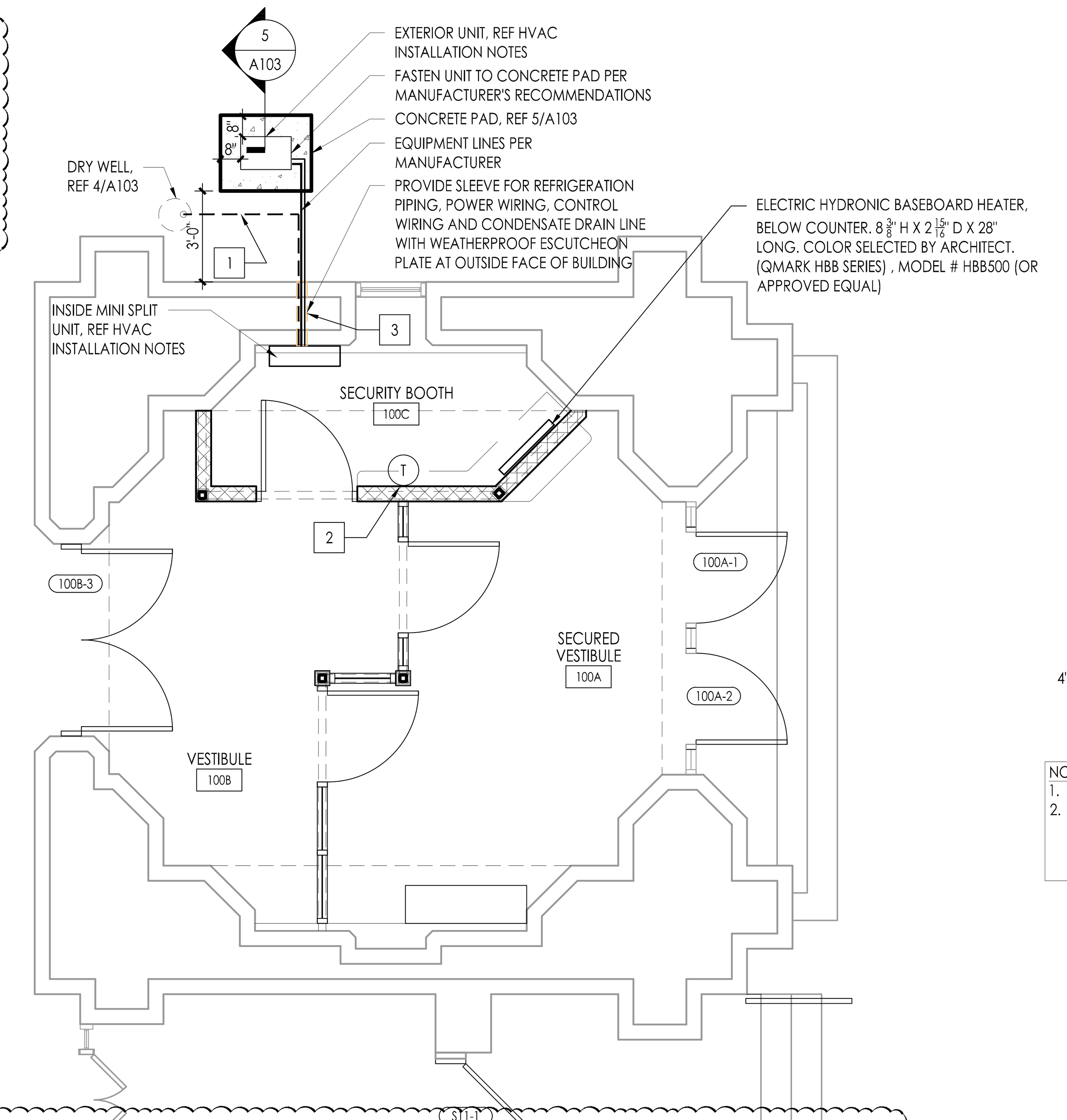
1. DRAIN CONDENSATE PIPE DISCHARGE TO DRY WELL.
2. PROVIDE WALL MOUNT THERMOSTAT, WIRING TO BE CONCEALED WITH MULLION.
3. PROVIDE PIPE AND CONDUIT SLEEVE FOR REFRIGERATION PIPING, POWER WIRING, CONTROL WRING AND CONDENSATE DRAIN LINE WITH A WEATHERPROOF ESCUTCHEON AT EXTERIOR FACE OF BUILDING.

HVAC ELECTRICAL NOTES

1. PROVIDE AND CONNECT NEW 20A/2P CIRCUIT BREAKER ON EXISTING 208/120V PANEL, CIRCUIT VIA 2 #12 & 1 #12 GRD - $\frac{3}{4}$" C
2. PROVIDE POWER AND CONTROL WIRING BETWEEN INDOOR AND OUTDOOR UNITS PER MANUFACTURES'S WRITTEN DIRECTIONS.
3. PROVIDE WEATHERPROOF FUSED DISCONNECT FOR CONDENSER ALONG WITH HOMERUN TO 120/208V ELECTRICAL PANEL WITH AVAILABLE SPACES (SEE NOTES 1&2)
4. PROVIDE ELECTRICAL DISCONNECT AT INDOOR UNIT.



2 PAC ENTRY - ELECTRIC PLAN
Scale: 1/4" = 1' - 0"



3 MAIN ENTRY - HVAC PLAN
Scale: 1/4" = 1' - 0"

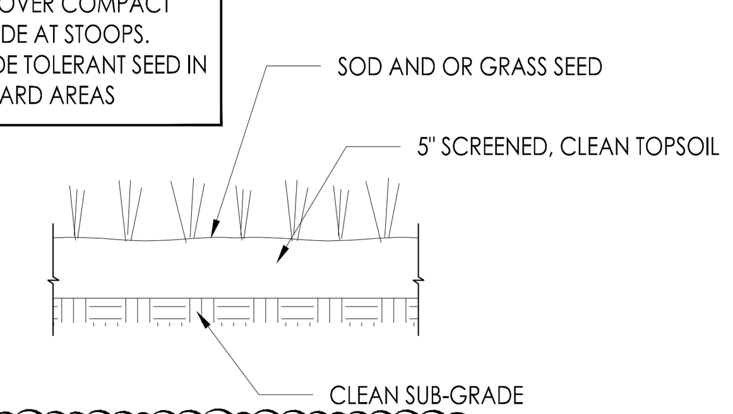
HVAC INSTALLATION NOTES:

1. PROVIDE 1 TON DUCTLESS MINI-SPLIT HEAT PUMP SYSTEM FOR SECURITY BOOTH. INDOOR UNIT SHALL BE DAIKIN FVXS12NVJU, (OR APPROVED EQUAL), MOUNTED ON 4" SUB-BASE WITH LITTLE GIANT CONDENSATE PUMP WITH INSULATED RECEIVER. OUTDOOR UNIT SHALL BE *DANKIN RXL12WMVJU9,* (OR APPROVED EQUAL), MOUNTED ON 16" HIGH STAND WITH WIND RESTRAINTS2 LOW AMBIENT UNIT KIT FOR OPERATION DOWN TO -1°F AT FULL HEAT OUTPUT AT -5°F.
2. REFRIGERANT PIPING SHALL BE TYPE K SOFT ANNEALED COPPER LINES SETS. WITH ACR GRADE TUBING WITH UV RESISTANT INSULATION SYSTEM. REFRIGERANT PIPING SHALL BE SIZED, RUN, BRAISED, TOOLED, EVACUATED AND CHARGED PER MANUFACTURES WRITTEN INSTRUCTIONS. MANUFACTURE SHALL PERFORM INSPECTION AND STAT-UP SERVICES, OWNER TRAINING AND PROVIDE FULL (2) YEAR WARRANTY.
3. CONDENSATE PIPING SHALL BE TYPE L HARD COPPER -TUBING (ASTM B-88) WITH UV RESISTANT INSULATION SYSTEM.

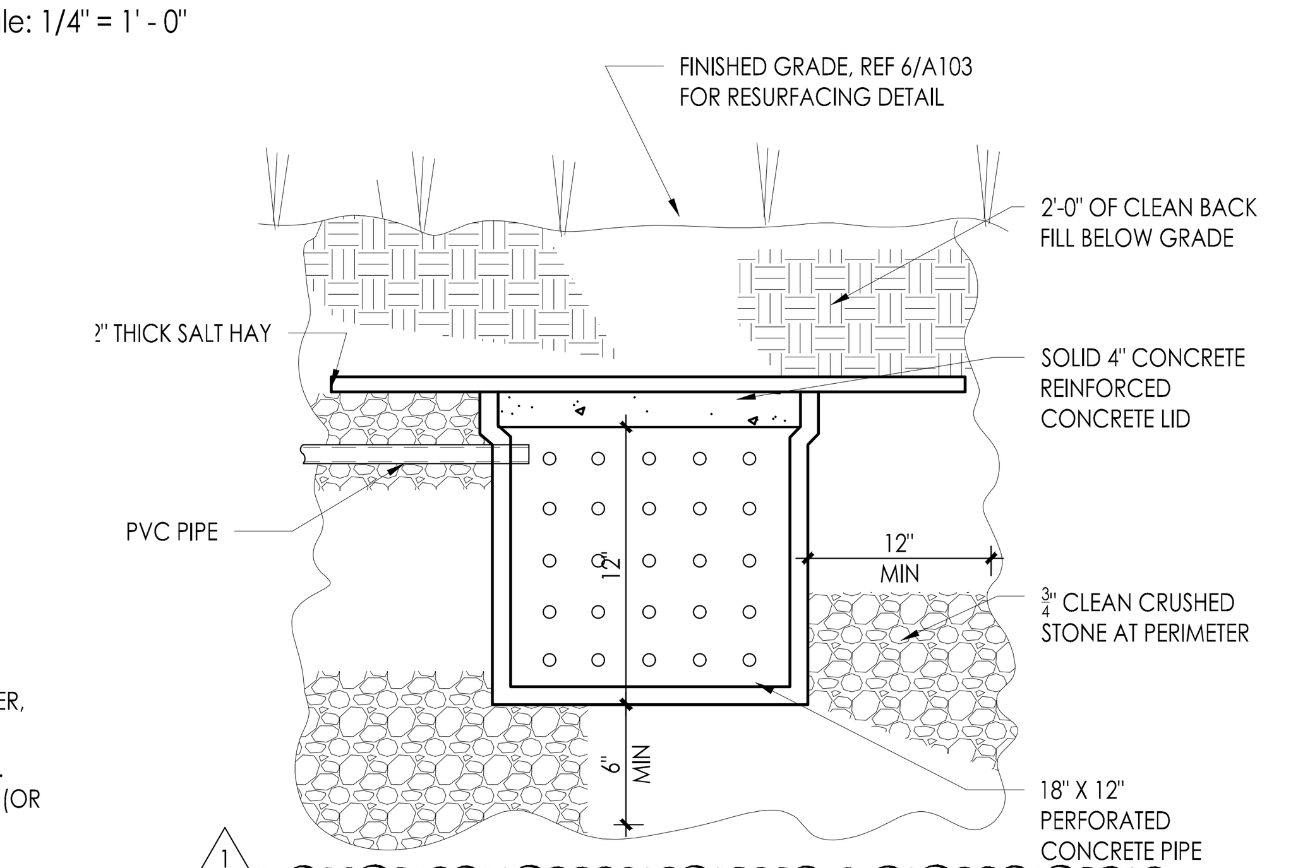
GENERAL ELECTRICAL NOTES:

1. EXISTING PROJECT CONDITIONS INDICATED ARE BASED ON FIELD OBSERVATION, EXISTING DESIGN / CONSTRUCTION DOCUMENTS AND EXISTING RECORD DOCUMENTS AND ARE INTENDED TO INDICATE THE SCOPE OF THE WORK AFFECTED BY THIS PROJECT.
2. PROVIDE ALL THE LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR THE INSTALLATION, RELOCATION AND CONNECTION OF ELECTRICAL WORK.
3. MAINTAIN CONTINUITY OF EXISTING CIRCUITS AFFECTED BY THIS WORK WHICH MUST REMAIN IN SERVICE.
4. MAKE ALL MODIFICATIONS NECESSARY TO EXISTING PANELBOARDS AND SWITCHBOARDS TO ACCEPT NEW CIRCUITS, IF REQUIRED.
5. WHERE NEW EQUIPMENT IS INDICATED TO BE CONNECTED TO EXISTING WIRING, CONDUIT OR OTHER PART OF AN EXISTING ELECTRICAL SYSTEM, THE CONTRACTOR SHALL MODIFY OR EXTEND THE EXISTING SYSTEM COMPONENTS AS REQUIRED TO MEET THE CONNECTION POINT OF THE NEW ITEM. THE CONTRACTOR SHALL USE MATERIALS AND METHODS THAT MATCH THE EXISTING SYSTEM, OR AS SPECIFIED FOR NEW WORK, WHICHEVER IS MORE SUITABLE FOR THE APPLICATION.
6. GROUNDING AND BONDING SHALL MEET NEC AND EQUIPMENT/SYSTEM MANUFACTURER'S REQUIREMENTS.
7. ALL NEW WIRING IS TO BE RUN CONCEALED WHERE POSSIBLE. COORDINATE WITH WITH ALL DRAWINGS FOR CONDUIT NOTES AND LOCATIONS. EXPOSED RACEWAYS SHALL BE RUN TRUE, PLUMB AND PARALLEL OR PERPENDICULAR TO BUILDING LINES. (RIDGE METAL CONDUIT,)
8. A CONTRACTOR MAKING A BID FOR WORK ON THIS PROJECT IS MADE AWARE BY THIS NOTE THAT IT IS THE INTENT OF THE OWNER TO HAVE A COMPLETELY INSTALLED JOB. THE CONTRACTOR MAKING A BID FOR THIS WORK WARRANTS THAT THEY WILL COMPLETE AND WIRE ALL NECESSARY ELECTRICAL WORK FOR DEVICES AND FIXTURES SHOWN/DETAILED ON ANY OF THE CONTRACT DOCUMENTS AND SPECIFICATIONS. THE CONTRACTOR CAN AND SHALL REQUEST DIRECTION REGARDING CIRCUIT SIZING PROTECTION AND ROUTING WHERE NECESSARY, BUT SHALL UNDERSTAND ALL NECESSARY WORK TO COMPLETE THE INSTALLATION, THIS SHALL BE PREFORMED AT NO ADDITIONAL COST TO THE OWNER OR PROJECT.
9. CONTRACTOR SHALL INFORM THE ARCHITECT IMMEDIATELY OF ANY CONFLICT DISCOVERED BEFORE PERFORMING ANY WORK RELATED TO SUCH CONFLICT.
10. ALL WIRING SHALL BE COPPER CONDUCTOR WITH 600 VOLTS INSULATION IN METAL RACEWAY WITH APPROVED FITTINGS, UNLESS OTHERWISE INDICATED.
11. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION AND INSTALLATION DETAILS AND VERIFY ALL MANUFACTURER'S REQUESTS PRIOR TO ANY SUBMISSION FOR CONSIDERATION BY THE ARCHITECT, OR OWNER.
12. WIRING RUNS INDICATED ON THE DRAWINGS EXPRESS THE INTENT OF EXISTING CIRCUIT ASSIGNMENT. ACTUAL WIRING METHODS USED SHALL BE SUITED FOR THE CONSTRUCTION OF THE BUILDING. V.I.F.
13. PROVIDE ONE SET OF REPRODUCIBLE CONTRACT DRAWINGS, OR DIGITAL DATA FILES USING SAME SOFTWARE PROGRAM, VERSION, AND OPERATING SYSTEM AS CONTRACT DOCUMENTS, THAT HAVE BEEN REVISED AND ANNOTATED TO REFLECT THE AS-BUILT CONDITIONS OF THE PROJECT.
14. DELIVER CERTIFICATES OF ELECTRICAL AND OTHER INSPECTIONS, OR COPIES THEREOF, TO THE OWNER AT THE COMPLETION OF THE PROJECT WITH COPIES TO THE ARCHITECT.
15. GUARANTEE ALL WORK IN WRITING TO THE OWNER AGAINST ANY AND ALL DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE AND PERFORM ALL CORRECTIVE WORK AT NO COST TO THE OWNER.
16. THE INSTALLATION OF ALL ELECTRICAL WORK INDICATED ON ALL ARCHITECTURAL DRAWINGS AND IN THE SPECIFICATIONS AND ANY SUBSEQUENT BULLETINS OR ADDENDA SHALL COMPLY WITH NEW JERSEY ADMINISTRATIVE CODE TITLE 6A.
21. PRE-EXISTING CONDITIONS ARE EXEMPT PER NJAC 5:23-6.8(D)10. "EXISTING WORKING CLEARANCES, CLEAR SPACE, ACCESS AND ENTRANCE DIMENSIONS TO WORKING SPACES, ILLUMINATION, HEADROOM CLEARANCES, AND LOCATION OF OVERCURRENT PROTECTION DEVICES SHALL BE ALLOWED TO REMAIN WITHOUT MODIFICATION."
22. ALL NEW CONSTRUCTION AND RENOVATION WORK SHOWN ON THE DRAWINGS AND CONTAINED IN THE SPECIFICATIONS (UNLESS OTHERWISE NOTED AS "NOT IN CONTRACT" OR "N.I.C.") IS THE RESPONSIBILITY OF THE SINGLE PRIME GENERAL CONTRACTOR. REFERENCES TO SPECIFIC TRADE SUBCONTRACTORS ARE PROVIDED TO ASSIST THE SINGLE PRIME GENERAL CONTRACTOR IN THE DELINEATION OF SUBCONTRACTOR WORK. THE SINGLE PRIME GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DELINEATION OF ITS SUBCONTRACTORS' WORK AND THEREFORE SHALL NOT RELY ON SPECIFIC TRADE REFERENCES SHOWN ON THE CONTRACT DOCUMENTS.
23. SPECIFICATIONS MAY REQUIRE WORK, EQUIPMENT, SYSTEMS, METHODS, ETC. THAT IS NOT INDICATED ON THE DRAWINGS.
24. THE OWNER WILL OCCUPY THE SITE AND EXISTING BUILDING[S] DURING THE ENTIRE CONSTRUCTION PERIOD. COOPERATE WITH THE OWNER DURING CONSTRUCTION OPERATIONS TO AVOID ANY CONFLICTS. PERFORM THE WORK SO AS NOT TO INTERFERE WITH THE OWNER'S OPERATIONS. SCHEDULE ALL POWER OUTAGES FOR OVERTIME ON SUNDAYS AND HOLIDAYS AT NO ADDITIONAL COST TO THE OWNER.
25. VERIFY THAT FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS INDICATED.
26. PRIOR TO BIDDING VISIT THE PROJECT SITE TO DETERMINE THE CONDITIONS UNDER WHICH THE WORK IS TO BE DONE. SCHEDULE SITE VISIT WITH OWNER.
27. ALL MATERIAL SHALL BE UNDERWRITERS' LABORATORIES LISTED FOR ITS APPLICATION WHERE SUCH LISTING IS APPLICABLE.
28. ALL EQUIPMENT SHALL BE AS INDICATED OR AS APPROVED BY THE ARCHITECT.
29. SUBMIT SHOP DRAWINGS, PRODUCT DATA SHEETS AND WIRING DIAGRAMS FOR ALL ELECTRICAL CONSTRUCTION MATERIALS, AND DEVICES.
30. UNLESS SPECIFICALLY INDICATED OR REQUESTED OTHERWISE, BIND ALL PRODUCT DATA TOGETHER INTO A SINGLE SUBMITTAL PROPERLY INDEXED AND IDENTIFIED AND WITH ALL PERTINENT CATALOG NUMBERS, OPTIONS, ETC. HIGHLIGHTED OR TARGETED. LOOSE SHEETS OR BINDING SYSTEMS RELYING ON PAPER CLIPS OR SLIP ON SPLINES WILL BE DISCARDED AND THE TRANSMITTAL RETURNED TO THE CONTRACTOR.
31. PROVIDE SHOP DRAWINGS AND/OR WIRING DIAGRAMS FOR OWNER, AND OTHER CONTRACTORS, FOR THE PROPER INSTALLATION OF RELATED ELECTRICAL WORK AND, UNLESS OTHERWISE NOTED, WIRE ALL CONTROL DEVICES, TIMER, ETC. REQUIRED FOR THE PROPER OPERATION OF THEIR SYSTEM.
32. OBTAIN ALL PERMITS REQUIRED, HAVE THE WORK INSPECTED FOR CODE COMPLIANCE AND PAY ALL FEES FOR INSPECTION AND CERTIFICATION.

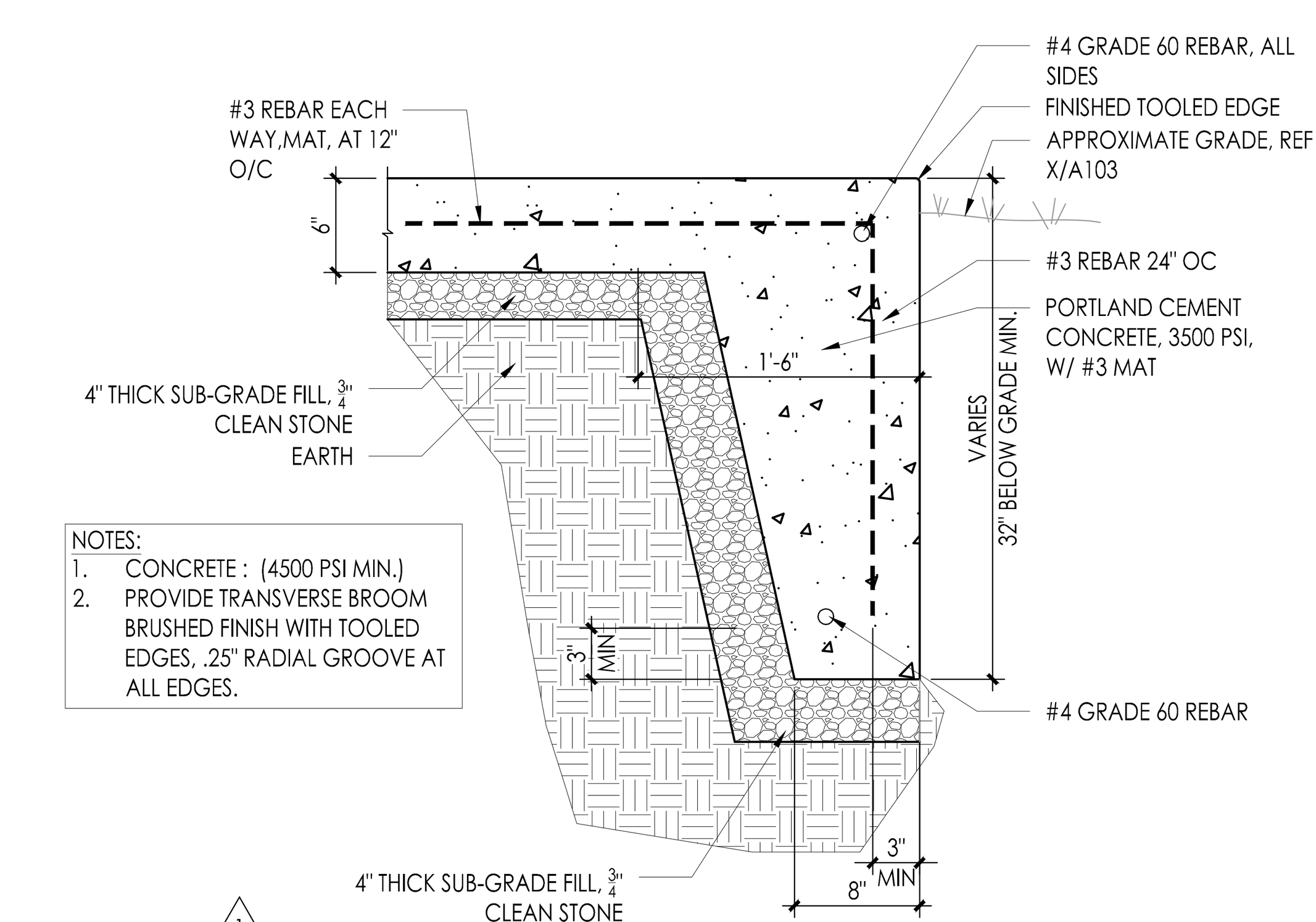
NOTES:
1. DO NOT OVER COMPACT SUB-GRADE AT STOOPS.
2. USE SHADE TOLERANT SEED IN COURT YARD AREAS



6 LAWN DETAIL
Scale: 1" = 1'-0"

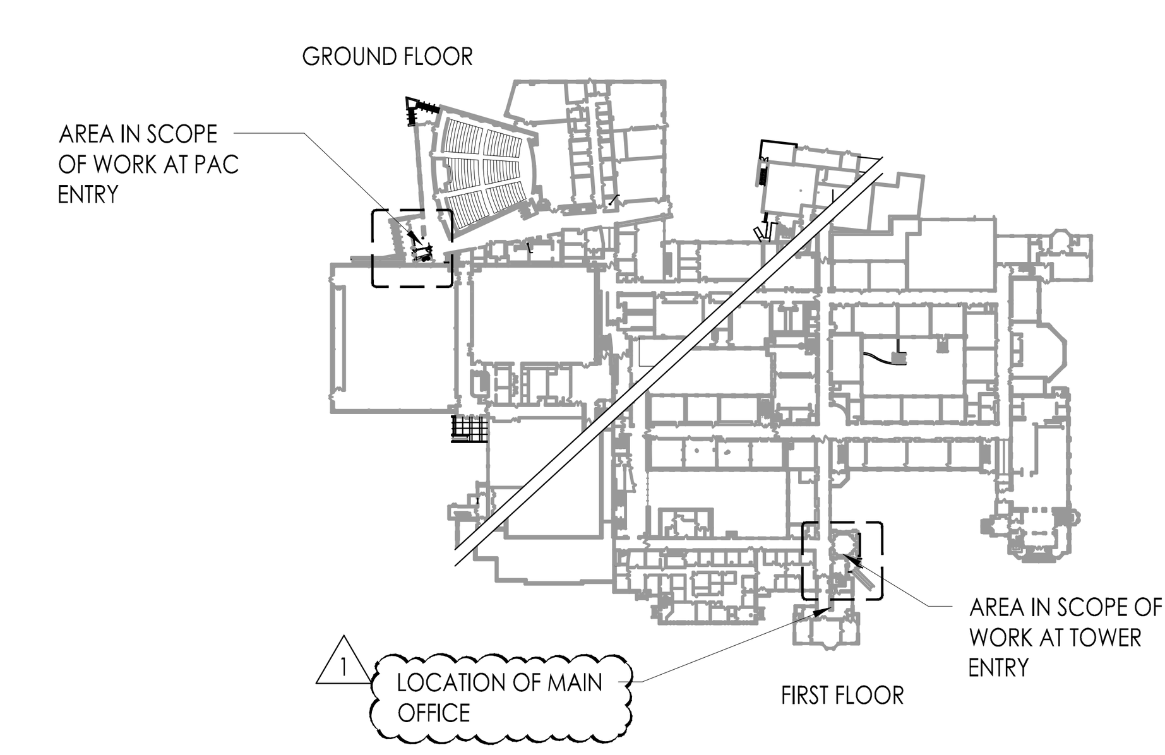


5 DRY WELL CONDENSATE SYSTEM
Scale: 1 1/2" = 1'-0"



NOTES:
1. CONCRETE : (4500 PSI MIN.)
2. PROVIDE TRANSVERSE BROOM BRUSHED FINISH WITH TOOLED EDGES, .25" RADIAL GROOVE AT ALL EDGES.

4 FROST FREE CONC. PAD
Scale: 1" = 1'-0"



PRINCETON HIGH SCHOOL - KEY PLAN
Scale: NTS

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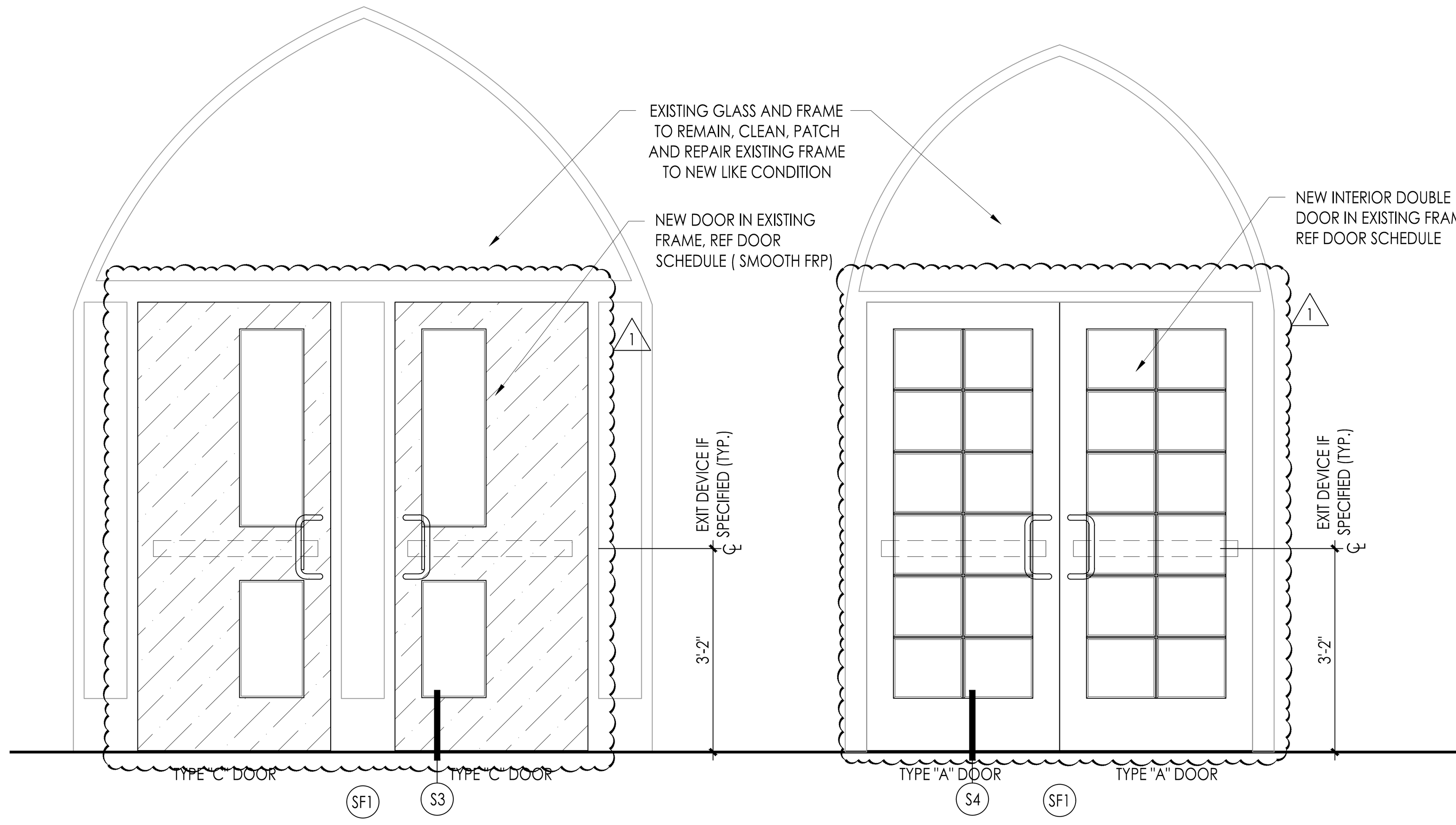
Project Name
NEW SECURITY VESTIBULES AT PRINCETON HIGH SCHOOL
Project Owner Name
PRINCETON PUBLIC SCHOOLS
Project Location
151 MOORE ST PRINCETON, NJ 08540
Project Number
5499A1
Project Date
12.18.2023
Checked By
GRD
Drawn By
SJK
Scale
AS NOTED
Drawing Name
MAIN ENTRY AND PAC VESTIBULE ELECTRIC PLANS, HVAC PANS, NOTES AND DETAILS

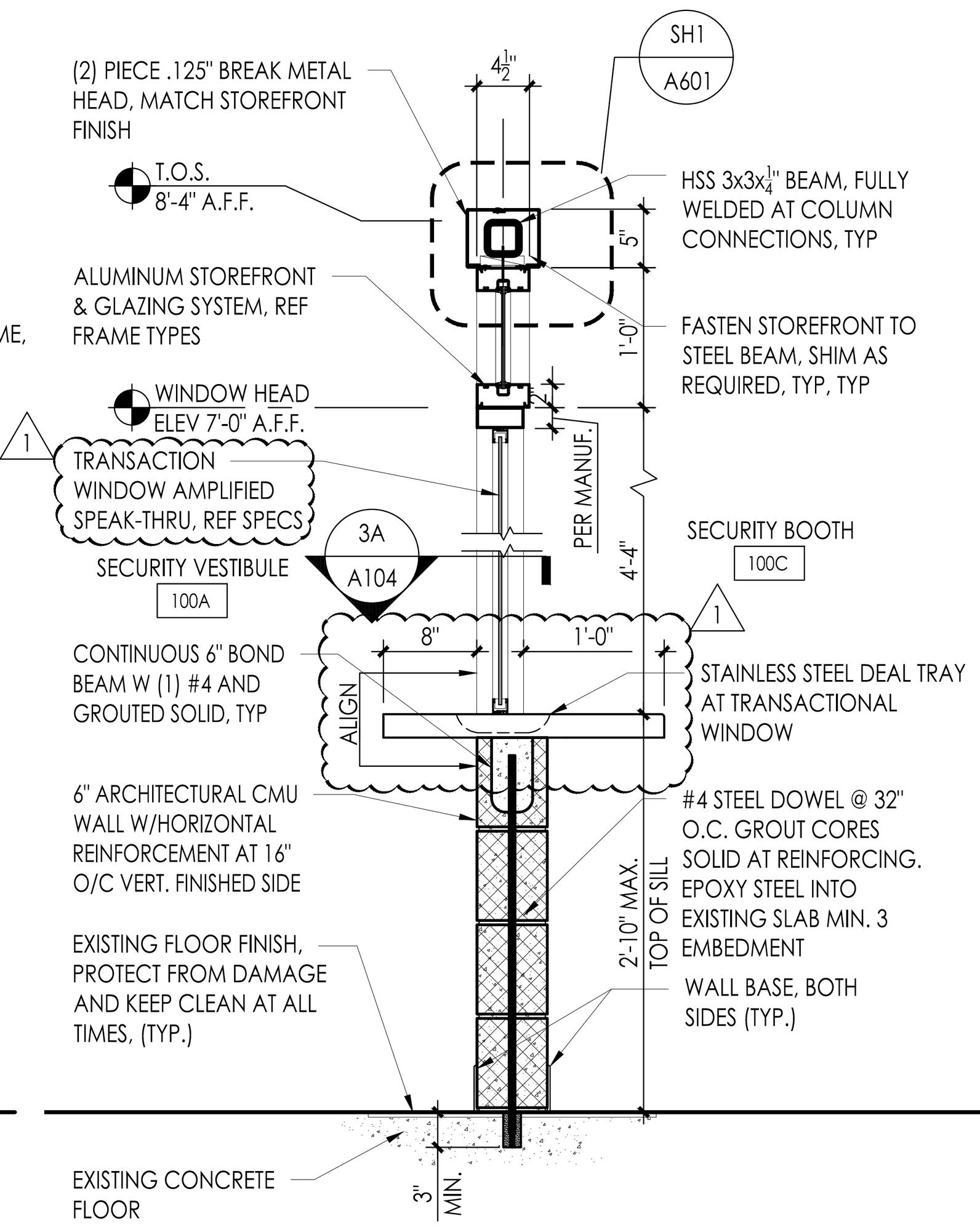
Revisions

No.	Date	Description
1	02.06.24	ADDENDUM NO.1

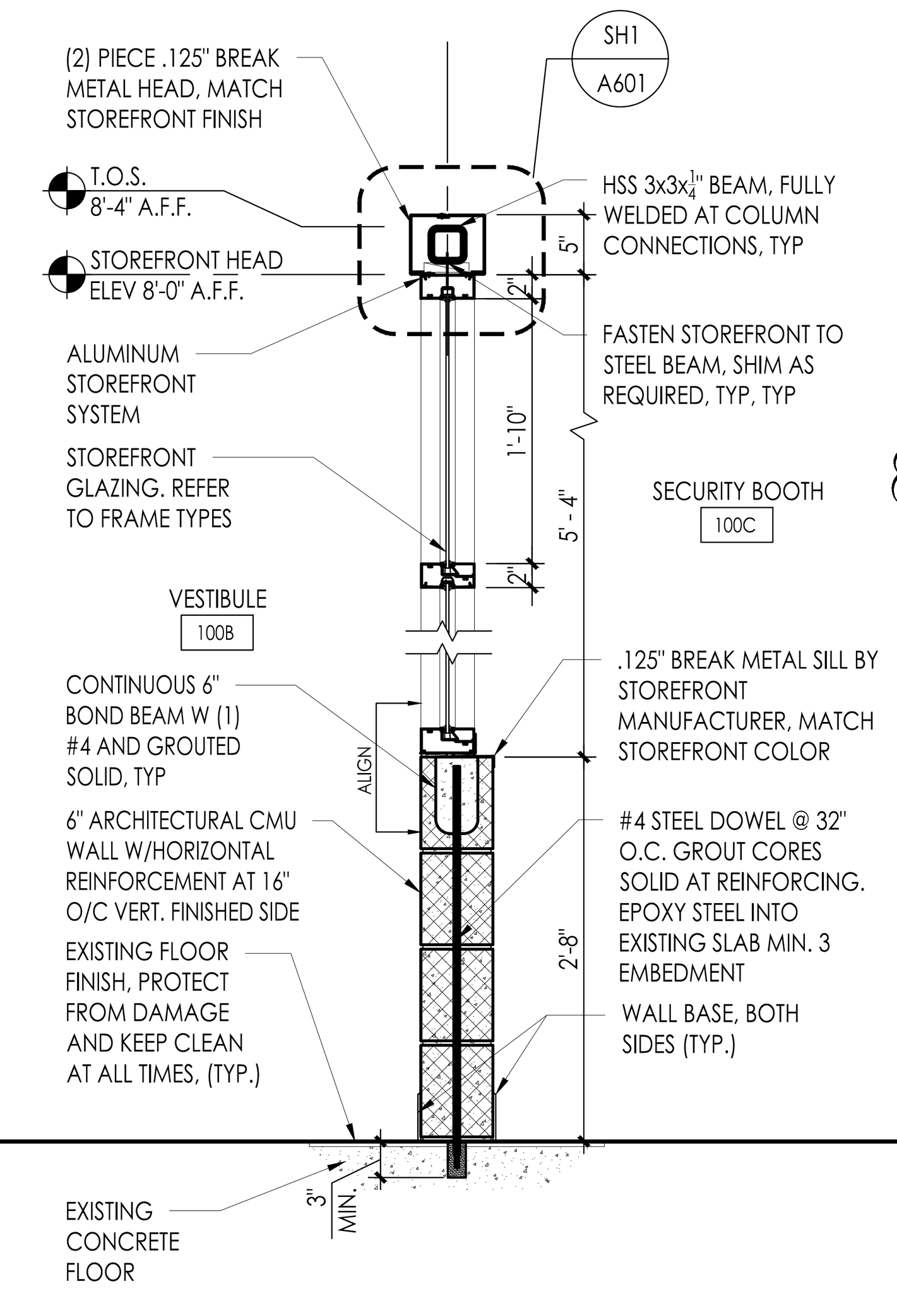
Drawing Number
A103



1 MAIN ENTRY SECURED VESTIBULE - EXISTING STOREFRONT FRAME TYPES
Scale: 1/2" = 1' - 0"



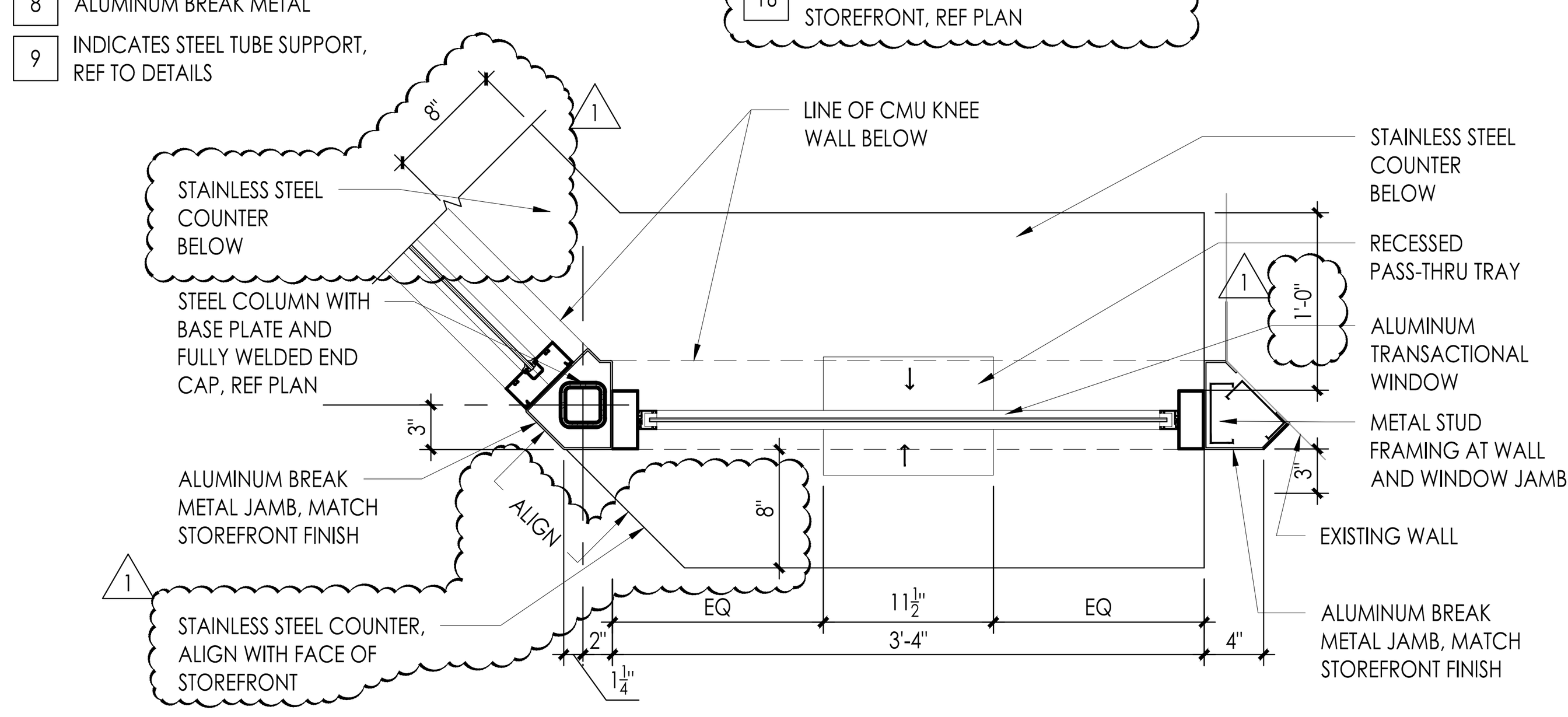
2 TRANSACTION WINDOW DETAIL
Scale: 3/4" = 1' - 0"



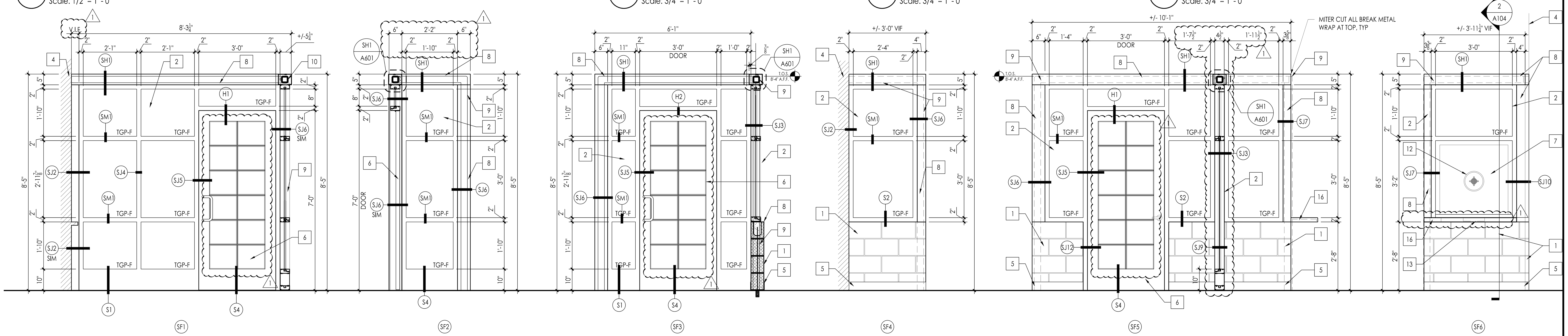
3 STOREFRONT AT CMU SILL DETAIL
Scale: 3/4" = 1' - 0"

INTERIOR ELEVATION NOTES

1	ARCHITECTURAL GROUND FACE CMU BLOCK, RUNNING BOND
2	ALUMINUM STORE FRONT SYSTEM
3	EXISTING STOREFRONT/CURTAIN WALL SYSTEM
4	EXISTING STONE/MASONRY WALL
5	RUBBER BASE (RUB)
6	ALUMINUM & GLASS DOOR, REFERENCE SCHEDULE
7	NEW SECURED TRANSACTION WINDOW WITH AMPLIFIED SPEAK -THRU AND PASS-THRU TRAY.
8	ALUMINUM BREAK METAL
9	INDICATES STEEL TUBE SUPPORT, REF TO DETAILS
10	EXISTING CONSTRUCTION TO REMAIN
11	ARCHITECTURAL GLAZED CMU, RUNNING BOND
12	AMPLIFIED SPEAK -THRU , PER TRANSACTIONAL WINDOW MANUFACTURER
13	DEAL TRAY, PER TRANSACTIONAL WINDOW MANUFACTURER
14	HSS 3X3X¼" STEEL BEAM ATTACHED TO EXISTING MASONRY WALL. GROUT EXISTING CMU CORE SOLID 24" AT AREA OF CONNECTION, GROUT FROM TOP OF WALL.
15	STEEL WRAPPED IN CONTINUOUS .125" BREAK METAL, ADD REQUIRED FRT WOOD BLOCKING FOR A STRAIGHT AND LEVEL BREAK METAL WRAP
16	COUNTER, ALIGN SIDE WITH FACE OF STOREFRONT, REF PLAN



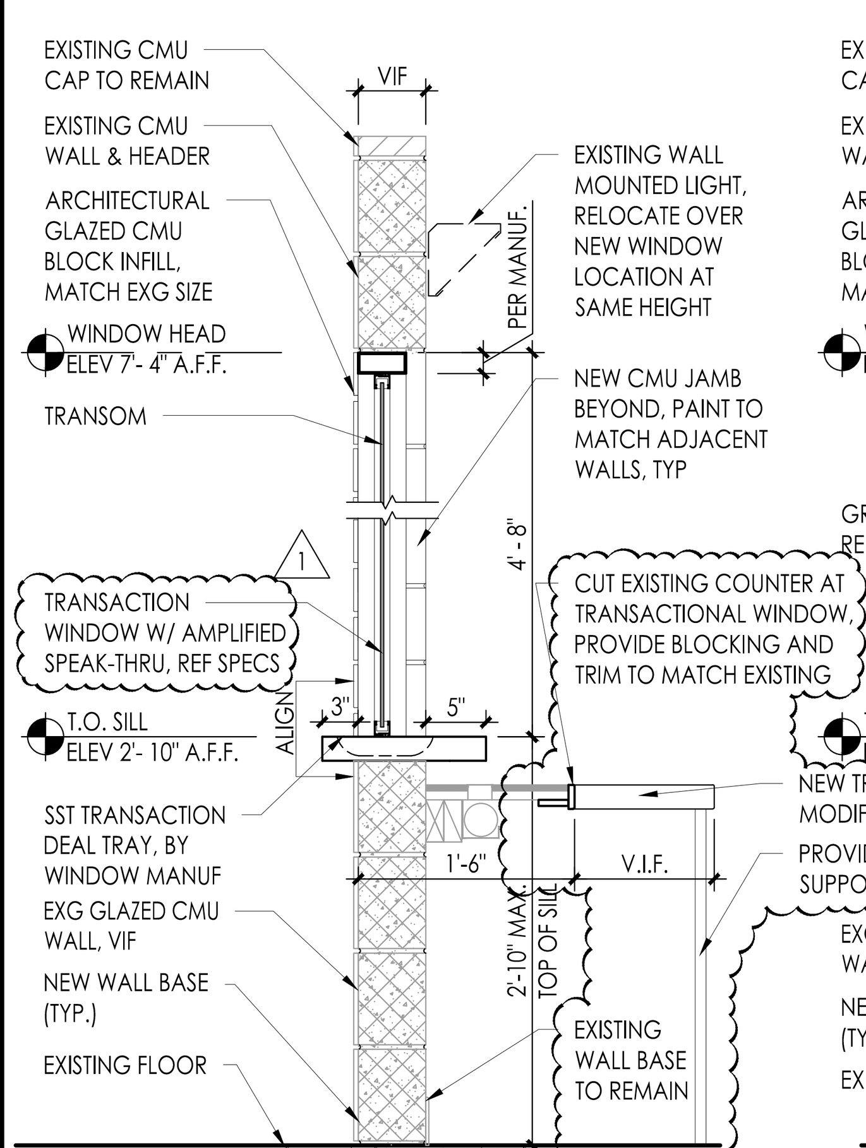
3A DEAL TRAY PLAN
Scale: 3/4" = 1' - 0"



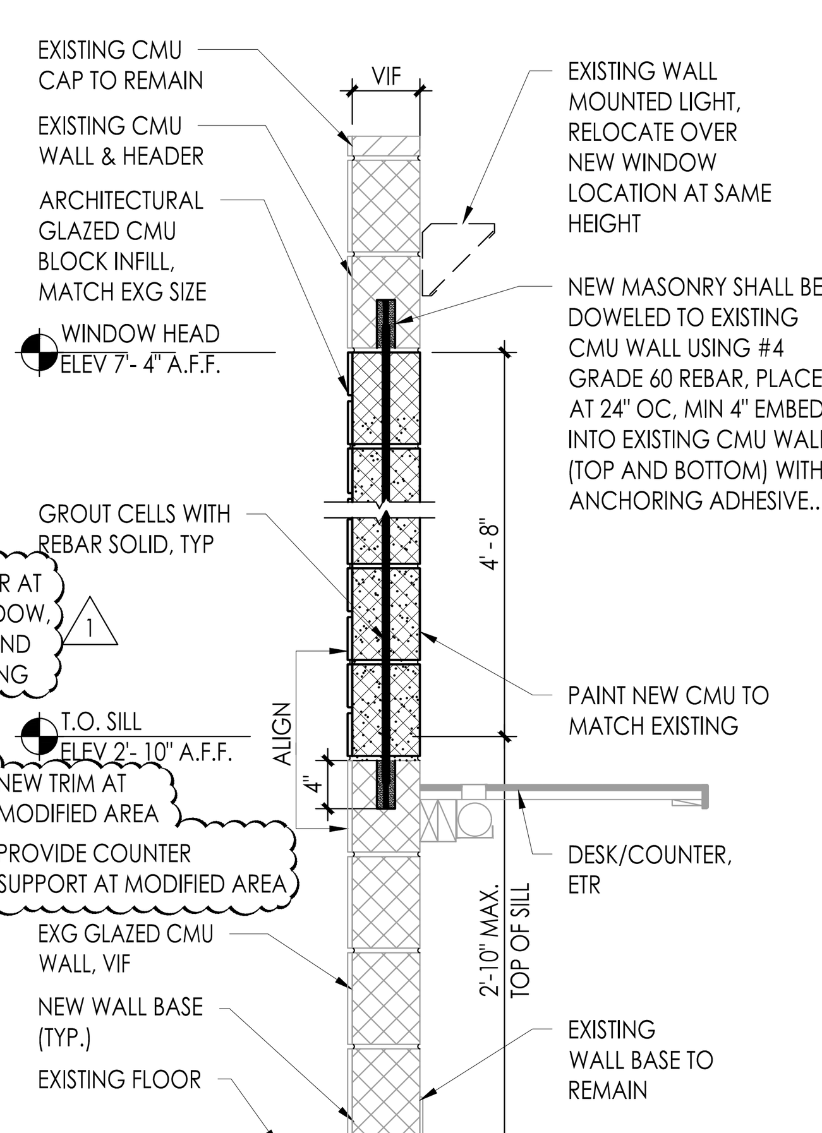
4 MAIN ENTRY SECURED VESTIBULE - STOREFRONT FRAME TYPES
Scale: 1/2" = 1' - 0"

GENERAL INTERIOR ELEVATION NOTES

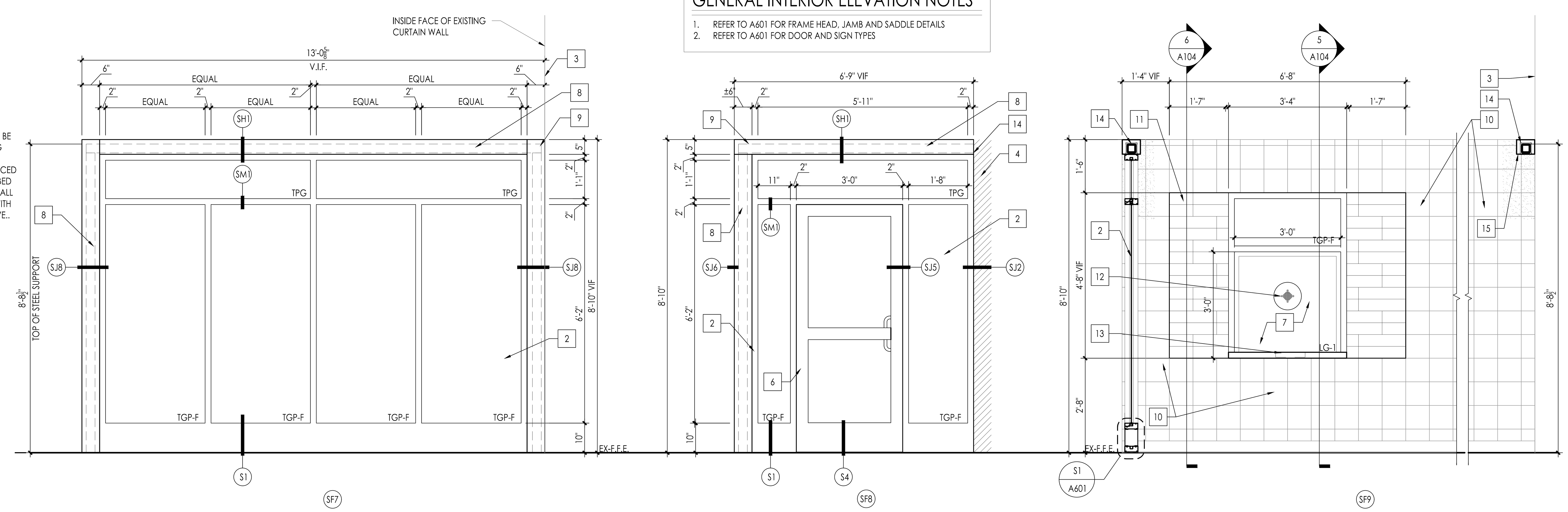
1. REFER TO A601 FOR FRAME HEAD, JAMB AND SADDLE DETAILS
2. REFER TO A601 FOR DOOR AND SIGN TYPES



5 TRANSACTION WINDOW DETAIL
Scale: 3/4" = 1' - 0"



6 EXISTING WALL SECTION
Scale: 3/4" = 1' - 0"



7 PAC ENTRY SECURED VESTIBULE - STOREFRONT FRAME TYPES
Scale 1/2" = 1'-0"

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STATE OF NEW JERSEY GEORGE R. DUTHIE 12992 REGISTERED ARCHITECT
12/18/23
Date
Architect

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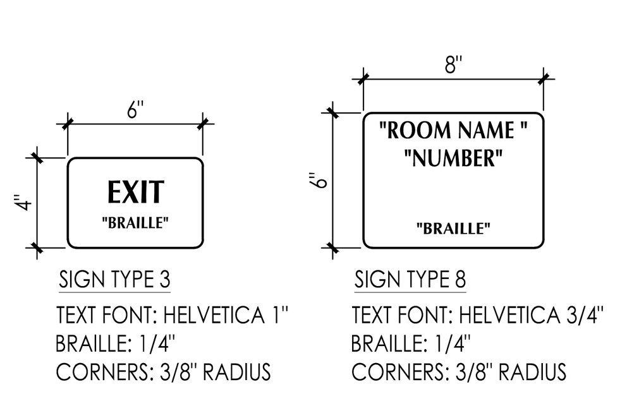
Project Name	NEW SECURITY VESTIBULES AT PRINCETON HIGH SCHOOL
Project Owner Name	PRINCETON PUBLIC SCHOOLS
Project Location	151 MOORE ST PRINCETON, NJ 08540
Project Number	5499A1
Project Date	12.18.2023
Checked By	GRD
Drawn By	SJK
Scale	AS NOTED
Drawing Name	ALUMINUM STOREFRONT AND TRANSACTIONAL WINDOW ELEVATIONS AND SECTIONS

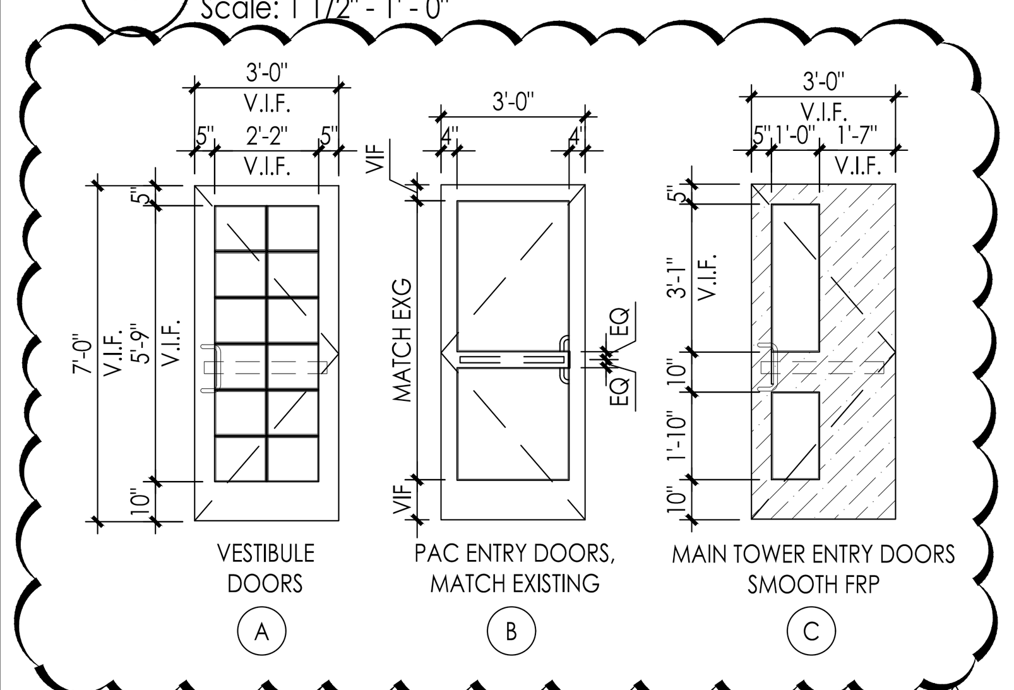
Revisions

No.	Date	Description
1	02.06.24	ADDENDUM NO.1

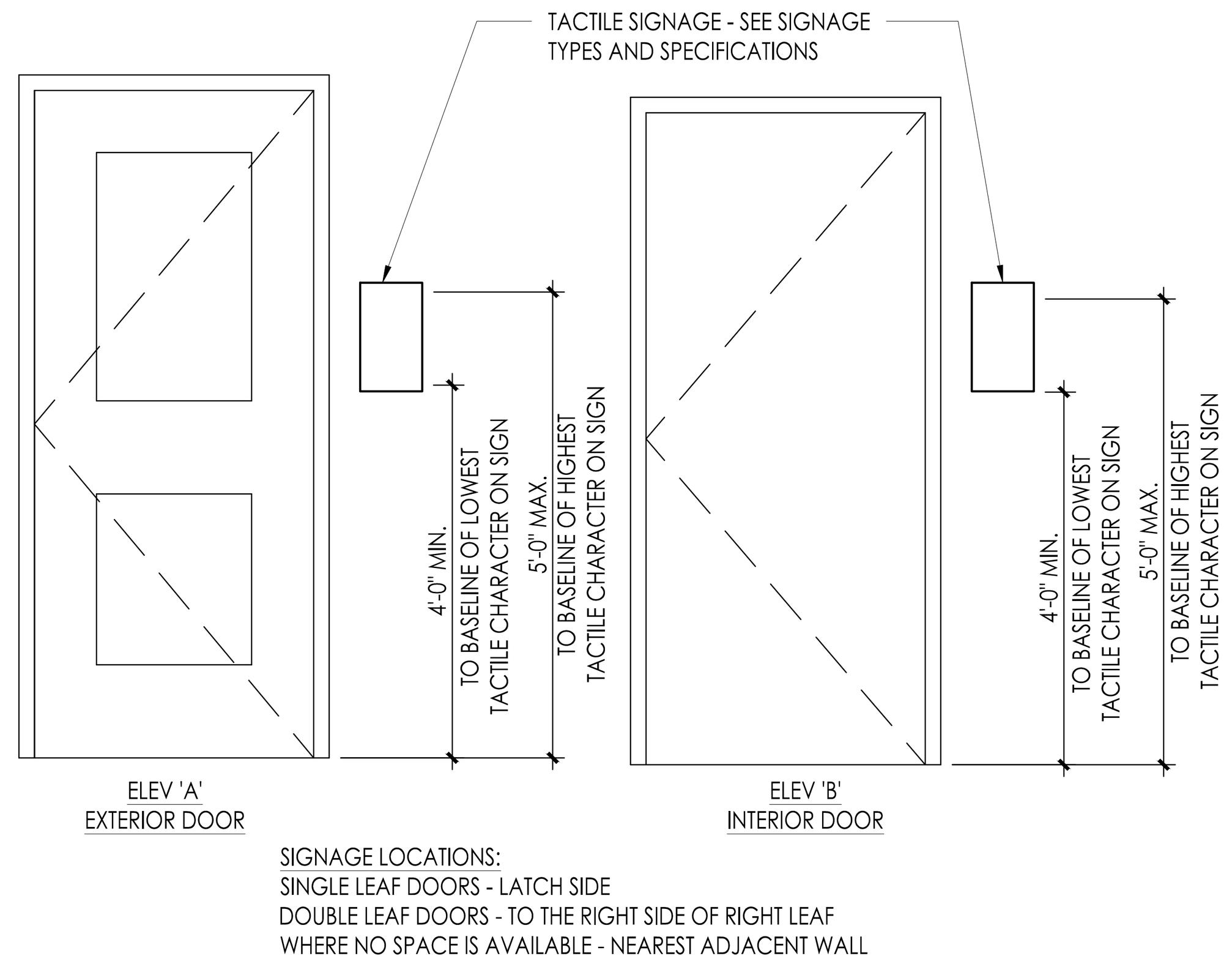
Drawing Number
A104



1 SIGN TYPES
Scale: 1 1/2" - 1' - 0"



2 DOOR TYPES
Scale: 1/4" = 1'-0"



3 SIGNAGE LOCATION DETAILS
Scale: 1/2" = 1'-0"

DOOR AND FRAME SCHEDULE

DR NO	DOOR LOCATION	DOOR				FRAME					HARDWARE	RATING	SIGN TYPE	NOTES
		SIZE	TYPE	MATL	GLAZING	TYPE	MATL	DETAIL HEAD	JAMB	SADDLE				
100A-1	SECUREDVESTIBULE 100A	3'-0" x 7'-0"	C	FRP	INSUL-F	ETR	ETR	--	--	S3/A601	AL01	--	3	5, 6, 7, V.I.F.
100A-2	SECUREDVESTIBULE 100A	3'-0" x 7'-0"	C	FRP	INSUL-F	ETR	ETR	--	--	S3/A601	AL01.1	--	3	5, 6, 7, V.I.F.
100B-1	VESTIBULE 100B	3'-0" x 7'-0"	A	AL	TPG-F	SF3	AL	H1/A601	SJ5/A601	S4/A601	AL02	--	--	6, 7
100B-2	VESTIBULE 100B	3'-0" x 7'-0"	A	AL	TPG-F	SF1	AL	H1/A601	SJ5/A601	S4/A601	AL03	--	--	--
100B-3	VESTIBULE 100B	2 @ 3'-0" x 7'-0"	A	AL	TPG-F	ETR	ETR	--	--	S4/A601	AL04	--	3	5, V.I.F.
100C	SECURITY BOOTH 100C	3'-0" x 7'-0"	A	AL	TPG-F	SF5	AL	H1/A601	SJ5/A601	S4/A601	CR01	--	8	--
S11-1	STAIRWAY S11	3'-0" x 7'-0"	C	FRP	INSUL-F	A01/A601	AL	HA/A601	JA/A601	S3/A601	AL01	--	3	6, (V.I.F.) ALT BID

DOOR SCHEDULE NOTES

1. PROXIMITY READER BY OWNER'S VENDOR - SEE GENERAL DOOR NOTE 6 AND ELECT. DRAWINGS.
2. PROVIDE SECURITY WINDOW FILM TYPE '1' W/ IPA ON GLASS - SEE SPECIFICATION
3. ALUMINUM FRAME
4. PROVIDE ALUMINUM DOOR WITH INSULATED SECURITY GLAZING IN LIEU OF ALUMINUM DOOR WITH INSULATED GLASS AND SECURITY WINDOW FILM UNDER ALTERNATE BID #01.
5. NEW DOOR IN EXISTING FRAME.
6. CARD READER ACCESS FOR FACULTY AND STAFF
7. VISITOR CONTROLLED ACCESS AND PUSH-BUTTON DOOR OPERATOR TO BE CONTROLLED BY SECURITY DESK AND MAIN OFFICE.

GENERAL DOOR NOTES

1. ALL DOORS ARE 1 3/4" THICK UNLESS OTHERWISE NOTED.
2. SEE DOOR TYPES ON THIS DRAWING.
3. SEE SIGNAGE TYPES AND DETAILS ON THIS DRAWING.
4. SEE HEAD, JAMB, SADDLE AND SILL DETAILS ON DRAWING THIS DRAWINGS
5. REFER TO TO A103 FOR STOREFRONT TYPES.
6. COORDINATE ALL ACCESS CONTROL PREP AND WIRING WITH ELECTRICAL CONTRACTOR AND OWNER'S VENDOR (TYP.)
7. CONTRACTOR IS TO FIELD VERIFY SIZE AND QUANTITIES OF ALL DOORS (AND DOOR OPENINGS) PRIOR TO PLACING ORDER.
8. ALL UPGRADED HARDWARE IS TO BE PROVIDED WITH RETROFIT TRIM.
9. OWNER'S CARD ACCESS VENDER (CONTRACTOR TO COORDINATE): **SECUNI**, PH# (844 985-3331) 29 NORTHFIELD AVE. EDISON, NJ 08837

1
ADDED DOOR S11-1
ADDED GENERAL DOOR NOTE NO. 9
ADDED DOOR SCHEDULE NOTE NO. 7 TO DOORS: 100A-1, 100A-2, 100B-1 IN SCHEDULE
REVISED DOORS: 100A-1, 100A-2, TO FRP

ABBREVIATIONS

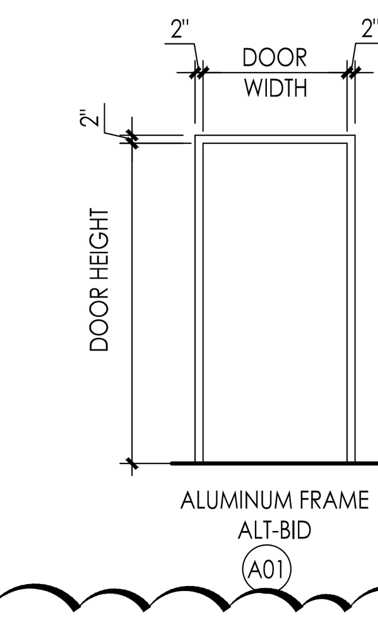
AL	ALUMINUM	CP	CMU - PAINTED
ETR	EXISTING TO REMAIN	EP	EPOXY PAINTED
FRIG-1	FIRE-RATED IMPACT-RESISTANT GLAZING - TYPE 1 W/ SECURITY WINDOW FILM	ETR	EXISTING TO REMAIN
		ETR-P	EXISTING TO REMAIN -PAINTED
INSUL	INSULATED TINTED TEMPERED GLASS		
INSUL-F	INSULATED TINTED TEMPERED GLASS W/ SECURITY WINDOW FILM	HM	HOLLOW METAL
		LG	LAMINATED GLASS
TPG	TEMPERED PLATE GLASS	ME	MATCH EXISTING
TPG-F	TEMPERED PLATE GLASS W/ SECURITY WINDOW FILM	PTD	PAINTED
		RUB	RUBBER BASE

GLAZING TYPES (BASE BID ALTERNATE BID)

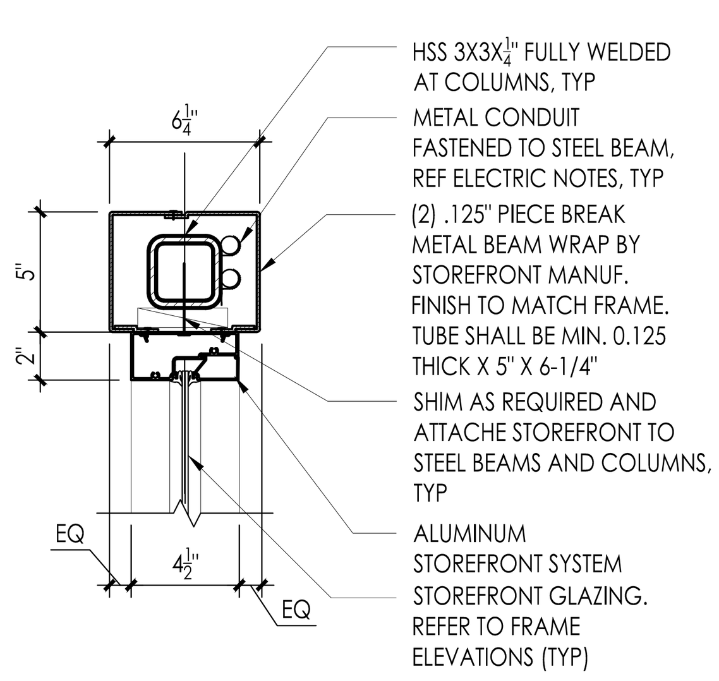
BASE BID	PROVIDE SECURITY WINDOW FILM AS INDICATED BELOW (SEE SPECIFICATIONS)
ALTERNATE BID NO. 1	PROVIDE SECURITY GLAZING AS INDICATED BELOW

PAC VESTIBULE DOOR AND FRAME SCHEDULE

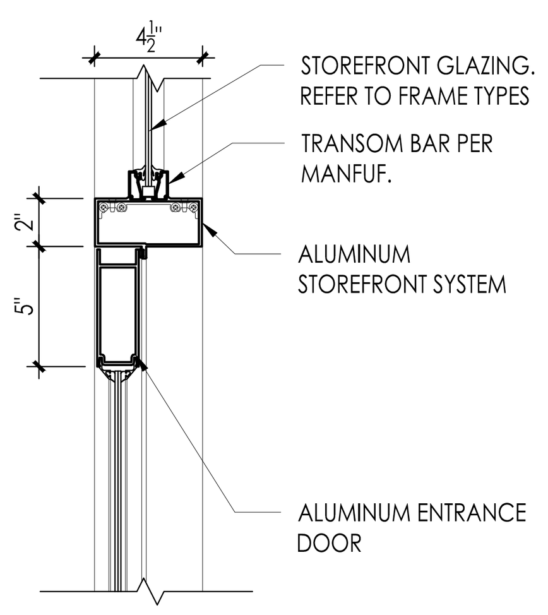
DR NO	DOOR LOCATION	DOOR				FRAME					HARDWARE	RATING	SIGN TYPE	NOTES
		SIZE	TYPE	MATL	GLAZING	TYPE	MATL	DETAIL HEAD	JAMB	SADDLE				
092.1A-1	SECUREDVESTIBULE 092.1A	3'-0" x 7'-8"	ETR	--	ETR	ETR	--	--	--	--	ETR	--	3	6, 7
092.1A-2	SECUREDVESTIBULE 092.1A	3'-0" x 7'-8"	B	AL	TPG-F	SF8	AL	H1/A601	SJ5/A601	S4/A601	AL02	--	3	DOOR STYLE TO MATCH EXISTING



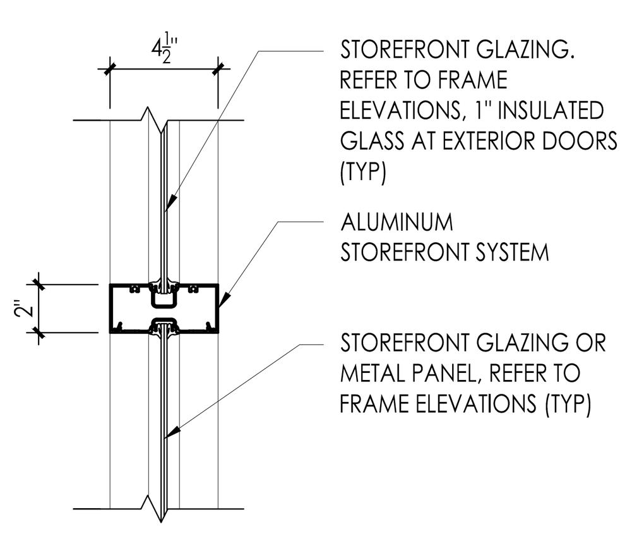
ALUMINUM DOOR ELEVATION
Scale 1/4" = 1' - 0"



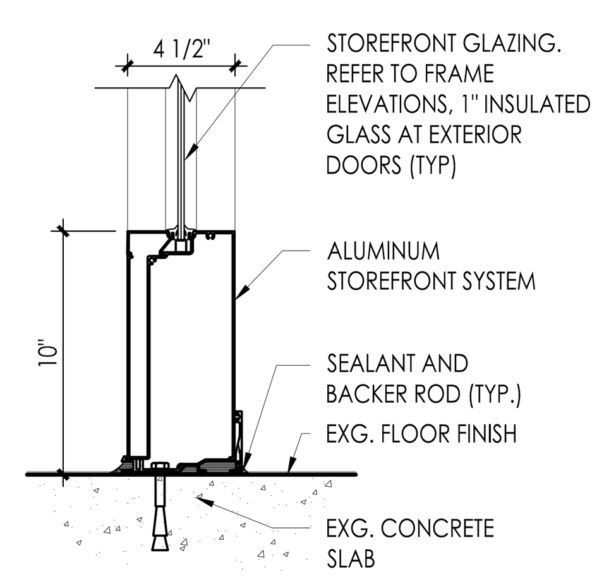
SH1 STOREFRONT HEAD DETAIL
Scale 1 1/2" = 1' - 0"



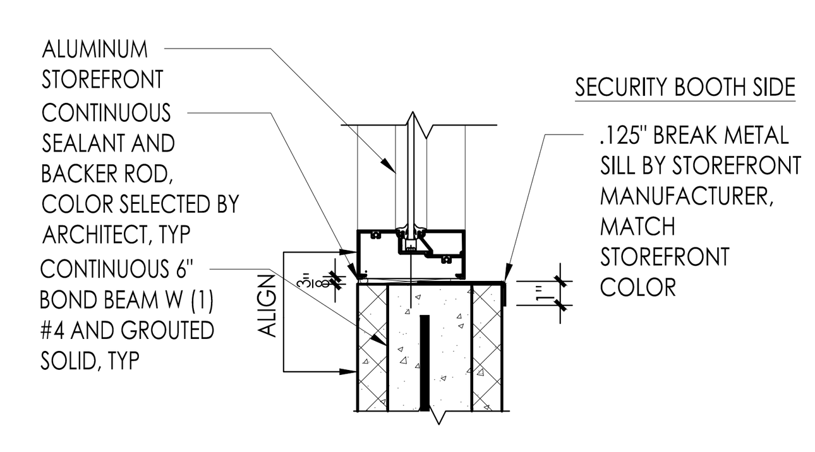
H1 DOOR HEAD DETAIL
Scale 1 1/2" = 1' - 0"



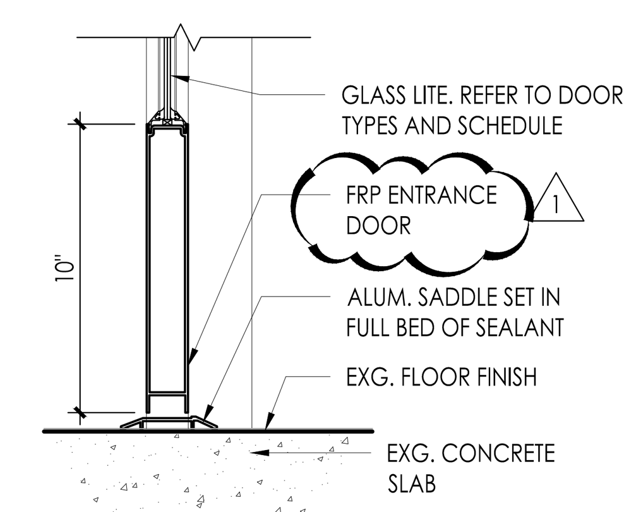
SM1 STOREFRONT DETAIL
Scale 1 1/2" = 1' - 0"



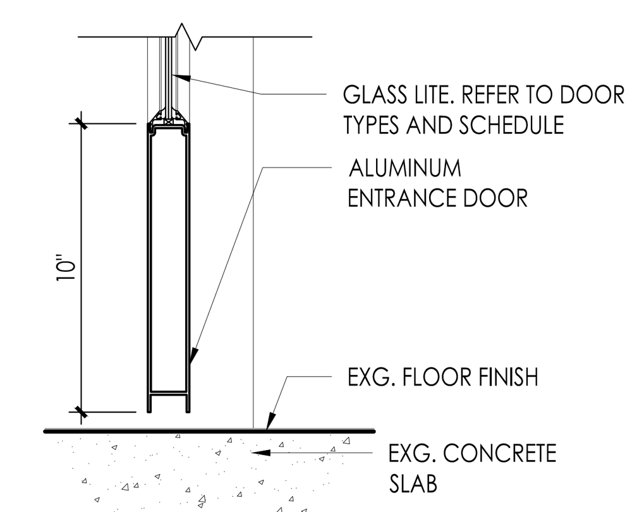
S1 STOREFRONT SILL DETAIL
Scale 1 1/2" = 1' - 0"



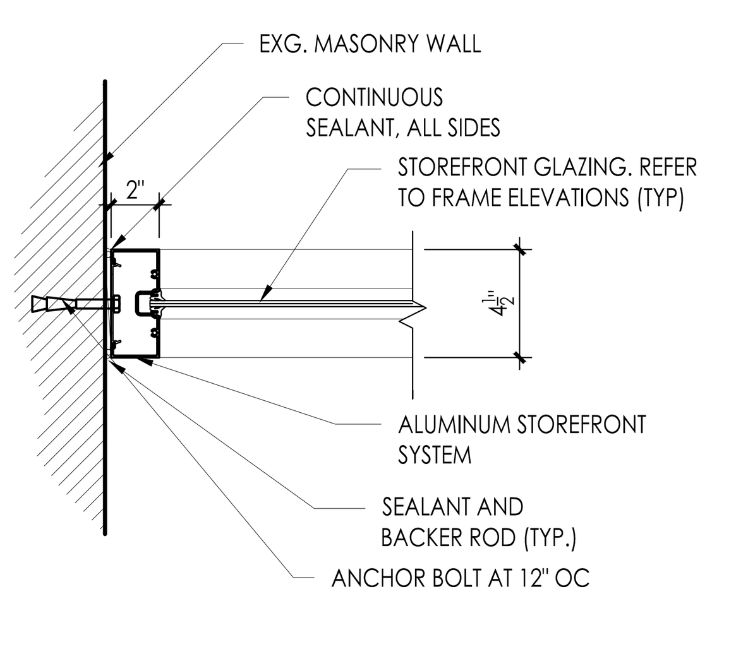
S2 STOREFRONT SILL DETAIL
Scale 1 1/2" = 1' - 0"



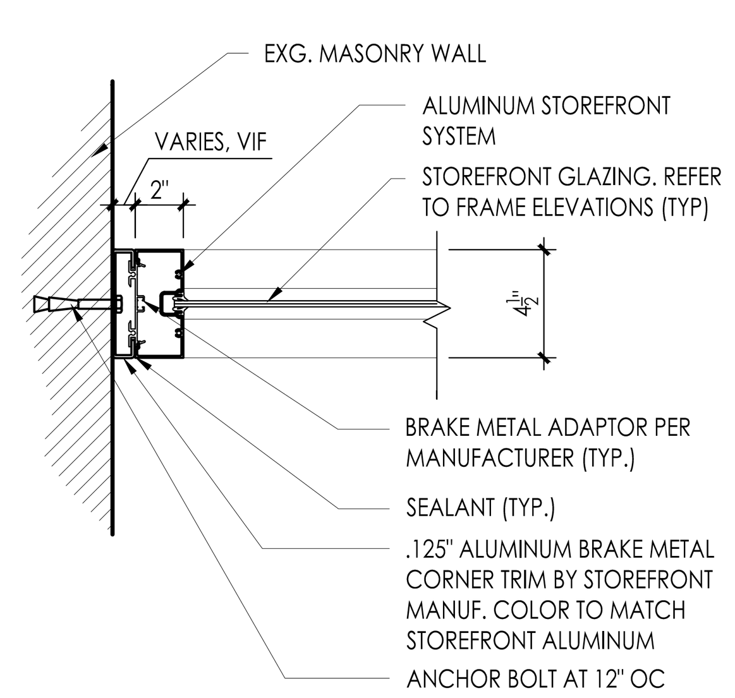
S3 SADDLE DETAIL
Scale 1 1/2" = 1' - 0"



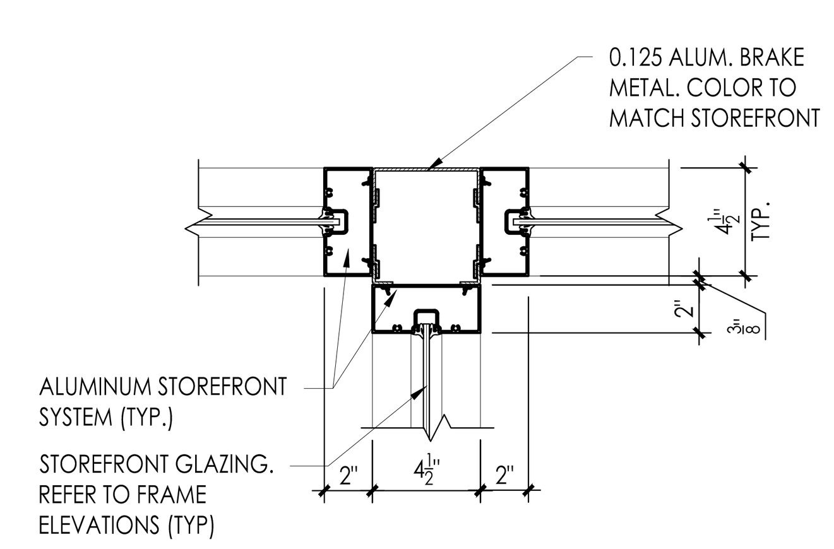
S4 SADDLE DETAIL
Scale 1 1/2" = 1' - 0"



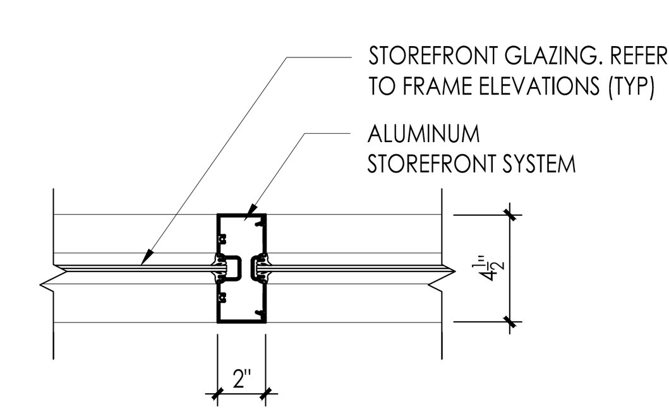
SJ1 STOREFRONT JAMB DETAIL
Scale 1 1/2" = 1' - 0"



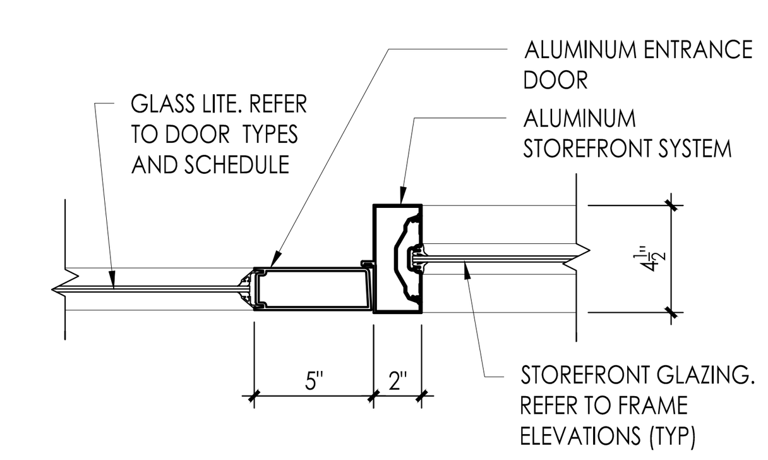
SJ2 STOREFRONT JAMB DETAIL
Scale 1 1/2" = 1' - 0"



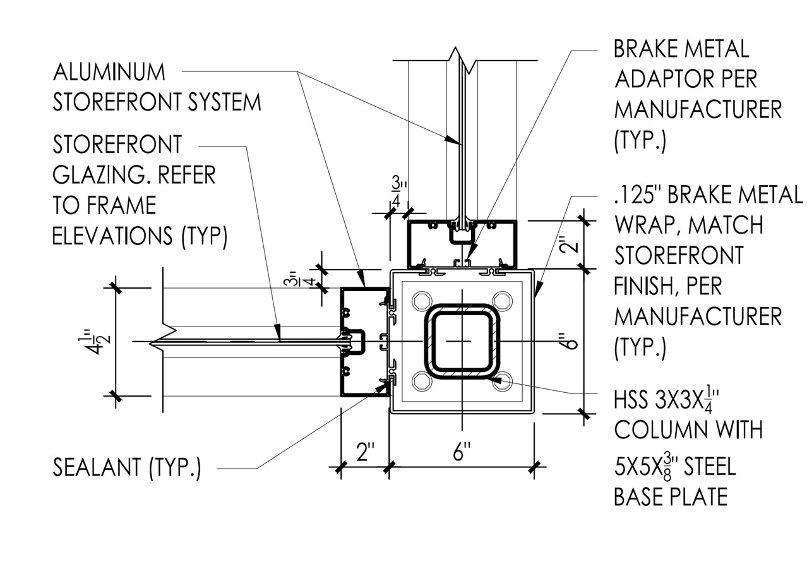
SJ3 STOREFRONT JAMB DETAIL
Scale 1 1/2" = 1' - 0"



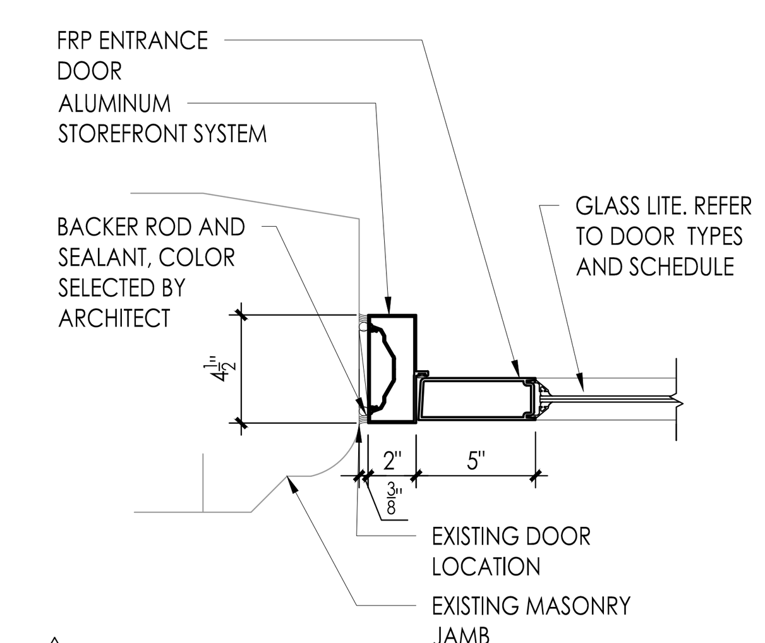
SJ4 STOREFRONT JAMB DETAIL
Scale 1 1/2" = 1' - 0"



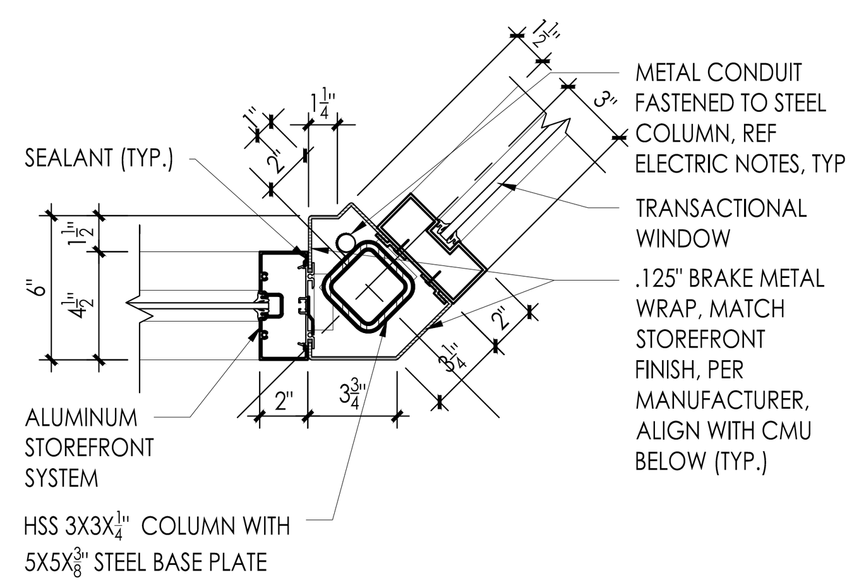
SJ5 STOREFRONT JAMB DETAIL
Scale 1 1/2" = 1' - 0"



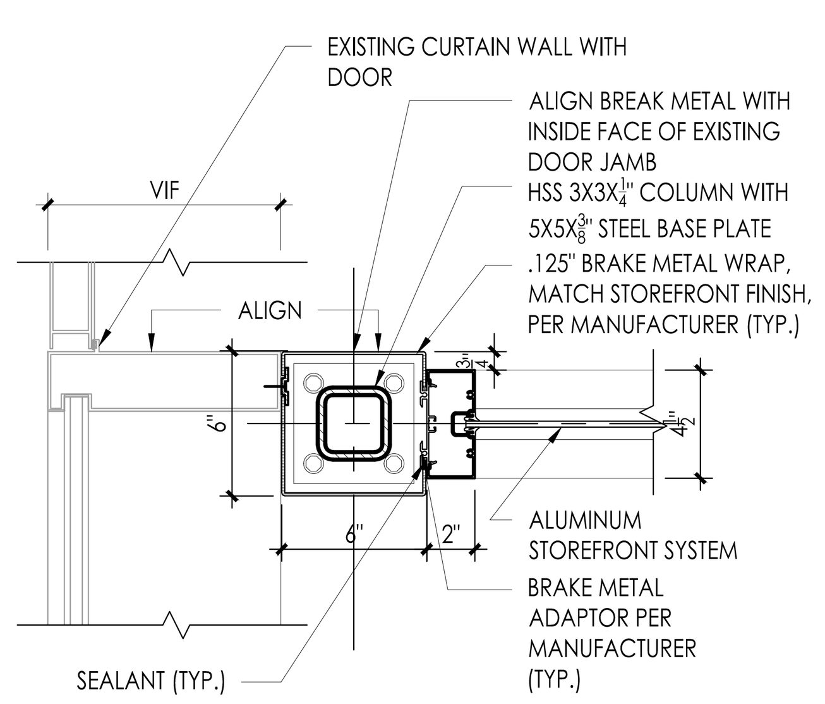
SJ6 STOREFRONT JAMB DETAIL
Scale 1 1/2" = 1' - 0"



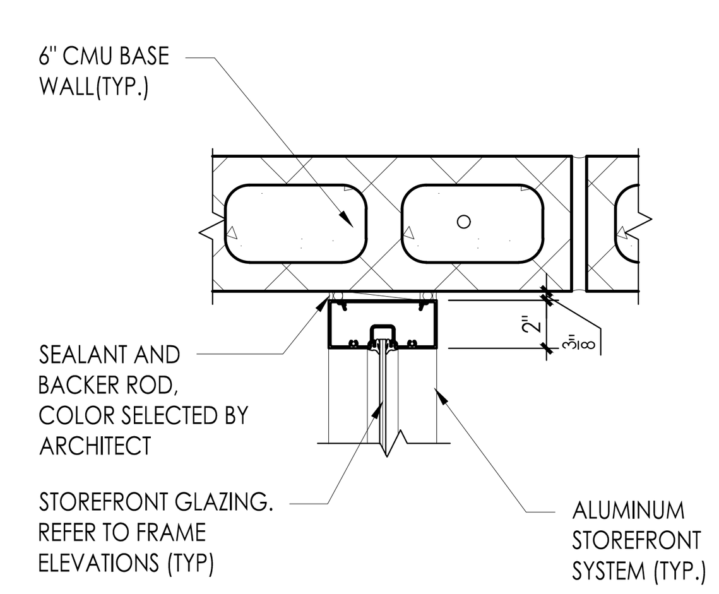
JA ALT BID DOOR JAMB DETAIL
Scale 1 1/2" = 1' - 0"



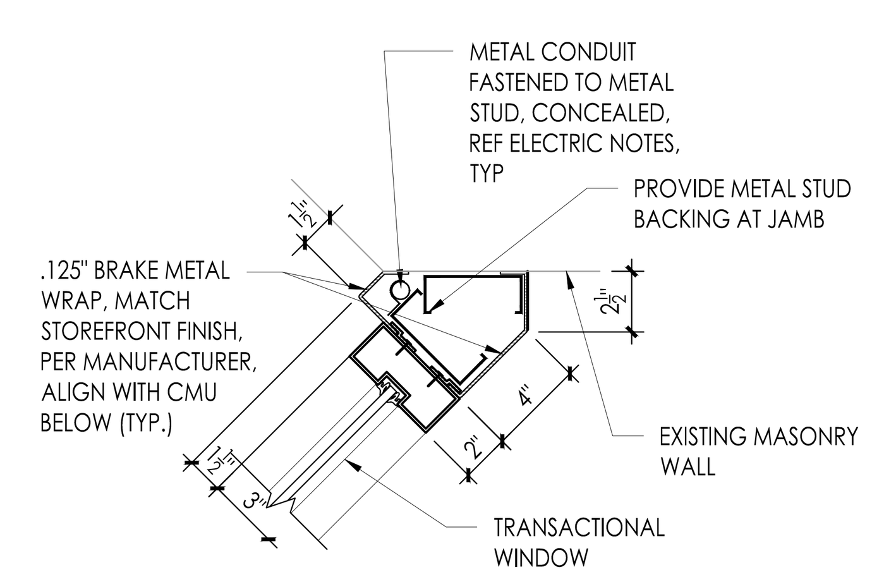
SJ7 STOREFRONT JAMB DETAIL
Scale 1 1/2" = 1' - 0"



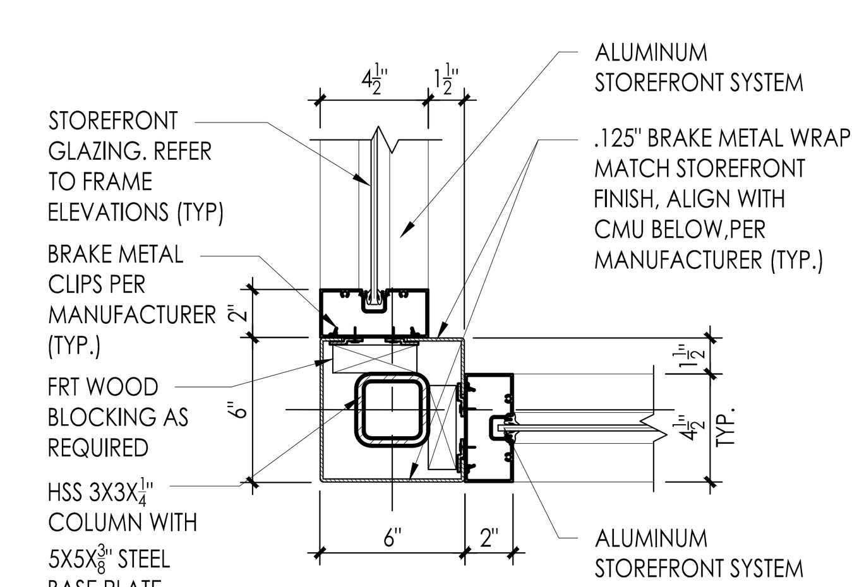
SJ8 STOREFRONT JAMB DETAIL
Scale 1 1/2" = 1' - 0"



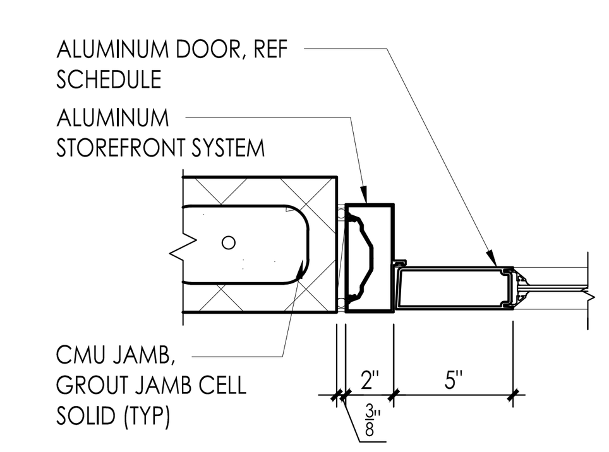
SJ9 STOREFRONT JAMB DETAIL
Scale 1 1/2" = 1' - 0"



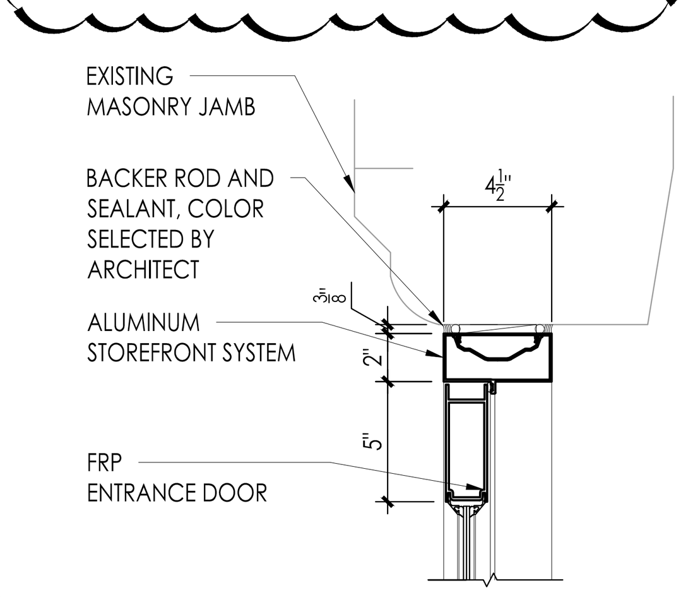
SJ10 TRANSACTIONAL WINDOW JAMB/BREAK METAL DETAIL
Scale 1 1/2" = 1' - 0"



SJ11 STOREFRONT CORNER DETAIL
Scale 1 1/2" = 1' - 0"



SJ12 DOOR JAMB DETAIL
Scale 1 1/2" = 1' - 0"



HA ALT BID DOOR HEAD DETAIL
Scale 1 1/2" = 1' - 0"

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Project Name
NEW SECURITY VESTIBULES AT PRINCETON HIGH SCHOOL

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151 MOORE ST PRINCETON, NJ 08540

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AS NOTED

Drawing Name
DOOR SCHEDULES, ALUMINUM STOREFRONT, DETAILS AND NOTES

Revisions

No.	Date	Description
1	06.26.23	ADDENDUM NO.1

Drawing Number
A601