To: Prospective Bidders

From: Wold Architects and Engineers

Date: March 8, 2023

Comm. No: 213106

Subject: Addendum No. 4 for Bidding Documents for the
Regional Operations and Communications Facility
Libertyville, Illinois

BIDS DUE MARCH 13, 2023 AT 11:00 A.M.

NOTE BID DATE CHANGE

This addendum forms a part of the Contract Documents dated December 30, 2022. Acknowledge receipt of this Addendum on the space provided on the Bid Form. Failure to do so may result in disqualification of Bid.

This Addendum consists of one (1) typed sheet and attachments:
Specifications: 00 41 00, 01 22 00, 07 42 13, 07 61 00, 08 44 13, 08 71 00, 08 80 00, 09 21 16, 26 36 50
Drawings: S2.00a, A2.01a, A2.01b, A4.306, A4.710, A4.802, A5.301, A5.302

PROJECT MANUAL

1. **SPECIFICATION SECTION 00 41 00 BID FORM**
   A. Reissued this addendum.
2. **SPECIFICATION SECTION 01 22 00 UNIT PRICES**
   A. Reissued this addendum.
3. **SPECIFICATION SECTION 07 42 13 METAL WALL PANEL**
   A. Reissued this Addendum.
4. **SPECIFICATION 07 61 00 SHEET METAL ROOFING**
   A. Reissued this Addendum.
5. **SPECIFICATION SECTION 08 44 13 ALUMINUM STOREFRONT, ENTRANCES, AND CURTAIN WALLS**
   A. Reissued this Addendum.
6. **SPECIFICATION SECTION 08 71 00 FINISH HARDWARE**
   A. Reissued this addendum.
7. **SPECIFICATION SECTION 08 80 00 GLAZING**

A. Reissued this addendum.

8. **SPECIFICATION SECTION 09 21 16 GYPSUM WALLBOARD ASSEMBLIES**
   A. Reissued this addendum.
9. **SPECIFICATION SECTION 26 36 50 PORTABLE GENERATOR DOCKING STATION**
   A. Reissued this addendum.

PRIOR APPROVALS

The following schedule amends designated specification sections to list additional acceptable manufacturers. Use of any product by any of these manufacturers will be permitted only if after review of shop drawings or detailed product data per Section 01 33 00, Architect determines that proposed materials or equipment are equivalent in performance, construction and appearance to product(s) specified.

Where anticipated product substitutions would alter the design or space requirements indicated on the Drawings, pay for cost of design and construction revisions including the cost of associated work by other contractors.

For complete requirements, see Specification Section 01 25 00 – Substitutions and Product Options.

Section No.	Type	Acceptable Manufacturer
27 40 00	Audio/ Video Systems	Planar Creston

DRAWINGS

1. **DRAWING SHEET S2.00a FOUNDATION PLAN – AREA 'A'**
2. **DRAWING SHEET A2.01a FLOOR PLAN AREA 'A'**
   A. Reissued this Addendum.
3. **DRAWING SHEET A2.01b FLOOR PLAN AREA 'B'**
   A. Reissued this Addendum.
4. **DRAWING SHEET A2.901 DOOR/ FRAME/ LOUVER TYPES AND SCHEDULED**
   A. Add the following openings to Door/ Opening Schedule – Area 'A' .

Door No.	Type	QYT	Width	Height	Dr Mat	Label	Fr Type	Fr Mat	Hdw Grp	Remark
01210C	AL	1	4'-0"	9'-0"	AL		SF 4	AL	AC1.01	
01314B	MSCD	1			SS	90		SS		5
01314C	MSCD	1			SS	90		SS		5
01314D	MSCD	1			SS	90		SS		5
01315	F	1			HM			HM	7.00	4
01315C	MSCD	1			SS	90		SS		5
01410B	AL	1	4'-0"	9'-0"	AL		CW 7	AL	AC6.00	

B. Add the following to Door Schedule Remarks
   1. Door Schedule Remark #4: Opening door and frame to be sized to fit at storm louver. Frame to be four sided per details at SL1.
   2. Door Schedule Remark #5: Coiling Storm Shutter to be sized to coordinate with associated openings and as detailed on Sheet A4.801.

C. Add Door Schedule Remark #2 to Openings 01315A and 01315B.

D. In the Door/ Opening Schedule revise opening 01402G from Door Type F to Bifold and Frame Type FR 3 to FR1.

5. DRAWING SHEET A4.306 FLOOR FINISH PLAN – AREA 'B'

A. Reissued this Addendum.

6. DRAWING SHEET A4.403 INTERIOR ELEVATIONS

A. At elevation E2, add note AWP (Acoustical Wall Panel) to the four (4) 5'-0" x 3'-6" "green" rectangles located along the wall.

7. DRAWING SHEET A4.710 DETAILS – INTERIOR CASEWORK SECTIONS

A. Reissued this Addendum.

8. DRAWING SHEET A4.802 DETAILS – INTERIOR OPENING DETAILS

A. Reissued this Addendum.

9. DRAWING SHEET A5.301 CURTAINWALL ELEVATIONS

A. Reissued this Addendum.

10. DRAWING SHEET A5.302 STOREFRONT ELEVATIONS

A. Reissued this Addendum.

END OF ADDENDUM #4

SECTION 00 41 00
BID FORM SUPPLEMENTAL INFORMATION
(CONTRACTOR SHALL USE THIS SECTION TO SUPPLEMENT THE REQUIRED LAKE COUNTY BID SOLICITATION FORM)

THE PROJECT AND THE PARTIES

1.01 TO:

A. LAKE COUNTY
LAKE COUNTY GOVERNMENT BUILDING
18 NORTH COUNTY STREET
WAUKEGAN, ILLINOIS 60085

1.02 FOR:

A. Project: REGIONAL OPERATIONS AND COMMUNICATIONS FACILITY
B. Project Number: 213106
LAKE COUNTY GOVERNMENT CAMPUS
LIBERTYVILLE, ILLINOIS 60048

We have examined the Contract Documents for the proposed Regional Operations and Communications Facility as prepared by Wold Architects and Engineers, Palatine, Illinois, and the conditions affecting the work.

1.03 ALTERNATES

A. The Bidder agrees to add to or deduct from the Base Bid Sum the following amounts to perform the alternate work described in Section 01 23 00, including all associated costs.
1. Alternate No. 1 Reduce UPS Runtime – Deduct Alternate
2. Alternate No. 2 Additional Audio/Visual Display Locations – Add Alternate
3. Alternate No. 3 Provide Metal Standing Seam Roof and EPDM Room in lieu of PVC – Add Alternate
4. Alternate No. 4 Remove Loading Dock – Deduct Alternate
5. Alternate No. 5 Reduce Walking Path – Deduct Alternate
6. Alternate No. 6 Sound Masking – Add Alternate
7. Alternate No. 7 Provision for Additional Site Trailer for County Use – Add Alternate
8. Alternate No. 8 Itemized Costs for A/V Network Resiliency
9. Alternate No. 9 BIM (LOD) 400 final deliverable from the Contractor

1.04 PRICING BOUNDARY ZONES

A. Contractor shall identify pricing associated with full and complete construction of work zones with clarification as identified below. Please note this information is being requested for cost associative purposes on behalf of various Lake County grants and funding sources. THE FOLLOWING COSTS WILL NOT BE GROUNDS FOR BID ALTERNATES/OPTIONS OR SUBDIVISION OF THIS WORK FROM THE PROCUREMENT OF THE TOTAL PROJECT. Actual costs along with percentage based costs are appropriate for this break down. The contractor will be required to work with Lake County to replicate this logic on statement of values and invoicing.
1. Zone 1 - Backup Generator (equipment and install), including: foundation, barrier wall, wiring, controls, testing, and start up
2. Zone 2 – UPS (equipment and install): wiring, controls, testing and start up.
3. Zone 3 – Geothermal Wells (equipment and install), including: wells, piping, manifolds, pumps, testing, and start up.
4. Zone 4 – ARPA (equipment and install): see ARPA funding zone designation graphic as shown on Architectural Drawing A2.03.

5. Zone 5 – FEMA (finishes, equipment, etc.) see FEMA funding zone designation graphic and explanation as shown on Architectural Drawing A2.03.
6. Zone 6 - ETSB (equipment and install): see ETSB funding zone designation graphic as shown on Architectural Drawing A2.03.

1.05 UNIT PRICES

A. The following are Unit Prices requested for use in changes of the Work as listed below:

Unit Price #1 – Pre-mixed glycol/DI Solution	$.....gallon
Unit Price #2 – Removal and Disposal of Unsuitable Materials	$.....CY
Unit Price #3 – Aggregate Subgrade Improvement	$.....CY
Unit Price #4 – Preparation of Base	$.....SY
Unit Price #5 – Geotechnical Fabric for Ground Stabilization	$.....SY
Unit Price #6 – Combination Concrete Curb & Gutter, Type B-6.12	$.....LF
Unit Price #7 – Portland Cement Concrete Sidewalk, 5 inch	$.....SF
Unit Price #8 – Ribbon Curb	$.....LF
~~**Unit Price #9 – Pavers**~~	~~**$.....SF**~~
Unit Price #10 – Audio/Visual Extended Warranty	$.....YEARS 2-6
Unit Price #11 – Senior Technician Time	***$.....HR***
Unit Price #12 – Additional IP Drops	***$.....PER DROP***

END OF SECTION 00 41 00

SECTION 01 22 00
UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. In the space indicated on the Bid Form, submit unit prices as required by this section and listed in the Unit Price Schedule. Only one value for each unit price will be allowed.

B. A unit price is a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the quantities of Work required by the Contract Documents are increased or decreased.

C. Refer to individual Specification Sections for construction activities requiring the establishment of unit prices.

1.02 COSTS INCLUDED

A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; applicable taxes; overhead and profit.

B. While unit prices are not to be used in the selection of the successful Bidder, they must be submitted and approved prior to execution of the Contract.

1. The Owner reserves the right to reject a unit price they deem unsatisfactory and to require a resubmittal, based other bidders unit prices.
2. The Owner reserves the right to reject the Contractor's measurement of quantities, and to have this Work measured by an independent party.
3. The Owner reserves the right to throw out a bid that does not include a unit price or assign a unit price based on other bidders unit prices.

1.03 UNIT QUANTITIES SPECIFIED

A. Quantities and measurements of actual Work during construction will determine the payment amount.

1.04 MEASUREMENT OF QUANTITIES

A. Take all measurements and compute quantities. Measurements and quantities may be verified by an independent party selected by the Owner.

B. Assist by providing necessary equipment, workers, and survey personnel as required.

C. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.

D. Measurement by Area: Measured by square dimension using mean length and width or radius.

E. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

F. Stipulated Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

G. Contractor's Engineer Responsibilities: Sign surveyor's or testing agency's field notes or keep duplicate field notes, calculate and certify quantities for payment purposes.

1.05 PAYMENT

A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.

B. Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.
2. Products determined as unacceptable before or after placement.

3. Products not completely unloaded from the transporting vehicle.
4. Products placed beyond the lines and levels of the required Work.
5. Loading, hauling, and disposing of rejected Products.

1.06 SCHEDULE OF UNIT PRICES

A. Unit Price #1: Pre-mixed glycol/DI Solution
   1. Description: The addition of glycol/DI solution as outlined in Division 23 Specifications.
   2. Unit of measurement: Gallons

B. Unit Price #2: Removal and Disposal of Unsuitable Materials
   1. Description: Excavation, removal and disposal offsite of existing soils below the soil correction depths indicated in the geotechnical evaluation report that are beyond the scope of Work represented by the Contract Documents, determined to be unsuitable by the project geotechnical engineer for support of foundations, slabs, utilities, traffic, or additional fill materials
   2. Unit of measurement: In place cubic yard.

C. Unit Price #3: Aggregate Subgrade Improvement
   1. Description: Providing and installing additional aggregate subgrade improvements that are beyond the scope of Work represented by the Contract Documents.
   2. Unit of measurement: Compacted cubic yard.

D. Unit Price #4: Preparation of Base
   1. Description: Providing and installing additional base preparation that is beyond the scope of Work represented by the Contract Documents.
   2. Unit of measurement: Installed square yard

E. Unit Price #5: Geotechnical Fabric for Ground Stabilization
   1. Description: Providing and installing additional geotechnical fabric that is beyond the scope of Work represented by the Contract Documents.
   2. Unit of measurement: Installed square yard

F. Unit Price #6: Combination Concrete Curb & Gutter, Type B-6.12
   1. Description: Providing and installing additional curb and gutter, type listed above, that is beyond the scope of Work represented by the Contract Documents.
   2. Unit of measurement: Installed lineal feet

G. Unit Price #7: Portland Cement Concrete Sidewalk, 5 inch
   1. Description: Providing and installing additional PCC sidewalk, type listed above, that is beyond the scope of Work represented by the Contract Documents.
   2. Unit of measurement: Installed square feet

H. Unit Price #8: Ribbon Curb
   1. Description: Providing and installing additional ribbon curb that is beyond the scope of Work represented by the Contract Documents.
   2. Unit of measurement: Installed lineal feet

I. ~~**Unit Price #9: Pavers**~~
   1. ~~**Description: Providing and installing additional pavers that are beyond the scope of Work represented by the Contract Documents.**~~
   2. ~~**Unit of measurement: Installed square feet**~~

J. Unit Price #10: Audio/Visual Extended Warranty
   1. Description: The addition audio/visual extended warranty as outlined in Division 27 Specifications.
   2. Unit of measurement: Additional years of extended service.

K. ***Unit Price #11: Senior Technician Time***
   1. ***Description: Provide an hourly rate for senior technician as identified in Specification Section 25 15 11.02.***
   2. ***Unit of measurement: Hourly Rate.***

L. ***Unit Price #12: Additional IP Drops***

1. ***Description: To provide typical plenum rated CAT 6 IP drop run from the server room to a TBD location. Terminate into patch panel and provide R56 end module, assume 150' length and conduit provided by others.***
2. ***Unit of measurement: Each Drop.***

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 22 00

SECTION 07 42 13
METAL WALL PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A Manufactured metal panels for exterior wall panels and subgrit framing assembly, related flashings and accessory components.

1.02 SUBMITTALS

A See Section 01 30 00 - Administrative Requirements for submittal procedures.

B Product Data - Wall System: Manufacturer's data sheets on each product to be used, including:

1. Physical characteristics of components shown on shop drawings.

C Shop Drawings: Indicate dimensions, layout, joints, construction details, support clips, and methods of anchorage.

D Samples: Submit two samples of wall panel and soffit panel, 12 inches by 12 inches (305 mm by 305 mm) in size illustrating finish color, sheen, and texture.

1.03 DELIVERY, STORAGE, AND HANDLING

A Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

B Store prefinished material off the ground and protected from weather; prevent twisting, bending, or abrasion; provide ventilation; slope metal sheets to ensure proper drainage.

C Prevent contact with materials that may cause discoloration or staining of products.

1.04 WARRANTY

A See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B Correct defective work within a twenty year period after Date of Substantial Completion for degradation of panel finish, including color fading caused by exposure to weather.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A Metal Wall Panels – Flush Panels with Concealed Fasteners:

1. Products by Pac-CLAD are specified.
2. Equivalent products by other manufacturers are acceptable.

2.02 METAL WALL PANEL SYSTEM

A Wall Panel System: Factory fabricated prefinished metal panel system, site assembled.

1. Provide exterior wall panels, soffit panels, and subgirt framing assembly.
2. Design and size components to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of wall.
3. Design Pressure: In accordance with applicable codes.
4. Maximum Allowable Deflection of Panel: L/180 for length(L) of span.
5. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; and deflection of structural support framing.
6. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
7. Fabrication: Formed true to shape, accurate in size, square, and free from distortion or defects; pieces of longest practical lengths.
8. Corners: Factory-fabricated in one continuous piece with minimum 2-inch (51 mm) returns.

B Exterior Wall Panels:
1. Profile: Orientation as indicated on the drawings; Flush Wall Panels.
a. Panel width: 12 inch (406 mm).
b. Panel Thickness: 24 gauge.
c. Finish: Smooth.
2. Color: ~~**See Material Finish/Color Schedule on the Drawings**~~. ***As chosen from Manufacturer's full color line.***

C Subgirt Framing Assembly:
1. 16 gauge, 0.0598 inch (1.52 mm) thick formed non-precoated steel sheet.

D Internal and External Corners: Same material, thickness, and finish as exterior sheets; profile to suit system; shop cut and factory mitered to required angles.

E Expansion Joints: Same material, thickness and finish as exterior sheets; thickness as noted on drawings; manufacturer's standard brake formed type, of profile to suit system.

F Trim: Same material, thickness and finish as exterior sheets; brake formed to required profiles.

G Anchors: Galvanized steel.

2.03 MATERIALS

A Precoated Steel Sheet: Hot-dipped galvanized steel sheet, ASTM A653/A653M, Structural Steel (SS) or Forming Steel (FS), with G90/Z275 coating; continuous coil-coated on exposed surfaces with specified finish coating and on panel back with specified panel back coating.

2.04 FINISHES

A Fluoropolymer Coil Coating System: Polyvinylidene fluoride (PVDF) multi-coat superior performing organic coatings system complying with AAMA 2605, including at least 70 percent PVDF resin, and at least 80 percent of coil coated metal surfaces having minimum total dry film thickness (DFT) of 0.9 mil, 0.0009 inch (0.023 mm); color and gloss as selected by Architect from manufacturer's full color line or as noted on the Material/ Finish Schedule.

2.05 ACCESSORIES

A Cladding Support Clips: Thermally-broken, galvanized steel clips for support of cladding z-girts, angles, channels, and other framing.
1. Galvanized Steel Support Clip: G90/Z275 galvanized coating complying with ASTM A653/A653M support clip with integral glass fiber reinforced polyamide thermal isolator pad.
2. Clip Depth: Manf required size..

B Sealant: Elastomeric; silicone or silyl-terminated polyether/polyurethane.

C Fasteners: Manufacturer's standard type to suit application; with soft neoprene washers, steel, hot dip galvanized. Fastener cap same color as exterior panel.
1. Metal-to-Metal Fasteners: Self-drilling, self-tapping screws.

D Field Touch-up Paint: As recommended by panel manufacturer.

E Bituminous Paint: Asphalt base.

PART 3 EXECUTION

3.01 EXAMINATION

A Verify that building framing members are ready to receive panels.

3.02 PREPARATION

A Install subgirts perpendicular to panel length, securely fastened to substrates and shimmed and leveled to uniform plane. Space at 24 inches on center, maximum (at 610 mm on center, maximum).

B Protect surrounding areas including installed roofing systems and adjacent surfaces from damage during execution of this work.

3.03 INSTALLATION

A Install panels on walls in accordance with manufacturer's instructions.

B Protect surfaces in contact with cementitious materials and dissimilar metals with bituminous paint; allow to dry prior to wall panel installation.

C Fasten panels to structural supports; aligned, level, and plumb.

D Locate joints over supports.

E Lap panel ends 2 inches (51 mm), minimum.

F Provide expansion and control joints where indicated.

G Use concealed fasteners unless otherwise indicated by Architect.

H Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

3.04 TOLERANCES

A Offset From True Alignment Between Adjacent Members Abutting or In Line: 1/16 inch (1.6 mm), maximum.

B Variation from Plane or Location As Indicated on Drawings: 1/4 inch (6.4 mm), maximum.

3.05 CLEANING

A Remove site cuttings from finish surfaces.

B Remove protective material from wall panel surfaces.

C Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

3.06 PROTECTION

A Protect metal wall panels until completion of project.

B Touch-up, repair, or replace damaged wall panels or accessories before Date of Substantial Completion.

END OF SECTION 07 42 13

SECTION 07 61 00
SHEET METAL ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A Architectural standing seam roofing, associated flashings, and underlayment.

B Counterflashings.

C Sealants for joints within sheet metal fabrications.

D Vapor barrier.

1.02 ADMINISTRATIVE REQUIREMENTS

A Pre-installation Meeting: Convene one week before installation of wood blocking or sheathing on back side of parapet.

1. Agenda:
    a. Review in detail Architect's specifications, roof plans and all roof and flashing details.
    b. If a manufacturer's specification is used, review and resolve all deviations or differences from Architect's specifications.
    c. Review roof plans; for slope, deck type, drainage, underlayment, insulation expansion joints flashing and details. Resolve all conflicts between what is considered good roofing practice and specifications.
    d. Review proposed roofing system and recommended work practices for its installation.
    e. Study all plans to determine whether different roof areas have different requirements.
    f. Review procedure to be followed to provide proper protection of roof system during and after construction of roof.

1.03 SUBMITTALS

A See Section 01 30 00 - Administrative Requirements for submittal procedures.

B Product Data: Provide data on metal types/profiles/ spacing of standing seams, finishes.

C Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

D Samples: Submit 2 samples in size illustrating metal finish color.

1. Delegated-Design Submittal: For metal roof panel assembly indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the metal roof panel manufacturer's qualified professional engineer responsible for their preparation. Include the Structural analysis data indicating compliance with Performance Requirements Article.
2. Shop Drawings for Snow Guards: By snow guard manufacturer. Show fabrication and installation layouts and attachment to other construction.
3. Samples for Initial Selection: For each type of metal roof panel indicated with factory-applied color finishes.
    a. Include similar Samples of trim and accessories involving color selection.

E Qualification Data: Submit installer qualifications in the form of an original letter on manufacturer's letterhead signed by authorized manufacturer representative.

F Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product. Indicate compliance with requirements in Performance Requirements Article.

1. Air Infiltration
2. Hydrostatic Head Resistance
3. Wind Uplift Resistance

1.04 QUALITY ASSURANCE

A Manufacturer Qualifications: A manufacturer of plant- and field-fabricated metal roof panel systems listed in this Section and meeting performance requirements, with a minimum of 10 years' experience providing metal roof panel systems for projects of similar type and scope, offering engineering, warranty, technical inspection, and maintenance inspection services specified.

B Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of 5 years' experience installing similar work, able to communicate verbally with Contractor, Architect, and employees, and qualified by the manufacturer to furnish warranty of type specified.

1. Manufacturer's On-Site Roll Former Operators: Experienced full-time employees of metal roof panel manufacturer. Trained and certified by manufacturer.

C UL-Certified, Portable Roll-Forming Equipment: UL-certified, portable roll-forming equipment capable of producing metal panels warranted by manufacturer to be the same as factory-formed products. Maintain UL certification of portable roll-forming equipment for duration of work.

D Manufacturer's Technical Representative Qualifications: An authorized full-time employee representative of manufacturer, and experienced in the installation and maintenance of the specified roof panel system and qualified to determine Installer's compliance with the requirements of this Project.

E Source Limitations: Obtain metal roof panels and accessories and related engineered structural support members from a single source supplied or approved by metal roof panel manufacturer.

F Post Construction Inspection: Manufacturer representative to inspect entire installation 2, 5, 10 and 15 years after completion of installation to verify al work is still watertight.

1.05 DELIVERY, STORAGE, AND HANDLING

A Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B Prevent contact with materials that could cause discoloration or staining.

C Deliver components, sheets, metal roof panels, and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.

D Stack metal roof panels or coils or components on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal roof panels or coils to ensure dryness. Do not store metal roof ls panels or coils in contact with other materials that might cause staining, denting, or other surface damage.

E Protect strippable protective covering on metal roof panels or components from exposure to sunlight and high humidity, except to extent necessary for period of metal roof panel installation.

1.06 PROJECT CONDITIONS

A Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed according to manufacturer's written instructions and warranty requirements.

B Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.07 COORDINATION

A Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided

B Coordinate metal roof panels with rain drainage work, flashing, trim, and construction of substrate, parapets, walls, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.08 WARRANTY

A See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B Furnish manufacturer's standard 20-year warranty covering architectural fluorocarbon finish.

C Provide a No Dollar Limit Warranty, from manufacturer; warranty to run from date of substantial completion. Duration: 30 Year

D Installer Warranty of 5 years from substantial completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A Basis of Design Manufacturers/Products: Subject to compliance with requirements, provide products by one of the following manufacturers comparable to the Basis of Design product specified:

1. Tremco, Inc., Beachwood, OH, (800) 562-2728, www.tremcoroofing.com.
2. Substitutions: In accordance with Instructions to Bidders and Division 01 General Requirements.

B Available Manufacturers/Products: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Tremco, Inc., Beachwood, OH, (800) 562-2728, www.tremcoroofing.com.
   a. Local Reps Kevin Garmey 773 640 6254 or Bob Moretti 630 347 5877
2. CENTRIA Architectural Systems.
3. Garland Company, Inc. (The).
4. McElroy Metal

2.02 PERFORMANCE REQUIREMENTS

A General Performance: Metal roof panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.

B Delegated Design: Design metal roof panel assembly, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated. Include design for supporting and resisting loads from future solar panels.

C Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: UL 90.

D Hail Resistance: Provide metal roof panel assemblies listed with UL as Class 4 hail resistant panels.

E Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 at the following test-pressure difference:

1. Test-Pressure Difference: 20.00 lbf/sq. ft. (958 Pa).

F Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E 2140.

G Thermal Movements: Allow for thermal movements due to expansion and contraction, dynamic loading, and deflection of structural support systems without damage to panel system or loss of weatherproofing capability. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.03 ARCHITECTURAL STANDING-SEAM METAL ROOF PANELS

A General: Provide factory- or field-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.

B Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels: Factory- or field-formed symmetrical panels with vertical ribs at panel edges and flat pan between ribs; designed for sequential installation in either direction by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels, and mechanically seaming panels together utilizing a seam cap, and configured to enable future replacement of individual panels without disturbing adjacent panels.

1. Basis-of-Design Product: Tremco, Inc., TremLock T-238.
2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 50 (Class AZM150 coating designation, Grade 340), prepainted by the coil-coating process to comply with ASTM A 755/A 755M; structural quality.
    a. Thickness: 0.0236-inch/24 ga. (0.71-mm) minimum thickness.
    b. Surface: Smooth, flat finish.
    c. Exposed Coil-Coated Finish: 2-Coat Fluoropolymer.
    d. Color: As selected by Architect from manufacturer's standard colors.
3. Clips: That accommodate thermal movement; intermittent or continuous clips as required to meet performance requirements; and with clip bearing plate where required.
    a. Material: 0.064-inch- (1.63-mm-) nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy- coated steel sheet.
    b. Clip fasteners: #14-10 HHA fasteners with minimum 2.5" length.
4. Joint Type: Field mechanically seamed, with continuous factory-applied sealant.
5. Seam Cap: Match panel material and finish; provide with two rows of integral factory hot-applied sealant.
6. Panel Pan Configuration: Plank and Pencil Profile Pencil Ribbed.
7. Panel Seam Height: Not less than 2-3/8 inch (60.3 mm).
8. Panel Coverage: 24" wide.

2.04 METAL ROOF ACCESSORIES

A Metal Roof Accessories, General: Provide components approved by roof panel manufacturer and as required for a complete metal roof panel assembly including trim, copings, fasciae, corner units, ridge closures, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal roof panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.

B Flashing and Trim: Formed from same material as roof panels, prepainted with coil coating, minimum 0.028 inch (0.71 mm) thick. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal roof panels.

C Pipe Penetration Flashings: Flexible boot type, with stainless steel compression ring, and stainless steel pipe strap. Use silicone-type boot at hot pipes.

D Gutters: Formed from same material roof panels. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2400-mm-) long sections, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Furnish gutter supports spaced a maximum of 36 inches (900 mm) o.c., fabricated from same metal as gutters. Provide wire ball strainers of compatible metal at outlets. Finish gutters to match metal roof panels.

E Downspouts: Formed from same material as roof panels. Fabricate in 10-foot- (3-m-) long sections, complete with formed elbows and offsets, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Finish downspouts to match gutters.

F Pipe Penetration Flashing: Premolded EPDM pipe collar with flexible aluminum ring bonded to base and stainless steel pipe clamp to secure collar to pipe.

G Roof Curbs: Fabricated from aluminum sheet, minimum 0.080 inch (1.2 mm) thick; with bottom of skirt profiled to match roof panel profiles, and welded top box, integral internal fastener flange, and water diverter. Fabricate curb subframing of minimum 0.0598-inch- (1.5-mm-) thick, angle-, C-, or Z-shaped galvanized steel sheet. Fabricate curb and subframing to withstand indicated loads, of size and height indicated. Finish roof curbs to match metal roof panels.

1. Insulate roof curb with 1-inch- (25-mm-) thick, rigid insulation.

2.05 FIELD-INSTALLED THERMAL INSULATION

A See section 07 21 00

1. Insulation Seam Tape: Manufacturer's recommended tape compatible with insulation facing and with adjacent air barrier transition material.
2. Plywood Sheathing Board:
   a. Substrate-Board Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion- resistance provisions in FMG 4470, designed for fastening substrate board to substrate.
   b. Only allowed with non-treated lumber
   c. Provide stainless steel fasteners for all pressure treated lumber.

2.06 UNDERLAYMENT MATERIALS

A Leak Barrier/Roof Underlayment Materials

1. GCP Applied Systems High Temperature "Ice and Water Shield, or equal self adhered sheet
2. Primer as recommended by sheet manufacturer for substrate and conditions of application

B Fabricate cleats and attachment devices of size and metal thickness recommended by SMACNA's "Architectural Sheet Metal Manual" or by metal roof panel manufacturer for application, but not less than thickness of metal being secured.

C Vapor Barrier

1. Self adhering, tri-laminate woven polyethylene, non slip, UV protected top surface.

2.07 MISCELLANEOUS METAL FRAMING

A Miscellaneous Metal Framing, General: ASTM C 645, cold-formed metallic-coated steel sheet, ASTM A 653/A 653M, G60 (Z180) hot-dip galvanized or coating with equivalent corrosion resistance unless otherwise indicated.

B Zee Clips: 0.079-inch (2.01-mm) nominal thickness.

C Fasteners for Miscellaneous Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten miscellaneous metal framing members to substrates.

2.08 MISCELLANEOUS MATERIALS

A Panel Fasteners: Stainless steel self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide exposed fasteners with heads matching color of metal roof panels by means of plastic caps or factory-applied coating. Provide EPDM, PVC, or neoprene sealing washers.

2.09 FABRICATION

A Fabricate and finish metal roof panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes and as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

B On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on- site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

C Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

D Fabricate metal roof panel side laps with factory-installed captive gaskets or separator strips that provide a tight seal and prevent metal-to-metal contact, in a manner that will seal weathertight and minimize noise from movements within panel assembly.

E Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.

2.10 FINISHES

A Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D Steel Panels and Accessories:

1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions. Color ~~**as noted on Material/Finish Color Schedule**~~ ***as chosen from Manufacturer's full color line.***
2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).

PART 3 EXECUTION

3.01 EXAMINATION

A Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal roof panel supports, and other conditions affecting performance of the Work.

1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
2. Examine solid roof substrate to verify that substrate joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.
3. Examine roughing-in for components and systems penetrating metal roof panels to verify actual locations of penetrations relative to seam locations of metal roof panels before metal roof panel installation.
4. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
5. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSULATION

A Refer to Specification Section 07 21 00 Insulation.

B Comply with insulation manufacturer's written instructions applicable to products and application indicated. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

3.03 PREPARATION

A Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment.

B Back paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil, 0.015 inch (0.4 mm).

3.04 INSTALLATION – UNDERLAYMENT

A Fire Resistant, Fiberglass Reinforced Sheet Underlayment: Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated below, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.

1. Apply over entire roof surface.

B Install flashings to cover underlayment to comply with requirements specified in Division 07.

3.05 INSTALLATION - ROOFING

A Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.

B Thermal Movement. Rigidly fasten metal roof panels to structure at one and only one location for each panel. Allow remainder of panel to move freely for thermal expansion and contraction. Predrill panels for fasteners.

1. Point of Fixity: Fasten each panel along a single line of fixing located at ridge.
2. Avoid attaching accessories through roof panels in a manner that will inhibit thermal movement.

C Install metal roof panels as follows:
1. Commence metal roof panel installation and install minimum of 300 sq. ft. (27.8 sq. m) in presence of factory- authorized representative.
2. Field cutting of metal panels by torch or abrasive saw is not permitted.
3. Install panels perpendicular to supporting purlins.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Provide metal closures at rake edges, rake walls, and each side of ridge and hip caps.
6. Flash and seal metal roof panels with weather closures at eaves, rakes, and perimeter of all openings.
7. Install ridge and hip caps as metal roof panel work proceeds.
8. End splices are not allowed. Single panels shall be the full length of the run.
9. Install metal flashing to allow moisture to run over and off metal roof panels.

D Fasteners:
1. Steel Roof Panels: Use stainless-steel fasteners for surfaces exposed to the exterior and galvanized-steel fasteners for surfaces exposed to the interior.

E Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

F Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.
1. Use slip sheet where roof panels will contact wood, ferrous metal, or cementitious construction.

G Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal roof panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by metal roof panel manufacturer.
1. Seal metal roof panel end laps with double beads of tape or sealant, full width of panel. Seal side joints where recommended by metal roof panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants.

3.06 INSTALLATION – METAL ROOF PANEL

A Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended by manufacturer.
1. Install clips to supports with self-tapping fasteners.
   a. Fasten clips to penetrate both layers of plywood 1.5 inches using coated screws. Clips to be spaced a minimum of 30 inches from each other.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Erection Tolerances: Shim and align metal roof panel units within installed tolerance of 1/4 inch in 20 feet (1:960) on slope and location lines as indicated and within 1/8 inch (3 mm) offset of splices and alignment of matching profiles.
4. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
5. Watertight Installation:
   a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
   b. Provide sealant or tape between panels and protruding equipment, vents, and accessories

3.07 INSTALLATION - ACCESSORIES

A General: Install accessories with positive anchorage to building and weathertight mounting

1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.

B Flashing and Trim: Comply with performance requirements and manufacturer's written installation instructions. Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Form trim and transition joints using compressed joints with captive butyl sealant capable of resisting static water pressure. Cleated joints and exposed joint sealants do not meet this requirement.
2. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
3. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

C Gutters and downspouts: See section 07 62 00

D Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.

E Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer. Relocate/rework existing pipe penetration as necessary to avoid pipe penetrating any roof seam.

F Bar-Type Snow Guards: Attach bar supports to vertical ribs of standing-seam metal roof panels with clamps or set screws in array recommended by snow guard manufacturer. Do not use fasteners that will penetrate metal roof panels.

1. Provide additional snow guard at all roof penetrations such as plumbing vents, where a cricket is not provided. Snow Guard shall be minimum 3'-0" long.

3.08 FIELD QUALITY CONTROL

A Manufacturer’s Technical Representative: Engage a qualified manufacturer’s technical representative acceptable to Owner for a minimum of 10 full-time days on site to perform substrate examination, interim observations, and final roof inspections, and to prepare reports. Submit schedule of inspections prior to beginning of installation.

B Remove and replace applications of metal roof panels where inspections indicate that they do not comply with specified requirements as interpreted by the inspector.

C Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.09 CLEANING

A Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer. Maintain in a clean condition during construction.

B Replace metal roof panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 61 00

SECTION 08 44 13
ALUMINUM STOREFRONT, ENTRANCES AND CURTAIN WALLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum-framed curtain wall noted as "CW-_ (#)" on drawings.
B. Aluminum glazed swinging doors.
C. Storefront noted as "SF-_(#)" on drawings.
D. Glazing.
E. Thermal Transmittance based on the following Energy Code:
    1. ASHRAE 90.1 2016
F. Joint sealants in contact with aluminum components
G. Aluminum covers between curtain walls.
H. Aluminum insulated panels.
I. Refer to Specification Section 01 91 15 Building Enclosure Commissioning Requirements for performance testing requirements.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, internal drainage details, glazing and infill.
C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and size and frequency of anchors for each opening based on the substrate materials.
    1. Shop drawings to be stamped by a registered professional engineer (PE) licensed in the State the project is located after a structural review to assure installation including but not limited to member sizes and anchorage meets the specified wind load.
        a. A manufacturer’s review to verify member sizes will be required prior to the Architect’s initial review of shop drawings. If after a P.E’s review, member sizes change after the Architect’s initial review, the Architect will be compensated for another Shop Drawing review.
        b. EFCO Corporation's in house engineering reviewed shop drawings are not required to have a P.E. stamp.
D. Shop Drawings: Provide details of proposed structural sealant glazing (SSG) and weather sealant joints indicating dimensions, materials, bite, thicknesses, profile, and support framing.
E. Samples: Submit two samples 2 inch by 3 inch inches (50.8 by 76.2 mm) in size illustrating finished aluminum surfaces.
F. Test reports showing compliance with performance requirements.
G. Submit NFRC 100 report based on Gateway sizes that the aluminum systems, IGU spacer and glass meet the specified Climate Zone U values.
H. Installer's Qualification Statement (manufacturer's approval of installer).
I. Submit specimen warranty.

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications: Design curtain wall and its structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the State in which the Project is located.
B. Installer Qualifications: Company specializing in performing work of type specified and with at least five years of fabrication and installation experience and approved by manufacturer.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.05 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F (5 degrees C). Maintain this minimum temperature during and 48 hours after installation.

B. Check actual unit opening by accurate field measurement before fabrication. Coordinate fabrication schedule with construction progress to avoid delay of work.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Provide ten year manufacturer fabricated products warranty agreeing to repair or replace product(s) that fail in materials or factory workmanship.

C. Provide ten year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.

D. Provide ten year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Curtainwall, Storefront and Entrance Doors:

1. EFCO Corporation: www.efcocorp.com.
2. Kawneer Company: www.kawneer.com.
3. Manko Window Systems, Inc: www.mankowindows.com.
4. Oldcastle Building Envelope: www.oldcastlebe.com.
5. Tubelite, Inc: www.tubeliteinc.com.

2.02 CURTAINWALL

B. Aluminum-Framed Curtain Wall: Factory fabricated, factory finished aluminum framing members, glass reinforced polyamide nylon thermally broken pressure type system with infill, and related flashings, anchorage and attachment devices. (Noted as CW#__ on the drawings).

C. Contractor to verify with Manufacturers listed below, and provide written documentation, that all performance requirements listed in Section 2.05 are able to be met at the scheduled time of product installation. Products listed below that cannot meet the performance requirements will not be allowed use in the project.

D. Model:

1. EFCO: 5500 Series.
2. Kawneer: 1600 UT Curtain Wall System.
3. Manko Window Systems: 250xpt Series.
4. Oldcastle BuildingEnvelope: Reliance Series.
5. Tubelite, Inc: 400TU Therml=Block Curtainwall.
6. Wausau Window and Wall Systems: HP Wall.

E. System glazing and mullion type:

1. Outside glazed, with pressure plate and mullion cover. Glazing pocket with exterior EPDM gasket and interior structural sealant glazing (SSG) adhesive.

F. Vertical Mullion Dimensions:
   1. 2-1/2 x 7 inch (6.35 x 177.8 mm), nominal.
G. Provide flush joints and corners, weathersealed, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for imposed loads.
H. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
I. Framing reinforcing door systems (hinge jamb) continuous full height 1 ¼ x ¼ inches (31.75 x 6.35 mm) galvanized steel bar stock.
J. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
   1. Maintain continuous air barrier and/or vapor retarder seal throughout assembly, primarily in line with inside pane of glazing and inner sheet of infill panel and heel bead of glazing compound.
   2. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.

2.03 STOREFRONT

A. Interior Storefront Frame Model (Noted as SF#___ on the drawings).
   1. EFCO: 402 (NT).
   2. Kawneer: Trifab VersaGlaze 451 Framing System.
   3. Manko: 1450 Series.
   4. Oldcastle Building Envelope: FG 3000 Non-Thermal.
   5. Tubelite, Inc: E14000 Series Framing.
B. Frame profile: 4 ½ inch (114.3 mm) minimum depth x 2 inch (50.8 mm) minimum face with 12 inch (304.8 mm) sidelite base as detailed.
C. Frame reinforcing (hinge and latch): Continuous full height 1 x 1 ¼ x 3/16 inch (25.4 x 31.75 x 4.7625 mm) galvanized steel angle.
D. Thermal barrier (exterior storefront): Poured in place, two part polyurethane structural barrier.
E. Provide adjustable sidelite base as detailed. Horizontals with brake material will not be permitted.

2.04 ENTRANCE DOORS

A. Door Model:
   1. EFCO Series D518 Durastile – Wide Stile Entrance Door.
   2. Kawneer 500 Heavy Wall Entrances.
   3. Manko Window Systems: Heavy Wall Door Series 150H.
   4. Oldcastle Building Envelope Rugged Door.
   5. Wausau Window and Wall Systems: Monumental Door.
   6. Tubelite, Inc: Monumental Entrance Series.
   7. Door requirements:
      a. Stile: Width to accept panic hardware without overhanging stile. [Typically 5 inch (127 mm) minimum, without including glass stops].
      b. Minimum Door Material Thickness: 0.188 inch (4.7752 mm).
      c. Door Thickness: 2 inch (50.8 mm) minimum.
      d. Door (hinge stile): Continuous full height 1¼ x ¼ inch (31.75 x 6.35 mm) galv. steel bar stock.
      e. Bottom Door Rail: 12 inch (304.8 mm).
      f. Factory fabricated doors and factory glazed.
      g. Door manufacturer to supply subframes for Curtainwalls.
         1) EFCO: 5G92/5G93 with 9155 cover, thermal subframe with ¾ inch (19.05 mm) sightline.

2.05 PERFORMANCE REQUIREMENTS

A. Structural Performance Requirements: Design and size components to withstand the following load requirements without damage or permanent set.
   1. Provide capacity to withstand the following loads without deformation and without deflection greater than L/175 to spans up to 13’-6” (4114.8 mm) and L/240 + ¼ inch (6.25 mm) to spans greater than 13’-6” (4114.8 mm) with the following Wind Load Provision of ANSI/ASCE 7:
   2. Exposure Category = B.
   3. Occupancy Category = 4
   4. Basic Wind Speed of 150 mph (209.21472 kph)
   5. Basic Wind Pressure of 65 psf
   6. Importance Factor of 1.15.
   7. Mean Roof Height="35’-0”" Feet
   8. Seismic Loads: Design and size components to withstand seismic loads and sway displacement in accordance with requirements of ASCE 7.
   9. Structural Sealant Glazing (SSG) System: For individual glass lites, design framing members to not exceed a deflection normal to the wall of L/175 between supports with 3/4 inch (19 mm) maximum, and a deflection parallel to the wall of L/360 with 1/8 inch (3.2 mm) maximum, whichever is less.
   10. Movement: Accommodate the following movement without damage to components or deterioration of seals:
      a. Expansion and contraction caused by 180 degrees F (82 degrees C) surface temperature.
      b. Expansion and contraction caused by cycling temperature range of 170 degrees F (77 degrees C) over a 12 hour period.
      c. Movement of curtain wall relative to perimeter framing.
      d. Deflection of structural support framing, under permanent and dynamic loads.
      e. Shortening of structural concrete columns.

B. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on indoor face when tested as follows:
   1. Test Pressure Differential: 15 psf (720 Pa).
   2. Test Method: ASTM E331.

C. Air Leakage (Fixed Windows/Storefront/Curtain wall: 0.06 cfm/sq ft (0.3 L/sec sq m) maximum leakage of wall area when tested in accordance with ASTM E283/E283M at 6.27 psf (300 Pa) pressure difference across assembly.

D. Thermal Performance Requirements:
   1. Condensation Resistance Factor "CRF" of Framing: 77, minimum, measured in accordance with AAMA 1503 for 5500 Series Curtain Wall framing based on an overall depth of 6".
   2. Thermal Transmittance: Provide framing systems which have an overall U-valve (Btu/hr. x sq.ft. x deg. F) at 15 mph exterior wind velocity of not more than values shown in the table below when tested in accordance with NFRC 100 with specified glazing.
      a. ASHRAE 90.1-2016 Energy Code:
         1) Zone 5 (and marine):
            (a) Fixed Curtainwall Overall U-value Including Glazing: 0.36 Btu/(hr sq ft deg F) (0.105506 W/(sq m K)), maximum.
            (b) Entrance Door Overall U-value Including Glazing: 0.63 Btu/(hr sq ft deg F) (0.184635 W/(sq m K)), maximum.

E. Acoustical Performance Requirements:
   1. Sound Attenuation: STC of 30, minimum, from exterior to interior.
   2. Test Method: ASTM E90, with calculation in accordance with ASTM E413.

2.06 COMPONENTS

A. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.
   1. Framing members for interior applications need not be thermally broken.

B. Glazing: See Section 08 80 00.

C Aluminum Insulated/ Infill Panels
   1. Panel thickness: 1" nominal
   2. Panel R Value: 6.0 minimum
   3. Exterior face: 032 aluminum, smooth texture, finish and color to match framing or window into which the panel will be installed.
   4. Exterior substrate: 4mm asbestos-free cement board
   5. Core: 2.05 lb density polyisocyanurate
   6. Interior substrate: 4mm asbestos-free cement board
   7. Interior face: 032 aluminum, smooth texture, finish and color to match framing or window into which the panel will be installed.
   8. Adhesive: permenant, water-resistant, elastic, with bond strength equal to or better than the cohesive strength of core or substrate.

D Column Covers or Beam Wraps: Aluminum, 11 gauge, 0.090 inch (2.286 mm) minimum thickness, full contact pressure bonded to rigid polyurethane insulation for flat surface, finish to match framing system.

E. Receptor heads: Extruded aluminum receptors to receive curtain wall or storefront framing, when thermal expansion or structural steel deflection requires them.

2.07 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

B. Sheet Aluminum: ASTM B209/B209M.

C. Exposed Structural Steel Sections: ASTM A36/A36M; galvanized in accordance with requirements of ASTM A123/A123M.

D. Non-exposed Structural Steel Sections: ASTM A36/A36M; with cold-applied asphalt mastic, zinc chromate paint, or other nonconductive, nonabsorbent material.

E. Brackets and Reinforcements: High-strength aluminum where feasible; otherwise, nonmagnetic stainless steel or hot-dip galvanized steel complying with ASTM A 123.

F. Concrete/Masonry Inserts: Cast iron, malleable iron, or hot-dip galvanized steel complying with ASTM A 123.

G. Dissimilar Metal Coating: Cold-applied asphalt mastic, zinc chromate paint, or other nonconductive, nonabsorbent material.

H. Fasteners: Aluminum, nonmagnetic stainless steel, or other noncorrosive type as required or recommended by curtain wall manufacturer.
   1. Do not use exposed fasteners except where unavoidable for application of hardware.
   2. Exposed fasteners: Match finish of members and hardware being fastened.

I. Exposed Sill Flashings: Aluminum sheet, 0.125 inch (3.175 mm) minimum thickness; finish to match framing members. Pre-bent, grind/ease and deburr all edges to elimunate sharp points prior to finishing.

J. Concealed Flashings: Stainless steel, 26 gauge, 0.0187 inch (0.48 mm) minimum thickness or extruded aluminum, 0.062 inch (1574.8 mm).

K. Firestopping: See Section 07 84 00.

L. Structural Sealant Glazing (SSG) Adhesive: Neutral curing, silicone sealant formulated for SSG applications in compliance with ASTM C1184 and structural glazing industry guidelines, ASTM C1401.
   1. SSG adhesive in compliance with ASTM C920; Type S - Single-component, Grade NS, Class 50, Use NT, G, and A.

   2. Ultimate Tensile Strength: Minimum of 50 psi (345 kPa) as determined by test method ASTM C1135 under the following conditions.
      a. Exposure to air temperatures of 190 degrees F (88 degrees C) and minus 20 degrees F (minus 29 degrees C).
      b. Water immersion for seven (7) days, minimum.
      c. Exposure to weathering for 5,000 hours, minimum.
   3. Sealant Design Tensile Strength: 20 psi (139 kPa), maximum.
   4. Hardness: 20 to 60 with Type A-2 durometer in compliance with test method ASTM C661.
   5. SSG sealant tested for compatibility with glazing accessories in compliance with ASTM C1087, tested for accelerated weathering in compliance with ASTM C793, and in compliance with insulating glass secondary sealant design standards of ASTM C1249.

M. Flexible Flashings: Grace Ice and Water Shield; www.gcpat.com or equal.
   1. 40 mil (1.016 mm) rubberized asphalt adhesive backed by high density cross laminated polyethylene.
   2. Tensile Strength: 250 psi (6.8948E +06 mpa) per ASTM D412 (Die C Modified).
   3. Elongation: 250% per ASTM D412 (Die C Modified).

N. Weatherseal Sealant: Silicone, with adhesion in compliance with ASTM C794; compatible with glazing accessories.

O. Sealant: Refer to Section 07 92 00 Joint Sealants.

P. Glazing Gaskets: Complying with ASTM C 864; Type as recommended by manufacturer to suit application to achieve weather, moisture, and air infiltration requirements.

Q. Glazing and Glazing Accessories: See Section 08 80 00.

R. Shop and Touch-Up Primer for Steel Components: Zinc oxide, alkyd, linseed oil primer appropriate for use over hand cleaned steel.

S. Touch-Up Primer for Galvanized Steel Surfaces: SSPC-Paint 20, zinc rich.

T. Door Weatherstrip: Silicone treated plastic pile.

2.08 FINISHES

A. Class I Color Anodized Finish: AAMA 611 AA-M12C22A44 Electrolytically deposited colored anodic coating not less than 0.7 mils (0.018 mm) thick.

B. Color: ~~**As noted on the Material Finish/ Color Schedule**~~ ***Extra Dark Bronze.***

2.09 FABRICATION

A. Any dimensions which may vary are indicated on drawings, with maximum and minimum dimensions required to achieve design requirements and coordination with other work. Field verify all opening dimensions.

B. Fabrication: To greatest extent possible, complete fabrication assembly, and finishing at manufacturers plant before shipment to project site. Disassemble components only as necessary for shipment and installation.
   1. Maintain accurate relation of planes and angles, with hairline fit of contacting members.
   2. Select members for fabrication so that adjacent anodized extruded aluminum members do not have color or texture variation greater than half the range indicated in the submitted samples.
   3. Factory-install all hardware except surface-mounted items.
   4. Perform fabrication operations, including cutting, fitting, forming, drilling, and grinding of metal work, in manner which prevents damage to exposed finish surfaces.

C. For hardware, perform these operations prior to application of finishes.

D. Welding: Comply with AWS recommendations to avoid discoloration; grind exposed welds smooth and restore mechanical finish.
E. Reinforcing: Install reinforcing as required for hardware and as necessary for performance requirements, sag resistance, and rigidity; separate dissimilar metals as specified under "Installation."

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other related work.
B. Verify that curtain wall openings and adjoining water-resistive and air barrier seal materials are ready to receive work of this section.
C. Verify that anchorage devices have been properly installed and located.

3.02 INSTALLATION

A. Install system in accordance with manufacturer's instructions.
    1. Storefront/curtainwall manufacturer’s or designated representative shall be present at installation of first unit of each system type to insure proper installation technique.
B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
C. Provide alignment attachments and shims to permanently fasten system to building structure.
D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
E. Provide thermal isolation where components penetrate or disrupt building insulation.
F. Install sill and flexible flashings. Turn up ends and edges; seal to adjacent work to form water tight dam. File any remaining sharp points, being careful not to disturb the finish.
G. Pack exterior (mineral wool) insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
H. Separate aluminum exposed to weather from dissimilar metals; coat dissimilar metals that are in drainage cavities using one of the materials specified. Aluminum, stainless steel, zinc, cadmium, and small areas of white bronze are not considered dissimilar from each other.
I. Coat all metals that come into contact with masonry, concrete, and treated wood, using one of the materials specified.
J. Install joint sealers between framing and adjacent surfaces as indicated, to provide weathertight construction. Comply with requirements of Section 07 92 00 for installation of joint sealers.
K. Install glass as specified in Section 08 80 00 and according to the framing manufacturer's printed instructions.
L. Structural Sealant Glazing (SSG) Adhesive: Install structural sealant glazing adhesive and weatherseal sealant in accordance with manufacturer's instructions.
M. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inches every 3 ft (1.5 mm/m) non-cumulative or 0.5 inches per 100 ft (12 mm/30 m), whichever is less.
B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch (0.8 mm).
C. Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 3/8 inch (9.525 mm) and minimum of 1/4 inch (6 mm).

3.04 FIELD QUALITY CONTROL

A. Curtainwall/Storefront Testing

1. Refer to Specification Section 01 91 15 Building Enclosure Commissioning Requirements for performance testing requirements.

3.05 ADJUSTING

A. Adjust operating hardware to function properly without binding, and to close doors tightly. Ensure that weatherstrip makes contact with door surfaces.

3.06 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, take care to remove dirt from corners, and wipe surfaces clean.

C. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

END OF SECTION 08 44 13

SECTION 08 71 00
FINISH HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:
   1. Swinging doors.
   2. Sliding doors.
   3. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:
   1. Mechanical door hardware.
   2. Electromechanical door hardware.
   3. Automatic operators.
   4. Cylinders specified for doors in other sections.

C. Related Sections:
   1. Division 08 Section “Hollow Metal Doors and Frames”.
   2. Division 08 Section “Flush Wood Doors”.
   3. Division 08 Section “Clad Wood Doors”.
   4. Division 08 Section “Stile and Rail Wood Doors”.
   5. Division 08 Section “Sound Control Hollow Metal Door Assemblies”.
   6. Division 08 Section “Sound Control Wood Door Assemblies”.
   7. Division 08 Section “Aluminum-Framed Entrances and Storefronts”.
   8. Division 08 Section “Automatic Door Operators”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. ANSI/SDI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.
   3. ASTM E1886 - Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Shutters Impacted by Missiles and Exposed to Cyclic Pressure Differentials.
   4. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure difference.
   5. ASTM E1996 - Standard specification for performance of exterior windows, curtain walls, doors and storm shutters impacted by Windborne Debris in Hurricanes.
   6. FEMA P-361 2015 - Design and Construction Guidance for Community Safe Rooms.
   7. ICC 500-2014, ICC/NSSA Standard for the Design and Construction of Storm Shelters.
   8. ICC/IBC - International Building Code.
   9. NFPA 70 - National Electrical Code.
   10. NFPA 80 - Fire Doors and Windows.
   11. NFPA 101 - Life Safety Code.
   12. NFPA 105 - Installation of Smoke Door Assemblies.
   13. UL/ULC and CSA C22.2 - Standards for Automatic Door Operators Used on Fire and Smoke Barrier Doors and Systems of Doors.
   14. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
   1. ANSI/BHMA Certified Product Standards - A156 Series.
   2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
   3. ANSI/UL 294 - Access Control System Units.
   4. UL 305 - Panic Hardware.
   5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:
    a. Type, style, function, size, label, hand, and finish of each door hardware item.
    b. Manufacturer of each item.
    c. Fastenings and other pertinent information.
    d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    e. Explanation of abbreviations, symbols, and codes contained in schedule.
    f. Mounting locations for door hardware.
    g. Door and frame sizes and materials.
    h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:

1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
    a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
    b. Complete (risers, point-to-point) access control system block wiring diagrams.
    c. Wiring instructions for each electronic component scheduled herein.
2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Automatic Operator Supplier Qualifications: Power operator products and accessories are required to be supplied and installed through the Norton Preferred Installer (NPI) program. Suppliers are to be factory trained, certified, and a direct purchaser of the specified power operators and be responsible for the installation and maintenance of the units and accessories indicated for the Project.

F. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
   1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
   2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

G. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

H. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
   1. Function of building, purpose of each area and degree of security required.
   2. Plans for existing and future key system expansion.
   3. Requirements for key control storage and software.
   4. Installation of permanent keys, cylinder cores and software.
   5. Address and requirements for delivery of keys.

I. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
   1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
   2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
   3. Review sequence of operation narratives for each unique access controlled opening.
   4. Review and finalize construction schedule and verify availability of materials.
   5. Review the required inspecting, testing, commissioning, and demonstration procedures

J. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3.

1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
   1. Quantity: Provide the following hinge quantity:
      a. Two Hinges: For doors with heights up to 60 inches.
      b. Three Hinges: For doors with heights 61 to 90 inches.
      c. Four Hinges: For doors with heights 91 to 120 inches.
      d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
   2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
      a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
      b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.
   3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
      a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
      b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
   4. Hinge Options: Comply with the following:
      a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
   5. Manufacturers:
      a. Hager Companies (HA) - BB Series, 5 knuckle.
      b. McKinney (MK) - TA/T4A Series, 5 knuckle.
      c. dormakaba Best (ST) - F/FBB Series, 5 knuckle.

B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
   1. Manufacturers:
      a. Bommer Industries (BO).
      b. Pemko (PE).
      c. Dormakaba Best (ST).

C. Pin and Barrel Continuous Hinges: ANSI/BHMA A156.26 Grade 1-600 pin and barrel continuous hinges with minimum 14 gauge Type 304 stainless steel hinge leaves, concealed stainless pin, and twin self-lubricated nylon bearings at each knuckle separation. Factory trim hinges to suit door height and prepare for electrical cut-outs.
   1. Manufacturers:
      a. Markar Products; ASSA ABLOY Architectural Door Accessories (MR).
      b. Pemko (PE).
      c. Dormakaba Best (ST).

D. Pivots: ANSI/BHMA A156.4, Grade 1; space intermediate pivots equally not less than 25 inches on center apart or not more than 35 inches on center for doors over 121 inches high. Pivot hinges to have oil impregnated bronze bearing in the top pivot and a radial roller and thrust bearing in the bottom pivot with the bottom pivot designed to carry the full weight of the door. Pivots to be UL listed for windstorm where applicable.
   1. Manufacturers:
      a. Architectural Builders Hardware (AH).
      b. Dorma Products (DO).
      c. Norton Rixson (RF).

2.3 POWER TRANSFER DEVICES

A. Electrified Quick Connect Transfer Hinges: Provide electrified transfer hinges with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets with a 1-year warranty. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
   1. Manufacturers:
      a. Hager Companies (HA) - ETW-QC (# wires) Option.
      b. McKinney (MK) - QC (# wires) Option.
      c. Dormakaba Best (ST) - C Option.

B. Electrified Quick Connect Continuous Geared Transfer Hinges: Provide electrified transfer continuous geared hinges with a removable service panel cutout accessible without de-mounting door from the frame. Furnish with Molex™ standardized plug connectors with sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
   1. Manufacturers:
      a. Bommer Industries (BO) - SER-QC (# of wires) Option.
      b. Pemko (PE) - SER-QC (# wires) Option.

C. Electrified Quick Connect Stainless Steel Continuous Transfer Hinges: Provide electrified transfer stainless steel continuous hinges with electrical transfer access prep accessible without de-mounting door from the frame. Furnish with Molex™ standardized plug connectors with sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
   1. Manufacturers:
      a. Markar Products; ASSA ABLOY Architectural Door Accessories (MR) - MP-ETAP-EL (# wires) Option.
      b. Dormakaba Best (ST) - C Option.

D. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
   1. Provide one each of the following tools as part of the base bid contract:
      a. McKinney (MK) - Electrical Connecting Kit: QC-R001.
      b. McKinney (MK) - Connector Hand Tool: QC-R003.
   2. Manufacturers:
      a. Hager Companies (HA) - Quick Connect.
      b. McKinney (MK) - QC-C Series.
      c. Dormakaba Best (ST) - WH Series.

E. Hurricane and Tornado Resistance Compliance: Power transfer devices to be U.L. listed for windstorm components where applicable.

2.4 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.
   1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
   2. Furnish dust proof strikes for bottom bolts.
   3. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.

4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
5. Manufacturers:
    a. Door Controls International (DC).
    b. Rockwood (RO).
    c. Trimco (TC).

B. Coordinators: ANSI/BHMA A156.3 door coordinators consisting of active-leaf, hold-open lever and inactive-leaf release trigger. Model as indicated in hardware sets.
1. Manufacturers:
    a. Door Controls International (DC).
    b. Rockwood (RO).
    c. Trimco (TC).

C. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Pulls, where applicable, shall be provided with a 10” clearance from the finished floor on the push side to accommodate wheelchair accessibility.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
6. Manufacturers:
    a. Hiawatha, Inc. (HI).
    b. Rockwood (RO).
    c. Trimco (TC).

2.5 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
1. Threaded mortise cylinders with rings and cams to suit hardware application.
2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Match Facility Corbin Russwin system.

C. Large Format Interchangeable Cores: Provide removable cores (LFIC) as specified, core insert, removable by use of a special key, and for use with only the core manufacturer's cylinder and door hardware.

D. Keying System: Each type of lock and cylinders to be factory keyed.
1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Field verify and key cylinders to match Owner's existing Corbin Russwin system.

E. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: Twelve (12)
2. Master Keys (per Master Key Level/Group): Twelve (12).
3. Construction Keys: Ten (12).

4. Construction Control Keys: Two (12).
5. Permanent Control Keys: Two (12).
6. User Defined Agency Hierarchy Groups: Twelve (12).

F. Construction Keying: Provide temporary keyed construction cores.

G. Key Registration List (Bitting List):
1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.6 KEY CONTROL

A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
1. Manufacturers:
a. Lund Equipment (LU).
b. MMF Industries (MM).
c. Telkee (TK).

2.7 MECHANICAL LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
1. Heavy duty mortise locks shall have a ten-year warranty.
2. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.13 requirements to 16 million cycles or greater.
3. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.13 requirements to 12.3 million cycles or greater,
4. Where specified, provide status indicators with highly reflective color and wording for “locked/unlocked” or “vacant/occupied” with custom wording options if required. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status. Indicator window size to be a minimum of 2.1” x 0.6” with a curved design allowing a 180-degree viewing angle with protective covering to prevent tampering.
5. Manufacturers:
a. Corbin Russwin Hardware (RU) - ML2000 Series.
b. Sargent Manufacturing (SA) - 8200 Series.
c. Schlage (SC) - L9000 Series.
d. Yale Commercial(YA) - 8800FL Series.

B. Knurling: Where required by local code provide knurling or abrasive coating to all levers on doors leading to hazardous areas such as mechanical rooms, boiler and furnace rooms, janitor closets, and as otherwise required or specified.

C. Hurricane and Tornado Resistance Compliance: Mechanical locking and latching devices to be U.L. listed for windstorm assemblies where applicable. Provide the appropriate hurricane or tornado resistant products that have been independent third party tested, certified, and labeled to meet state and local windstorm building codes applicable to project.

2.8 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:
1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.9 ELECTRIC STRIKES

A. Standard Electric Strikes: Electric strikes conforming to ANSI/BHMA A156.31, Grade 1, for use on non-rated or fire rated openings. Strikes shall be of stainless steel construction tested to a minimum of 1500 pounds of static strength and 70 foot-pounds of dynamic strength with a minimum endurance of 1 million operating cycles. Provide strikes with 12 or 24 VDC capability, fail-secure unless otherwise specified. Where specified provide latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike.
1. Manufacturers:
a. HES (HS) - 1500/1600 Series.

B. Surface Mounted Rim Electric Strikes: Surface mounted rim exit device electric strikes conforming to ANSI/BHMA A156.31, Grade 1, and UL Listed for both Burglary Resistance and for use on fire rated door assemblies. Construction includes internally mounted solenoid with two heavy-duty, stainless steel locking mechanisms operating independently to provide tamper resistance. Strikes tested for a minimum of 500,000 operating cycles. Provide strikes with 12 or 24 VDC capability supplied standard as fail-secure unless otherwise specified. Option available for latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike. Strike requires no cutting to the jamb prior to installation.
1. Manufacturers:
a. HES (HS) - 9400/9500/9600/9700/9800 Series.

C. Hurricane and Tornado Resistance Compliance: Electric strikes to be U.L. listed for windstorm components where applicable. Provide the appropriate hurricane or tornado resistant products that have been independent third party tested, certified, and labeled to meet state and local windstorm building codes applicable to project.

D. Provide electric strikes with in-line power controller and surge suppressor by the same manufacturer as the strike with the combined products having a five year warranty.

2.10 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
1. Exit devices shall have a five-year warranty.
2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer’s catalog and template book for specific requirements.
4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.

b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
12. Hurricane and Tornado Resistance Compliance: Conventional exit devices are to be U.L. listed for windstorm assemblies where applicable. Provide the appropriate hurricane or tornado resistant products that have been independent third party tested, certified, and labeled to meet state and local windstorm building codes applicable to project.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Exit devices shall have no catch points.
2. Exit devices shall have no visible plastic.
3. Exit devices shall have concealed hex key dogging.
4. Exit devices shall have dogging and chassis indicators as specified in the hardware sets. Chassis indicator to show locked/unlocked status of exterior trim, dogging indicator to have both passive and active options.
5. Exit devices to have heavy duty end caps with flush and overlapping options made of stainless steel, brass, or bronze with architectural finishes allowing for easy wire routing.
6. Exit Devices shall be constructed of all stainless steel.
7. Exit device latch to be stainless steel, pullman type, with deadlock feature and a 10-year warranty.
8. Exit devices shall have narrow or wide style exterior trim as specified in the hardware sets.
9. Concealed vertical rod exit devices shall have center case adjustability.
10. Exit devices shall not require wire routing through the door for electromechanical functions.
11. Manufacturers:
    a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
    b. Sargent Manufacturing (SA) - 80 Series.
    c. Von Duprin (VD) - 35A/98 XP Series.
    d. Yale (YA) - 7000 Series.

C. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Extended cycle test: Exit devices to have been cycle tested in ordinance with ANSI/BHMA 156.3 requirements to 5 million cycles or greater.
2. Manufacturers:
    a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
    b. Sargent Manufacturing (SA) - 80 Series.
    c. Von Duprin (VD) - 35A/98 XP Series.
    d. Yale (YA) - 7000 Series.

D. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.
1. Provide keyed removable feature where specified in the Hardware Sets.
2. Provide stabilizers and mounting brackets as required.
3. Provide electrical quick connection wiring options as specified in the hardware sets.
4. Manufacturers:
    a. Same as exit device manufacturer.

2.11 ELECTROMECHANICAL EXIT DEVICES

A. Electromechanical Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices subject to same compliance standards and requirements as mechanical exit devices. Electrified exit devices to be of type and design as specified below and in the hardware sets.

1. Energy Efficient Design: Provide devices which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.
2. Where conventional power supplies are not sufficient, include any specific controllers required to provide the proper inrush current.
3. Motorized Electric Latch Retraction: Devices with an electric latch retraction feature must use motors which have a maximum current draw of 600mA. Solenoid driven latch retraction is not acceptable.

4. Manufacturers:
   a. Corbin Russwin Hardware (RU) - ED5000 Series.
   b. Sargent Manufacturing (SA) - 80 Series.
   c. Von Duprin (VD) - 35A/98 XP Series.
   d. Yale (YA) - 7000 Series.

2.12 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
7. Tornado Resistance Compliance: Door closers to be U.L. listed for windstorm assemblies where applicable. Provide the appropriate tornado resistant products that have been independent third party tested, certified, and labeled to meet state and local windstorm building codes applicable to project.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Heavy duty surface mounted door closers shall have a 25-year warranty.
2. Manufacturers:
   a. Corbin Russwin Hardware (RU) - DC6000 Series.
   b. LCN Closers (LC) - 4040 Series.

c. Norton Rixson (NO) - 7500 Series.
d. Sargent Manufacturing (SA) - 351 Series.
e. Yale Commercial(YA) - 4400 Series.

2.13 ELECTROHYDRAULIC DOOR OPERATORS

A. General: Provide low energy operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for compliance with UL 325. Coordinate operator mechanisms with door operation, hinges, and activation devices.
1. Fire-Rated Doors: Provide door operators for fire-rated door assemblies that comply with NFPA 80 for fire-rated door components and are listed and labeled by a qualified testing agency.

B. Standard: Conforming to ANSI/BHMA A156.19.

C. Performance Requirements:
1. Opening Force if Power Fails: Not more than 15 lbf required to release a latch if provided, not more than 30 lbf required to manually set door in motion, and not more than 15 lbf required to fully open door.
2. Entrapment Protection: Not more than 15 lbf required to prevent stopped door from closing or opening.

D. Configuration: Surface mounted or in-ground as required. Door operators to control single swinging and pair of swinging doors.

E. Operation: Power opening and spring closing operation capable of meeting ANSI A117.1 accessibility guideline. Provide time delay for door to remain open before initiating closing cycle as required by ANSI/BHMA A156.19. When not in automatic mode, door operator to function as manual door closer with fully adjustable opening and closing forces, with or without electrical power.

F. Features: Operator units to have full feature adjustments for door opening and closing force and speed, backcheck, motor assist acceleration from 0 to 30 seconds, time delay, vestibule interface delay, obstruction recycle, and hold open time from 0 up to 30 seconds.

G. Provide outputs and relays on board the operator to allow for coordination of exit device latch retraction, electric strikes, magnetic locks, card readers, safety and motion sensors and specified auxiliary contacts.

H. Brackets and Reinforcements: Manufacturer's standard, fabricated from aluminum with nonferrous shims for aligning system components.

I. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. LCN Closers (LC) - 4640 Series.
2. Norton Rixson (NO) - 6000 Series.
3. Stanley Security Solutions (ST) - D-4990 Series.

2.14 ARCHITECTURAL TRIM

A. Door Protective Trim
1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer’s catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:
a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
a. Hiawatha, Inc. (HI).
b. Rockwood (RO).
c. Trimco (TC).

2.15 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:
    a. Hiawatha, Inc. (HI).
    b. Rockwood (RO).
    c. Trimco (TC).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:
    a. Norton Rixson (RF).
    b. Rockwood (RO).
    c. Sargent Manufacturing (SA).

2.16 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. National Guard Products (NG).
2. Pemko (PE).
3. Reese Enterprises, Inc. (RE).

2.17 ELECTRONIC ACCESSORIES

A. Request-to-Exit Motion Sensor: Request-to-Exit Sensors motion detectors specifically designed for detecting exiting through a door from the secure area to a non-secure area. Include built-in timers (up to 60 second adjustable timing), door monitor with sounder alert, internal vertical pointability coverage, 12VDC or 24VDC power and selectable relay trigger with fail safe/fail secure modes.

1. Manufacturers:
    a. Alarm Controls (AK) - SREX Series.
    b. Securitron (SU) - XMS Series.

B. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
   1. Manufacturers:
      a. Securitron (SU) - DPS Series.

C. Intelligent Switching Power Supplies: Provide power supplies with single, dual or multi-voltage configurations at 12 and/or 24VDC. Power Supply shall have battery backup function with an integrated battery charging circuit. The power supply shall have a standard, integrated Fire Alarm Interface (FAI). The power supply shall provide capability for secondary voltage, power distribution, direct lock control and network monitoring through add on modules. The power supply shall be expandable up to 16 individually protected outputs. Output modules shall provide individually protected, continuous outputs and/or individually protected, relay controlled outputs. Network modules shall provide remote monitoring functions such as status reporting, fault reporting and information logging.
   1. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
   2. Manufacturers:
      a. Securitron (SU) - AQL Series.

2.18 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.19 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

2.20 BIFOLD DOOR HARDWARE

A. Acceptable manufacturers and respective catalog numbers:

1. ***Stanley Lawrence K.N. Crowder***
2. ***BFC-125 ED600 C-106-4-C-104***

B. Bifold hardware to include track, hangers, hinges, snugger, top and bottom pivots and pulls.

1. ***Pulls: Minimum 5/8″ dia x 6″ CTC. Hiawatha 523B, Hager 3E, Burns 25A, Rockwood RM730.***

C. Hanger to be rated for 100 lbs. and to have ball bearing wheels.

D. Bifold hardware to be:

1. ***Bifold Kit C-515 2 Door***
2. ***Hinge as required***
3. ***Wire Pull – 6″***

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

F. General Contractor responsible for coordination between all trades affected by hardware installation. Items buried once frames are installed requiring rework for door hardware will not be accepted.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.
2. The supplier is responsible for handing and sizing all products.
3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer’s Abbreviations:

1. MK - McKinney
2. MR - Markar
3. PE - Pemko
4. RF - Rixson
5. RO - Rockwood
6. SA - SARGENT
7. AD - Adams Rite
8. RU - Corbin Russwin
9. HS - HES
10. NO - Norton
11. OT - Other

Hardware Sets

Set: 1.00

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Privacy Lock w/ Ind.	V21 8265 LNL	US26D	SA
1	Surface Closer	7500 (reg. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Mop Plate	K1050 4" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 2.00

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom Lock	LC 8204 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Surface Closer	7500 (reg. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 2.01

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom Lock	LC 8204 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 2.02

6	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Self Latching Flushbolt Set	2845/2945	US32D	RO
1	Dust Proof Strike	570	US26D	RO
1	Coordinator	2600 Series	US28	RO
2	Coordinator Mtg. Bracket	2601 Series	US28	RO
1	Storeroom Lock	LC 8204 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
2	Surface Closer w/ Stop arm	CPS7500	689	NO
2	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
2	Silencer	608		RO

Set: 2.03

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom Lock	LC 8204 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Surface Closer w/ Stop arm	CPS7500	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
3	Silencer	608		RO

Set: 3.00

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Office/Entry Lock	LC 8205 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 3.01

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Office/Entry Lock	LC 8205 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Electric Strike	1500C-DLMS	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	Surface Closer	7500 (reg. arm)	689	NO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO
1	Door Contact	DPS-M/W-BK		SU

Notes: This opening is specified with an electric strike and door contact for future access control. The door & frame is to be prepared for both and not connected at this time. User to change function of hardware to allow for an always locked function upon installing the card reader.

Set: 3.02

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Office/Entry Lock	LC 8205 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 4.00

1	Continuous Hinge	FM300	630	MR
1	Exit Device (Rim, Passage)	19 43 8815 ETL	US32D	SA
1	Surface Closer w/ Stop arm	CPS7500	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	H & J Smoke Seal	S88D		PE
1	Sweep	18061CNB		PE

Set: 4.01

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Exit Device (Rim, Classroom)	LC 19 43 8813 ETL	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Electric Strike	9400-LBSM	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	Surface Closer	P7500 (par. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO
1	Door Contact	DPS-M/W-BK		SU

Notes: This opening is specified with an electric strike and door contact for future access control. The door & frame is to be prepared for both and not connected at this time. User to change function of hardware to allow for an always locked function upon installing the card reader.

Set: 4.02

1	Continuous Hinge	CFM SLF-HD1	Alum	PE
1	Exit Device (Rim, NL)	LC 19 43 8804	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Pull	RM201	US32D	RO
1	Conc Overhead Stop	1-X36	630	RF
1	Surface Closer	P7500 (par. arm)	689	NO
1	Threshold	252x3AFG		PE
1	Sweep w/ Drip Cap	345ANB		PE
1	Door Contact	DPS-M/W-BK		SU

Set: 4.03

2	Continuous Hinge	HG305 AS	630	MR
1	Key Removable Mullion	L980S	PC	SA
1	Exit Device (Rim, NL)	LC 19 43 8804 ETL	US32D	SA
1	Rim Exit Device, Exit Only	19 43 8810 EO	US32D	SA
2	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
2	Corbin Russwin IC Core	Furnished By Owner	626	RU
2	Surf Overhead Stop	9-X36	630	RF
2	Surface Closer w/ H.O.	P7500H (par arm)	689	NO
2	Armor Plate	K1050 (F) 34" high 4BE CSK	US32D	RO
1	Threshold	253x3AFG		PE
1	Mullion Gasketing	5110BL		PE
1	Head Gasketing	2891CNB		PE
1	Jamb Gasketing Set	290ANB		PE
2	Sweep w/ Drip Cap	345ANB		PE
1	Drip Cap	346C		PE
2	Door Contact	DPS-M/W-BK		SU

Set: 4.04

2	Continuous Hinge	FM300	630	MR
2	Exit Device (SVR-LBR, Passage)	19 43 NB8715 ETL	US32D	SA
2	Surface Closer w/ Stop arm	CPS7500	689	NO
2	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
2	H & J Smoke Seal	S88D		PE
2	Mtg. Stile Smoke Seal	S772D		PE

Set: 4.05

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Exit Device w/knurling (Rim, NL)	12 LC 19 43 76 8804 ETL	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Surface Closer	P7500 (par. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 4.06

1	Continuous Hinge	FM300	630	MR
1	Exit Device w/knurling (Rim, NL)	12 LC 19 43 76 8804 ETL	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Surf Overhead Stop	9-X36	630	RF
1	Surface Closer	J7500 (Top Jamb)	689	NO
1	Drop Plate	7787	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Threshold	253x3AFG		PE
1	Head Gasketing	2891CNB		PE
1	Jamb Gasketing Set	290ANB		PE
1	Sweep w/ Drip Cap	345ANB		PE
1	Drip Cap	346C		PE

Set: 4.07

3	Hinge (heavy weight)	T4A3786 5" x 4-1/2"	US26D	MK
1	Exit Device w/knurling (Rim, NL)	12 LC 19 43 76 8804 ETL	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Surface Closer	P7500 (par. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 5.00

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Push Plate	70_ (8" x 18")	US32D	RO
1	Pull	RM301-12"	US32D	RO
1	Surface Closer	7500 (reg. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Mop Plate	K1050 4" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 5.01

1	Continuous Hinge	CFM SLF-HD1	Alum	PE
1	Push Pull	RM251	US32D	RO
1	Surface Closer	7500 (reg. arm)	689	NO
1	Wall Stop	400	US26D	RO

Set: 5.02

3	Hinge, Full Mortise	TA2314 4-1/2" x 4-1/2"	US32D	MK
1	Push Plate	70_ (8" x 18")	US32D	RO
1	Pull	RM301-12"	US32D	RO
1	Surface Closer w/ Stop arm	CPS7500	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Mop Plate	K1050 4" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 5.03

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Push Plate	70_ (8" x 18")	US32D	RO
1	Pull	RM301-12"	US32D	RO
1	Surface Closer w/ Stop arm	CPS7500	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 5.04

3	Hinge, Full Mortise	TA2314 4-1/2" x 4-1/2"	US32D	MK
1	Push Plate	70_ (8" x 18")	US32D	RO
1	Pull	RM301-12"	US32D	RO
1	Surface Closer	7500 (reg. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Mop Plate	K1050 4" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 6.00

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Passage Latch	8215 LNL	US26D	SA
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 6.01

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Passage Latch	8215 LNL	US26D	SA
1	Electric Strike	1500C-DLMS	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	Surface Closer	7500 (reg. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO
1	Door Contact	DPS-M/W-BK		SU

Notes: This opening is specified with an electric strike and door contact for future access control. The door & frame is to be prepared for both and not connected at this time. User to change function of hardware to allow for an always locked function upon installing the card reader.

Set: 6.02

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Passage Latch	8215 LNL	US26D	SA
1	Surface Closer w/ Stop arm	CPS7500	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO

Set: 7.00

2	Pivot Set	370-LTP	626	RF
2	Top Pivot	H345	626	RF
2	Roller Latch w/ angle stop	593	US26D	RO
2	Flush Pull	BF97	US26D	RO

Set: AC1.00

2	Electric Continuous Hinge	FM300 EL12 ETAP	630	MR
1	Elec. Exit Device w/REX (SVR-LBR, NL)		LC 19 43 55 56 NB8706	
ETL		US32D	SA	
1	Elec. Exit Device w/REX (SVR-LBR, Exit Only)		19 43 55 NB8710 EO	
	US32D	SA		
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
2	Surface Closer	P7500 (par. arm)	689	NO
2	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
2	Wall Stop	400	US26D	RO
1	H & J Smoke Seal	S88D		PE
1	Mtg. Stile Smoke Seal	S772D		PE
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
2	ElectroLynx Harness	QC-C006 (hinge to exit)		MK
2	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
2	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Electrically operated opening: Door normally closed and locked. Entry by mechanical key or by presenting a valid card to card reader. Presenting valid card to card reader will temporarily retract the latchbolt of the exit device on the active leaf allowing the door to be pulled open. Upon loss of power, device is locked. Fail Secure

Set: AC1.01

1	Electric Continuous Hinge	CFM SLF-HD1 SER12		PE
1	Elec. Exit Device w/REX (Rim, NL)	LC 19 43 55 56 8804	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Pull	RM201	US32D	RO
1	Surface Closer	P7500 (par. arm)	689	NO
1	Wall Stop	400	US26D	RO
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C006 (hinge to exit)		MK
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Electrically operated opening: Door normally closed and locked. Entry by mechanical key or by presenting a valid card to card reader. Presenting valid card to card reader will temporarily retract the latchbolt of the exit device on the active leaf allowing the door to be pulled open. Upon loss of power, device is locked. Fail Secure

Set: AC1.02

4	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
2	Electric Hinge	TA2714 4-1/2" x 4-1/2". QC12	US26D	MK
1	Elec. Exit Device w/REX (CVR-LBR, NL)		LC NB 19 43 55 56	
MD8606 ETL		US32D	SA	
1	Elec. Exit Device w/REX (CVR-LBR, Exit Only)		NB 19 43 55 MD8610 EO	
	US32D	SA		
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
2	Surface Closer	P7500 (par. arm)	689	NO
2	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
2	Wall Stop	400	US26D	RO
1	H & J Smoke Seal	S88D		PE
1	Mtg. Stile Smoke Seal	S772D		PE
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
2	ElectroLynx Harness	QC-C006 (hinge to exit)		MK
2	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
2	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Electrically operated opening: Door normally closed and locked. Entry by mechanical key or by presenting a valid card to card reader. Presenting valid card to card reader will temporarily retract the latchbolt of the exit device on the active leaf allowing the door to be pulled open. Upon loss of power, device is locked. Fail Secure

Set: AC1.03

1	Electric Continuous Hinge	FM300 EL12 ETAP	630	MR
1	Elec. Exit Device w/REX (Rim, NL)	LC 19 43 55 56 8804 ETL	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Surface Closer	P7500 (par. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C006 (hinge to exit)		MK
1	ElectroLynx Harness	QC-Cxxx (hinge to lock/exit trim)		MK
1	ElectroLynx Adaptor	52-2946		SA
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Electrically operated opening: Door normally closed and locked. Entry by mechanical key or by presenting a valid card to card reader. Presenting valid card to card reader will temporarily retract the latchbolt of the exit device on the active leaf allowing the door to be pulled open. Upon loss of power, device is locked. Fail Secure

Set: AC1.04

1	Electric Continuous Hinge	CFM SLF-HD1 SER12		PE
1	Elec. Exit Device w/REX (Rim, NL)	LC 19 43 55 56 8804	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Pull	RM201	US32D	RO
1	Conc Overhead Stop	1-X36	630	RF
1	Surface Closer	P7500 (par. arm)	689	NO
1	Threshold	252x3AFG		PE
1	Sweep w/ Drip Cap	345ANB		PE
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C006 (hinge to exit)		MK
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Electrically operated opening: Door normally closed and locked. Entry by mechanical key or by presenting a valid card to card reader. Presenting valid card to card reader will temporarily retract the latchbolt of the exit device on the active leaf allowing the door to be pulled open. Upon loss of power, device is locked. Fail Secure

Weather-stripping by door vendor

Set: AC1.05

1	Electric Continuous Hinge	FM300 EL12 ETAP	630	MR
1	Elec. Exit Device w/REX (Rim, NL)	LC 19 43 55 56 8804 ETL	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Surf Overhead Stop	9-X36	630	RF
1	Surface Closer	J7500 (Top Jamb)	689	NO
1	Drop Plate	7787	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
1	Threshold	253x3AFG		PE
1	Head Gasketing	2891CNB		PE
1	Jamb Gasketing Set	290ANB		PE
1	Sweep w/ Drip Cap	345ANB		PE
1	Drip Cap	346C		PE
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C006 (hinge to exit)		MK
1	ElectroLynx Harness	QC-Cxxx (hinge to lock/exit trim)		MK
1	ElectroLynx Adaptor	52-2946		SA
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Electrically operated opening: Door normally closed and locked. Entry by mechanical key or by presenting a valid card to card reader. Presenting valid card to card reader will temporarily retract the latchbolt of the exit device on the active leaf allowing the door to be pulled open. Upon loss of power, device is locked. Fail Secure

Set: AC1.06

2	Electric Continuous Hinge	CFM SLF-HD1 SER12		PE
1	Elec. Exit Device w/REX (CVR-LBR, NL)		LC NB 19 43 55 56	
AD8610 106		US32D	SA	
1	Elec. Exit Device w/REX (CVR-LBR, Exit Only)		NB 19 43 55 AD8610 EO	
	US32D	SA		
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
2	Pull	RM201	US32D	RO
2	Surface Closer w/ Stop arm	CPS7500	689	NO
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
2	ElectroLynx Harness	QC-C006 (hinge to exit)		MK
2	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
2	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Electrically operated opening: Door normally closed and locked. Entry by mechanical key or by presenting a valid card to card reader. Presenting valid card to card reader will temporarily retract the latchbolt of the exit device on the active leaf allowing the door to be pulled open. Upon loss of power, device is locked. Fail Secure

Set: AC2.00

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom Lock	LC 8204 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Electric Strike	1500C-DLMS	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	Surface Closer w/ Stop arm	CPS7500	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
3	Silencer	608		RO
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Motion Sensor/REX	XMS		SU
1	Power Supply	AQL Series		SU

Notes: Electrically controlled opening. Door normally closed and locked. Egress allowed at all times by request to exit device mounted above door. Entry by mechanical key or by presenting valid proximity card to card reader which will temporarily disengage the electric strike. Upon loss of power, door will remain locked. FAIL SECURE

Set: AC2.01

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom Lock	LC 8204 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Electric Strike	1500C-DLMS	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	Surface Closer	7500 (reg. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Motion Sensor/REX	XMS		SU
1	Power Supply	AQL Series		SU

Notes: Electrically controlled opening. Door normally closed and locked. Egress allowed at all times by request to exit device mounted above door. Entry by mechanical key or by presenting valid proximity card to card reader which will temporarily disengage the electric strike. Upon loss of power, door will remain locked. FAIL SECURE

Set: AC2.02

5	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Electric Hinge	TA2714 4-1/2" x 4-1/2". QC12	US26D	MK
1	Self Latching Flushbolt Set	2845/2945	US32D	RO
1	Dust Proof Strike	570	US26D	RO
1	Coordinator	2600 Series	US28	RO
1	Storeroom Lock	LC 8204 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Electric Strike	1500C-DLMS	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
2	Surface Closer	7500 (reg. arm)	689	NO
2	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
2	Wall Stop	400	US26D	RO
2	Silencer	608		RO
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
2	Door Contact	DPS-M/W-BK		SU
1	Motion Sensor/REX	XMS		SU
1	Power Supply	AQL Series		SU

Notes: Electrically controlled opening. Door normally closed and locked. Egress allowed at all times by request to exit device mounted above door. Entry by mechanical key or by presenting valid proximity card to card reader which will temporarily disengage the electric strike. Upon loss of power, door will remain locked. FAIL SECURE

Set: AC2.03

3	Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom Lock	LC 8204 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Electric Strike	1500C-DLMS	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	Surface Closer	P7500 (par. arm)	689	NO
1	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Wall Stop	400	US26D	RO
3	Silencer	608		RO
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Motion Sensor/REX	XMS		SU
1	Power Supply	AQL Series		SU

Notes: Electrically controlled opening. Door normally closed and locked. Egress allowed at all times by request to exit device mounted above door. Entry by mechanical key or by presenting valid proximity card to card reader which will temporarily disengage the electric strike. Upon loss of power, door will remain locked. FAIL SECURE

Set: AC2.04

1	Continuous Hinge	CFM SLF-HD1	Alum	PE
1	Storeroom Lock	LC 8204 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Electric Strike	7160 9 ELX	626	AD
1	SMART Pac Bridge Rectifier	2005M3		HS
1	Surface Closer	7500 (reg. arm)	689	NO
1	Wall Stop	400	US26D	RO
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Motion Sensor/REX	XMS		SU
1	Power Supply	AQL Series		SU

Notes: Electrically controlled opening. Door normally closed and locked. Egress allowed at all times by request to exit device mounted above door. Entry by mechanical key or by presenting valid proximity card to card reader which will temporarily disengage the electric strike. Upon loss of power, door will remain locked. FAIL SECURE

Set: AC2.05

1	Continuous Hinge	HG305 AS	630	MR
1	Electric Continuous Hinge	HG305 EL12 ETAP AS	630	MR
1	Self Latching Flushbolt Set	2845/2945	US32D	RO
1	Dust Proof Strike	570	US26D	RO
1	Coordinator	2600 Series	US28	RO
1	Storeroom Lock	LC 8204 LNL	US26D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Electric Strike	1500C-DLMS	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
2	Surface Closer	7500 (reg. arm)	689	NO
2	Armor Plate	K1050 (F) 34" high 4BE CSK	US32D	RO
2	Wall Stop	400	US26D	RO
2	Silencer	608		RO
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
2	Door Contact	DPS-M/W-BK		SU
1	Motion Sensor/REX	XMS		SU
1	Power Supply	AQL Series		SU

Notes: Electrically controlled opening. Door normally closed and locked. Egress allowed at all times by request to exit device mounted above door. Entry by mechanical key or by presenting valid proximity card to card reader which will temporarily disengage the electric strike. Upon loss of power, door will remain locked. FAIL SECURE

Set: AC3.00

1	Electric Continuous Hinge	CFM SLF-HD1 SER12		PE
1	Fail Secure Exit Device-FEMA	LC FM8774-24v ETL x 306	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Surface Closer-FEMA	TB 351 CPS	EN	SA
1	Latch Cover Kick Plate-FEMA	BFLG1050 10"	US32D	RO
1	Threshold-FEMA	172A		PE
1	Sweep-FEMA	18061CNB		PE
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness-FEMA	QC-C012 (Panic to hinge)		MK
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Position Switch-FEMA	DPS-M-GY		SU
1	Motion Sensor/REX	XMS		SU
1	Power Supply	AQL Series		SU

Notes: FEMA opening by Insulgard

Electrically operated opening: Door normally closed latched and locked. Free egress at all times. Entry by mechanical key or by presenting valid card key to card reader which will temporarily unlock outside lever handle. Upon loss of power door is locked- FAIL SECURE.

Weather-stripping by door vendor

Set: AC3.01

1	Electric Continuous Hinge	HG305 EL12 ETAP AS	630	MR
1	Fail Secure Exit Device-FEMA	LC FM8774-24v ETL x 306	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Surface Closer-FEMA	CPS7500 TBGN	689	NO
1	Latch Cover Kick Plate-FEMA	BFLG1050 10"	US32D	RO
1	Threshold-FEMA	2715A		PE
1	H & J Gasketing-FEMA	S773D		PE
1	Sweep w/ Drip Cap	345ANB		PE
1	Drip Cap	346C		PE
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-Cxxx (hinge to lock/exit trim)		MK
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: FEMA hollow metal assembly

Electrically operated opening: Door(s) normally closed latched and locked. Free egress at all times. Entry by mechanical key or by presenting valid card key to card reader which will temporarily unlock outside lever handle. Upon loss of power door is locked- FAIL SECURE.

Set: AC4.00

1	Continuous Hinge	CFM SLF-HD1	Alum	PE
1	Exit Device (Rim, NL)	CPC LC 19 43 8804	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Electric Strike	9400-LBSM	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	Pull	RM201	US32D	RO
1	Conc Overhead Stop	1-X36	630	RF
1	Surface Closer	P7500 (par. arm)	689	NO
1	Threshold	252x3AFG		PE
1	Sweep w/ Drip Cap	345ANB		PE
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Weatherproof Request to Exit	By Security Contractor		OT
1	Power Supply	AQL Series		SU

Notes: Electrically controlled opening. Door normally closed and locked. Egress allowed at all times by request to exit device (by others) mounted above door. Entry by mechanical key or by presenting valid proximity card to card reader which will temporarily disengage the electric strike. Upon loss of power, door will remain locked. FAIL SECURE

Weather-stripping by door vendor

Set: AC5.00

1	Electric Continuous Hinge	CFM SLF-HD1 SER12		PE
1	Elec. Exit Device w/REX (Rim, NL)	LC 19 43 55 56 8804	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Pull	RM201	US32D	RO
1	Conc Overhead Stop	1-X36	630	RF
1	Automatic Opener	6061	689	NO
1	Wall Switch	700		NO
1	Wall Switch	704		NO
1	Threshold	252x3AFG		PE
1	Sweep w/ Drip Cap	345ANB		PE
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C006 (hinge to exit)		MK
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Operation: Electrically controlled door opening. Door normally closed and locked. Egress allowed at all times. Entry by mechanical key, card reader or push button (by others) from a remote monitoring location where shown. Presenting valid card then using actuator will retract the latchbolt of the electrified exit device momentarily allowing the operator to open the door. Actuator switch on inside of the opening will retract the latchbolt of the electrified exit device momentarily allowing the auto operator to open the door when the operator is enabled. Fail Secure

Set: AC5.01

1	Electric Continuous Hinge	CFM SLF-HD1 SER12		PE
1	Elec. Exit Device w/REX (Rim, NL)	LC 19 43 55 56 8804	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Pull	RM201	US32D	RO
1	Conc Overhead Stop	1-X36	630	RF
1	Automatic Opener	6061	689	NO
1	Wall Switch	700		NO
1	Wall Switch	704		NO
1	Sweep	18061CNB		PE
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Harness	QC-C006 (hinge to exit)		MK
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Operation: Electrically controlled door opening. Door normally closed and locked. Egress allowed at all times. Entry by mechanical key, card reader or push button (by others) from a remote monitoring location where shown. Presenting valid card then using actuator will retract the latchbolt of the electrified exit device momentarily allowing the operator to open the door. Actuator switch on inside of the opening will retract the latchbolt of the electrified exit device momentarily allowing the auto operator to open the door when the operator is enabled. Fail Secure

Set: AC5.02

2	Electric Continuous Hinge	FM300 EL12 ETAP	630	MR
1	Key Removable Mullion	L980S	PC	SA
1	Elec. Exit Device w/REX (Rim, NL)	LC 19 43 55 56 8804 ETL	US32D	SA
1	Elec. Exit Device w/REX (Rim, Exit Only) SA	19 43 55 8810 EO	US32D	
2	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
2	Corbin Russwin IC Core	Furnished By Owner	626	RU
1	Conc Overhead Stop	1-X36	630	RF
1	Surf Overhead Stop	9-X36	630	RF
1	Surface Closer	J7500 (Top Jamb)	689	NO
1	Drop Plate	7787	689	NO
1	Automatic Opener	6061	689	NO
2	Wall Switch	700		NO
2	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
1	Threshold	253x3AFG		PE
1	Head Gasketing	2891CNB		PE
1	Jamb Gasketing Set	290ANB		PE
2	Sweep w/ Drip Cap	345ANB		PE
1	Drip Cap	346C		PE
1	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
2	ElectroLynx Harness	QC-C006 (hinge to exit)		MK
2	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
2	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Operation: Electrically controlled door opening. Door normally closed and locked. Egress allowed at all times. Entry by mechanical key or card reader. Presenting valid card then using actuator will retract the latchbolt of the electrified exit device momentarily allowing the operator to open the door. Actuator switch on inside of the opening will retract the latchbolt of the electrified exit device on the active leaf momentarily allowing the auto operator to open the active door when the operator is enabled. Fail Secure

1-series overhead stop at door with auto operator

Set: AC6.00

1	Continuous Hinge	CFM SLF-HD1	Alum	PE
1	Del. Egress Magnetic Lock	iMXDa		SU
1	Exit Device (Rim, Passage)	19 43 8815 ETL	US32D	SA
1	Conc Overhead Stop	1-X36	630	RF
1	Surface Closer	J7500 (Top Jamb)	689	NO
1	Drop Plate	7787	689	NO
1	Threshold	252x3AFG		PE
1	Sweep w/ Drip Cap	345ANB		PE
2	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
1	ElectroLynx Adaptor	52-2946		SA
1	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
1	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Electrically operated delayed egress opening. Door(s) normally closed latched and locked. Authorized egress at all times by valid proximity card only. Attempting to exit without valid card will initiate an irrevocable local alarm for 15 seconds after which the magnetic lock will release. Ingress by presenting valid proximity card to card reader which will temporarily unlock magnetic lock and lever handle opens door. In the event of a power failure, magnetic lock will be unlocked- FAIL SAFE

Weather-stripping by door vendor

Set: AC6.01

2	Continuous Hinge	FM300	630	MR
2	Del. Egress Magnetic Lock	iMXDa		SU
2	Exit Device (CVR-LBR, Passage)	NB 19 43 MD8615 ETL	US32D	SA
2	Surface Closer	J7500 (Top Jamb)	689	NO
2	Drop Plate	7787	689	NO
2	Kick Plate	K1050 8" high 4BE CSK	US32D	RO
2	Wall Stop	400	US26D	RO
1	H & J Smoke Seal	S88D		PE
1	Mtg. Stile Smoke Seal	S772D		PE
2	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
2	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
2	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Electrically operated delayed egress opening. Door(s) normally closed latched and locked. Authorized egress at all times by valid proximity card only. Attempting to exit without valid card will initiate an irrevocable local alarm for 15 seconds after which the magnetic locks will release. Ingress by presenting valid proximity card to card reader which will temporarily unlock magnetic locks and lever handle opens door. In the event of a power failure, magnetic lock will be unlocked- FAIL SAFE

Set: AC6.02

2	Continuous Hinge	FM300	630	MR	
2	Del. Egress Magnetic Lock	iMXDa			SU
2	Exit Device (SVR-LBR, Passage)	19 43 NB8715 ETL		US32D	SA
2	Surface Closer	J7500 (Top Jamb)		689	NO
2	Drop Plate	7787		689	NO
2	Kick Plate	K1050 8" high 4BE CSK		US32D	RO
2	Wall Stop	400		US26D	RO
1	H & J Smoke Seal	S88D			PE
1	Mtg. Stile Smoke Seal	S772D			PE
2	Card Reader	By Security Contractor			OT
1	Wiring Diagram	By Security Contractor			SA
2	ElectroLynx Harness	QC-C1500P (hinge/strike to power)			MK
2	Door Contact	DPS-M/W-BK			SU
1	Power Supply	AQL Series			SU

Notes: Electrically operated delayed egress opening. Door(s) normally closed latched and locked. Authorized egress at all times by valid proximity card only. Attempting to exit without valid card will initiate an irrevocable local alarm for 15 seconds after which the magnetic locks will release. Ingress by presenting valid proximity card to card reader which will temporarily unlock magnetic locks and lever handle opens door. In the event of a power failure, magnetic lock will be unlocked- FAIL SAFE

Set: AC6.03

2	Continuous Hinge	CFM SLF-HD1	Alum	PE
1	Key Removable Mullion	L980S	PC	SA
2	Del. Egress Magnetic Lock	iMXDa		SU
2	Exit Device (Rim, Passage)	19 43 8815 ETL	US32D	SA
1	Corbin Russwin IC Cyl. Housing	Type as Req'd. (less permanent core)	626	RU
1	Corbin Russwin IC Core	Furnished By Owner	626	RU
2	Conc Overhead Stop	1-X36	630	RF
2	Surface Closer	J7500 (Top Jamb)	689	NO
2	Drop Plate	7787	689	NO
1	Threshold	252x3AFG		PE
2	Sweep w/ Drip Cap	345ANB		PE
2	Card Reader	By Security Contractor		OT
1	Wiring Diagram	By Security Contractor		SA
2	ElectroLynx Harness	QC-C1500P (hinge/strike to power)		MK
2	Door Contact	DPS-M/W-BK		SU
1	Power Supply	AQL Series		SU

Notes: Electrically operated delayed egress opening. Door(s) normally closed latched and locked. Authorized egress at all times by valid proximity card only. Attempting to exit without valid card will initiate an irrevocable local alarm for 15 seconds after which the magnetic lock will release. Ingress by presenting valid proximity card to card reader which will temporarily unlock magnetic lock and lever handle opens door. In the event of a power failure, magnetic lock will be unlocked- FAIL SAFE

Weather-stripping by door vendor

Set: 7.00

3 Hinge, Full Mortise	***TA2714 4-1/2" x 4-1/2"***	***US26D***	***MK***
1 Office/Entry Lock	***LC 8205 LNL***	***US26D***	***SA***
1 Corbin Russwin IC Cyl. Housing	***Type As Req'd (less permanent core)***	***626***	***RU***
1 Corbin Russwin IC Core	***Furnished by Owner***	***626***	***RU***

Set: b/o

1 Hardware by others		OT

END OF SECTION 08 71 00

SECTION 08 80 00
GLAZING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Interior Glazing
      a. Safety glass in locations identified in Part 3.
      b. Clear glass in HM doors and frames.
      c. Clear glass in wood doors.
      d. Full height wall mirrors.
      e. Site Constructed Display Cases including:
         1) Clear glass shelves, standards, brackets.
         2) Sliding glass tracks with clear glazing.
   2. Exterior Insulated Glazing
      a. Safety glass in locations identified in Part 3.
      b. Bird-safe clear glass in aluminum doors.
      c. Bird-safe clear glass in curtainwall, storm windows.
      d. Clear glass in aluminum doors.
      e. Clear glass in storefront.
      f. Spandrel glass in storefront and curtainwall.
      g. Bird-Safe clear, laminated glass in aluminum doors, and curtainwall.

1.02 QUALITY ASSURANCE

A. Reference Specification: Glazing Manual by Flat Glass Marketing Association.
B. Materials: Conform in all respects to the "Safety Standard for Architectural Glazing Materials" (16CFR 1201) issued by the Consumer Product Safety Commission and Chapter 24 of the International Building Code.
C. Insulating glass units to be CBA rated with the Insulating Glass Certification Council (IGCC) in accordance with ASTM Specifications E-773 and E-774.

1.03 SUBMITTALS

A. Submit per Section 01 33 00.
   1. Product data:
      a. Insulating glass units.
      b. Security glazing.
      c. Mirrors.
      d. Shelving components.
   2. Samples for each type glass specified.
   3. Sample warranties.
   4. Guideline S.9 Bird-Safe Building including bird friendly glazing. Submit documentation on bird-safe glazing.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Package, handle, deliver and store at the job site in a manner that will avoid damage.
B. Reject scratched glass.

1.05 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide five-year manufacturer warranty against failure of laminated glass products. Complete forms in Owner's name and register with manufacturer.

PART 1 PRODUCTS

2.01 MANUFACTURERS/FABRICATORS

A. Glass Manufacturers and/or Coating Manufacturers:
   1. AGC Glass North America, Inc.: www.us.agc.com.
   2. Cardinal Glass Industries: www.cardinalcorp.com.
   3. Guardian Industries, LLC: www.sunguardglass.com.
   4. Old Castle Building Products: www.oldcastlebe.com.
   5. Pilkington North America, Inc.: www.pilkington.com.
   6. Viracon, Inc.: www.viracon.com.
   7. Vitro Architectural Glass: www.vitroglazings.com.

B. Fire Rated Glass Manufacturers:
   1. SAFTI First, www.safti.com.
   2. Technical Glass Products, www.fireglass.com.
   3. Vetrotech Saint-Gobain, www.vetrotechusa.com.
   4. McGrory Glass, www.mcgrory.com.

C. Interlayer Manufacturers: Vanceva, www.vanceva.com, or equal.

D. Glass Product Fabricators: As certified by glass manufacturers and/or coating manufacturers.

2.02 INTERIOR GLAZING

A. Clear:
   1. Clear Float Glass, ¼ inch (6.35 mm) thick.
   2. Clear Float Glass, 1/2 inch (12.7 mm) thick [for panes 72 inches (1828.8 and higher].

B. Safety:
   1. Clear heat-tempered float glass, ¼ inch (6.35 mm) thick.
   2. Clear Float Glass, 1/2 inch (12.7 mm) thick [for panes 72 inches (1828.8 and higher].
   3. Laminated glass, 5/16 inch (7.9375 mm) thick, consisting of 1/8 inch (3.175 mm) thick heat-tempered float glass, interlayer of 0.030 inch (0.762 mm) thick clear Poly Vinyl Butyral (PVB), 1/8 inch (3.125 mm) thick heat-tempered float glass.

C. Fire Rated:
   1. Non-wire glass products with a fire rating to match opening schedule on the drawings by one of the folowing are acceptable:
      a. McGrory Glass
      b. SAFTI First.
      c. Technical Glass Products.
      d. Vetrotech Saint-Gobain.

D. Reflective
   1. Wall mirror, ¼ inch (6.35 mm) thick, Mirror Select Quality". Fully adhered to wall with adhesive recommended by glass fabricator.
      a. Provide height as shown on drawings and total width of wall.

E. Glass Shelves
   1. Clear Fully Tempered Float Glass, 1/4 inch (6.35 mm) thick.
   2. Ground edges and corners.
   3. Holes for cable supports.

2.03 EXTERIOR GLAZING

A. Low-E glass to be solar control (MSVD coating process).

B. For fire rated glazing, substitute appropriate lites with Fire Rated Glazing as specified under interior glazing.

C. For locations requiring safety glazing, provide heat-tempered glass for inboard and outboard lites, unless laminated glazing is called out on drawings or specified.

D. Bird-Safe Clear Insulated Glass, noted as (Type EC1) for Low E coated bird safe dots:
   1. 1" ~~**1/4"**~~ overall thickness insulated glass.
      a. Exterior glass ply: ¼" clear with Guardian Bird 1st Etched Pattern 17 on surface #1 and Guardian SNX 62/27 "Low E" on surface #2.
      b. Spacer: Thermal plastic.
      c. Airspace: ½" argon filled.
      d. Silicone: Black
      e. Interior glass ply: ¼" clear, with Guardian IS20 "Low E" on surface #4.
   2. Performance Requirements:
      a. Transmittance
         1) Visible Light 60%
      b. Reflectance
         1) Visible Light Exterior 11%
         2) Visible Light Interior 12%
      c. ASHRAE U-Value
         1) Winter Nighttime ~~**0.28**~~ ***0.20*** BTU
         2) Summer Daytime ~~**0.23**~~ ***0.17*** BTU
      d. Solar Factor (SHGC) ~~**0.27**~~ ***0.25***
      e. LSG ~~**2.20**~~ ***2.37***
   3. For units requiring "Safety Glazing" per Part 3 of Specification, provide "safety" glass plys. Specified under interior glazing.
   4. For locations indicated for spandrel, provide ceramic frits on surface #4.
   5. Color: As chosen by Architect from manufacturer's full color line or as noted on the Material/ Finish Schedule.

E. Laminated Bird Safe Insulated Glass: (Type SL1).
   1. 1 ¼ inch (31.75 mm) overall thickness laminated insulated glass.
      a. Exterior glass ply/coating: ¼ inch clear with Guardian Bird 1st Etched Pattern 17 on surface #1 and Guardian SNX 62/27 "Low E" on surface #2.
      b. Spacer: Thermal plastic.
      c. Airspace: ~~**7/16**~~ ***1/2*** inch argon filled.
      d. Silicone: Black.
      e. Interior glass ply:
         1) ¼ inch (6.35 mm) clear, ***with Guardian IS20 "Low E" on surface #4.***
         2) 0.030" clear PVB.
         3) ¼ inch (6.35 mm) clear.
   2. Performance Requirements:
      a. Transmittance
         1) Visible light: 60%.
      b. Reflectance
         1) Visible Light Exterior: 11%.
         2) Visible Light Interior: 12%.
      c. ASHRAE U-Value:
         1) Winter nighttime: ~~**0.28**~~ ***0.20*** BTU.
         2) Summer Daytime ~~**0.23**~~ ***0.17*** BTU
      d. Solar Heat Gain Factor (SHGC): ~~**0.27**~~. ***0.25***
      e. LSG: ~~**2.20**~~. ***2.37***
   3. For units requiring "Safety Glazing" per Part 3 of Specification, provide "safety" glass plys. Specified under interior glazing.

4. For locations indicated for spandrel, provide ceramic frits on surface #4.
    a. Color: As chosen by Architect from manufacturer's full color line or as noted on the Material/ Finish Schedule.

2.04 ACCESSORIES

A. Glazing Sealant: Two-part silicone similar to Dow Corning 982 Insulating Glass Sealant. Glazer is responsible to verify compatibility to primary seal material.
B. Setting Blocks: 70-90 Shore "A" durometer, sized to accommodate size of glass used, compatible with glazing sealant.
C. Spacers: Warm edge thermal plastic.
D. Primer - Sealers, Cleaners: As recommended by glass manufacturer.
E. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
F. Sliding Glass Door Assembly: Stylmark, Inc.; www.stylmark.com or equal.
    1. Model #610185.
        a. For ¼ inch (6.35 mm) glass panels up to 80 pounds (36.2873896 kg) .
        b. Includes the following parts: Tracks, retainers, shoes, wheel assemblies, top moldings, door guides, channels, jambs, bumpers, end caps and lock assembly.
G. Steel Standard Brackets for Site Constructed Display Case: Knape and Vogt; www.knapeandvogt.com or equal.
    1. Standards: #87.
    2. Brackets: #186/187.
    3. Shelf Rests: #210/211/212.
    4. Rubber Cushion Rests: #129.
H. Cable Display System: Grip Lock Systems, www.griplocksystem.com, or equal.
    1. Cable: 3/32 inch (.38125 mm) stainless steel aircraft cable with a safe working load of 130 pounds (58.967008 kg).
    2. Fittings:
        a. Glider with anchor plate: #DG-25-APLT-SAT.
        b. Glider with base plate: #DG-25-SAT.
        c. Double sided universal glider clamp: #DG-25-SCUX2-SAT.
        d. Single sided universal glider clamp: #DG-25-SCU-SAT.
        e. Material/Finish: Satin chrome plated brass.
    3. Provide a complete system with all necessary parts / fittings.

PART 3 EXECUTION

3.01 INSPECTION

A. Check that glazing channels are free of burrs, irregularities, and debris.
B. Check that glass is free of edge damage or face imperfections.
C. Do not proceed with installation until conditions are satisfactory.

3.02 PREPARATION

A. Field Measurements:
    1. Measure size of frame to receive glass.
    2. Compute actual glass size, allowing for edge clearances.
B. Preparation of Surfaces:
    1. Remove protective coatings from surfaces to be glazed.
    2. Clean glass and glazing surfaces, to remove dust, oil and contaminants. Wipe dry.

3.03 SAFETY GLAZING

A. Install safety glazing at the following locations and/or as required by local building codes.
   1. Doors and adjacent glazing:
      a. In doors when glass is wider than 2-15/16 inch (74.6125 mm) .
      b. Glass within 24 inch (609.6 mm) of vertical door edges and to a point 60 inch (1524 mm) above the floor.
   2. Individual fixed or operable panels when any of the following conditions are met:
      a. Individual panes 9 square feet (0.836127 square meter) and greater.
      b. Glass within 18 inch (457.2 mm) of the floor.
      c. When exposed individual pane is greater than 36 inch (914.4 mm) above the floor, except when a horizontal mullion is detailed between 34 inch (863.6 mm) and 38 inch (965.2 mm) above the floor.
      d. Walking surfaces within 36 inches (914.4 mm) horizontally of the pane of glazing.
   3. Wall mirrors in athletic rooms.

3.04 INSTALLATION

A. Install glass in accordance with glass manufacturer's current printed instructions.
B. Install sliding glass doors in accordance with manufacturer's instructions and as shown on Drawings.

3.05 CLEANING

A. Remove excess glazing compound from installed glass.
B. Remove labels from glass surface as soon as installed.
C. Wash and polish both faces of glass.
D. Remove debris from work site.

3.06 PROTECTION OF COMPLETED WORK

A. Attach crossed streamers away from glass face.
B. Do not apply markers to glass surface.
C. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION 08 80 00

SECTION 09 21 16
GYPSUM WALLBOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum wallboard assemblies.
B. Non load bearing rated and non-rated metal stud wall assemblies.
C. Metal channel ceiling framing.
D. Sound batt insulation.
E. Mold and moisture resistant gypsum wallboard on the inside face of exterior stud walls or on top of hat channels on exterior masonry/concrete walls.
F. Cementitious backing board "Cement Board" as a substrate for ceramic/porcelain tile with-in two feet (0.6096 m) horizontally of water closets and urinals on the wet wall or to an inside corner, whichever is greater. Cement board to be same height as the tile. Coordinate the exact transitions with the tile installer.
    1. As indicated on the drawings at other locations.
G. Tile backer board as a substrate for ceramic or porcelain tile.
H. Gypsum wallboard.
I. Joint treatment and accessories.
J. Installation of acoustic spray system at top of walls and miscellaneous penetrations (sealing of mechanical/electrical penetrations are by those trades).
K. Acoustic sealant at stud walls at locations noted on the drawings.
L. Rigid wall insulation.
M. Gypsum board adhered directly to concrete or concrete block substrates.
N. ***Acoustical perforated gypsum panels.***

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
B. Product Data: Provide data on installation of acoustic spray system (including application thickness of spray).
C. UL listings for rated assemblies from manufacturer of framing/gypsum board products for:
    1. Rated gypsum wallboard partitions.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery and Handling
    1. Deliver materials to the project site with manufacturer's labels intact and legible.
    2. Handle materials with care to prevent damage.
    3. Deliver fire-rated materials bearing testing agency label and required fire classification numbers.
    4. The plastic packaging used to wrap gypsum panel products for shipment is intended to provide temporary protection from moisture exposure during transit only and is not intended to provide protection during storage after delivery. Such plastic packaging shall be removed immediately upon receipt of the shipment.
    5. Failure to remove protective plastic shipping covers can result in condensation which can lead to damage, including mold.
B. Storage
    1. Store materials inside under cover, stack flat, properly supported on a level surface, all in same direction, off of floor. Gypsum panel products to be fully protected from weather, direct sunlight exposure and condensation. Gypsum materials with water damage shall be removed from the jobsite.
    2. Avoid overloading floor system
    3. Store adhesives in dry area; provide protection against freezing at all times.

4. Steel framing and related accessories shall be stored and handled in accordance with AISI's "Code of Standard Practice".

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.
   1. See PART 3 for finishing requirements.
B. Fire-Resistance-Rated Assemblies: Provide completed assemblies with fire ratings as noted on the drawings
   1. ICC IBC Item Numbers: Comply with applicable requirements of ICC IBC for the particular assembly.
   2. Gypsum Association File Numbers: Comply with requirements of GA-600 for the particular assembly.
   3. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL (FRD).

2.02 METAL FRAMING MATERIALS

A. Manufacturers - Metal Framing, Connectors, and Accessories:
   1. ClarkDietrich: www.clarkdietrich.com.
   2. Equivalent products by other manufacturers are acceptable.
B. Non-structural Framing System Components: ASTM C645; galvanized sheet steel (ASTM 645M G40 [Z120]), of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf (L/240 at 240 Pa).
   1. Studs: C-shaped with flat, knurled or embossed faces.
      a. Metal thickness:
         1) 20 gauge or ProSTUD 20 gauge equivalent.
         2) 25 gauge or ProSTUD 25 gauge equivalent.
      b. Size: 1-5/8 inch (41.275 mm), 2-½ inch (63.5 mm), 3-5/8 inch (92.075 mm), 4 inch (101.6 mm), 6 inch (152.4 mm) or 8 inch (203.2 mm) deep as noted on drawings.
   2. Runners: U shaped, sized to match studs.
   3. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch (22 mm).
   4. Furring Members: Zee-shaped sections, minimum depth of 1 inch (25.4 mm).
      a. Products:
         1) Same manufacturer as other framing materials.
C. Partition Head To Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and screwed to secondary deflection channel set inside but unattached to top track.
D. Non-structural Framing Accessories:
   1. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
   2. Partial Height Wall Framing Support: Provides stud reinforcement and anchored connection to floor.
      a. Materials: ASTM A36/A36M formed sheet steel support member with factory-welded ASTM A1003/A1003M steel plate base.
      b. Height: As required for wall height.
      c. Products:
         1) ClarkDietrich; Pony Wall (PW): www.clarkdietrich.com.
E. Grid Suspension Systems: Steel grid system of main tees and support bars connected to structure using hanging wire.
   1. Products:
      a. USG Corporation; Drywall Suspension System: www.usg.com.
      b. Rockfon Chicago Metallic Corporation; Drywall Furring 640/660: www.rockfon.com.
      c. Armstrong World Industries; Drywall Suspension Systems: www.armstrongceilings.com.

2.03 WALLBOARD MATERIALS

A. Manufacturers:
   1. Any manufacturers who comply with the specification are acceptable.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use only at soffits, gypsum wallboard on furring and partitions that do not go to structure.
   2. Surface Paper: 100% recycled content paper on front, back and long edges.
   3. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
   4. Thickness:
      a. Vertical Surfaces: 5/8 inch (16 mm).
      b. SoffCeilings: 5/8 inch (16 mm).

C. Fire-resistant Rated Wallboard:
   1. Application: For use at all locations and wallboard types unless noted otherwise in this specification.
   2. Type: Fire-resistance-rated Type X or requirements of ASTM C 1396 Standard Specification for Gypsum Board, UL or WH listed.
   3. Surface Paper: 100% recycled content paper on front, back and long edges.
   4. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
   5. Thickness: 5/8 inch (16 mm).

D. Mold and Moisture Resistant Wallboard:
   1. Application: Use at interior face of exterior stud walls, ceiling joists under attics and on furring attached to inside face of exterior masonry/concrete walls.
   2. Surface Paper: Coated fiberglass mat on face, back and long edges.
   3. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
   4. Humidified Deflection: Not more than ¼” when tested in accordance with ASTM C473 and C1658.
   5. Water Absorption: Less than 5% of weight when tested in accordance with C1396M and C1658.
   6. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273
   7. Thickness: 5/8 inch (16 mm).

E. Cement Based Tile Backer Board "Cement Board"
   1. Application:
      a. Behind ceramic/porcelain tile with-in two feet (0.6096 m) of water closets and urinals.
      b. Behind porcelain and ceramic tile in showers.
      c. Other locations as noted on the drawings.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   3. ANSI Cement-Based Board: Non-gypsum-based; aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces complying with ANSI A118.9 or ASTM C1325.
   4. Water Absorption: Not greater than 8% when tested for 24 hours in accordance with ASTM C 473.
      a. Thickness: 5/8 inch (16 mm).
   5. Glass Mat Faced Board for showers: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C1178/C1178M.
      a. Regular Type: Thickness 5/8 inch (16 mm).
      b. Fire-Resistance-Rated Type: Type X core, thickness 5/8 inch (16 mm).

F. Gypsum Tile Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.
   1. Application: Vertical surfaces behind thinset tile, except in wet areas.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   3. Permanence: Not more than 1.0 perms when tested in accordance with ASTM E96.
   4. Humidified Deflection: Not more than ¼” when tested in accordance with ASTM C473 and C1178.
   5. Water Absorption: Less than 5% of weight when tested in accordance with C1396M and C1178.
   6. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.

7. Type X Thickness: 5/8 inch (16 mm).
8. Regular Board Thickness: 5/8 inch (16 mm).
9. Edges: Tapered.

G. ***Acoustical perforated gypsum panels***
1. ***Application – where noted on Drawings as ACG or ACP.***
2. ***Panel Thickness: ½"***
3. ***Panel Edge: 4 sided bevel, no visible joints after finishing***
4. ***Panel Size: 48 x 96 inches***
5. ***Perforation: C6 Circles***
6. ***Perforation Pattern: 2L2 Quarters***
7. ***Percent Open Area: C6 2L2 Circle 9.3%***

2.04 GYPSUM BOARD ACCESSORIES

A. Sound Batt Insulation: Refer to Section 07 21 00 Insulation for requirements.
B. Acoustic Spray System: Refer to Section 07 21 00 Inuslation for requirements.
C. Rigid Wall Insulation: Refer to Section 07 21 00 Insulation for requirements.
D. Acoustic Sealant: Conforming to ASTM C 919, Standard Practice for Use of Sealants in Acoustical Applications.
E. Beads, Joint Accessories, and Other Trim: ASTM C1047, aluminum coated, galvanized steel or rolled zinc, unless noted otherwise.
1. Corner Beads: Low profile, for 90 degree outside corners.
2. L-Trim with Tear-Away Strip: Sized to fit 5/8 inch (16 mm) thick gypsum wallboard.
3. Expansion Joints:
a. Type: V-shaped metal with factory-installed protective tape.
F. Joint Materials: ASTM C475/C475Mand as recommended by gypsum wallboard manufacturer for project conditions.
1. Interior Gypsum Wallboard:
a. Paper Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners.
2. Glass-Matt Gypsum Wallboard:
a. Fiberglass Tape: 2 inch (50 mm) wide, coated glass fiber tape for joints and corners.
3. Other Panels:
a. As recommended by wallboard manufacturer.
4. Joint Compound for Interior Gypsum Wallboard: Drying type, vinyl-based, field-mixed or ready-mixed.
5. Joint Compound for Glass-matt Gypsum Wallboard: As recommended by wallboard manufacturer.
G. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches (0.84 mm) in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.
H. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch (0.84 to 2.84 mm) in Thickness: ASTM C954; steel drill screws, corrosion-resistant.
I. Nails for Attachment to Wood Members: ASTM C514.
J. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.
K. Adhesive for Attachment to Masonry/Concrete,Wood, ASTM C557 and Metal:
1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR, 59, Subpart D (EPA Method 24).

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.
   1. If items need correction, contact the Construction Manager or General Contractor.
      a. Do Not proceed with installation until conditions have been corrected.

3.02 FRAMING INSTALLATION

A. Metal Stud Schedule:
   1. Use 25 gauge or equivalent knurled or embossed metal studs on partitions up to 12 feet (3.6576 m) high and soffits.
   2. Use 20 gauge or equivalent knurled or embossed metal studs on:
      a. Metal stud partitions over 12 feet (3.6576 m) high.
      b. Metal stud framed ceilings.
      c. Double studs at each door and borrowed light jamb and head up to 36 inches (914.4 mm) wide. For frame wider than 36 inches (914.4 mm) provide an additional full height stud at each jamb for every 32 inches (812.8 mm) of additional width.
      d. Two (2) - 16 gauge studs at mounting points of handicapped grab bars, wall mounted handicapped benches and diaper changing stations as occurs on stud walls.
      e. For partitions of any height covered with abuse or high impact resistant gypsum board.
      f. For partitions of any height covered with cement board.

B. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

C. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
   1. Level ceiling system to a tolerance of 1/1200.
   2. Suspend ceiling hangers from building structural members and as follows:
      a. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum not part of supporting structural or ceiling suspension system.
      b. Splay hangers only where required to miss obstruction s and offset resulting horizontal forces by bracing, counter splaying or other equally effective means.
      c. Where widths of ducts and other construction within ceiling plenum produce hanger spacing that interfere with the location of hangers at spacing required to support standard suspension system members, install supplemental suspension system members and hangers in form of trapezes or equivalent devices.
         1) Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
      d. Secure wire hangers to structure, by looping or wire tying, directly to supporting structure, including intermediate framing members. Attach to inserts, eye screws, or other devices appropriate for structure to which hangers are attached as well as for type of hanger involved in manner that will not cause deterioration or failure, due to age, corrosion or elevated temperatures.
      e. Laterally brace entire suspension system.
      f. Do not attach hangers to metal roof deck or metal deck tabs.
      g. Do not connect or suspend steel framing from ducts, pipes or conduits.
      h. Keep hangers and braces 2 inches clear of ducts, pipes and conduits.
      i. Wire-tie or clip furring members to main runners and to other structural supports.
      j. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension system abuts vertical surfaces. Mechanically join main beam and cross furring members to each other and butt cut to fit wall track.
      k. Where suspended ceiling assemblies abut building structure horizontally at ceiling perimeters or penetrations of ceiling.
      l. Install bracing as required at exterior locations to resist wind uplift.

D. Studs: Space studs at 16 inches on center (at 406 mm on center).
   1. Extend partition framing as indicated on the drawings.
   2. Where studs or runners are installed directly against masonry walls or concrete floors/walls, set studs in acoustical sealant.
   3. Installation Tolerances: Install each steel framing and furring member so that fastening surface does not vary more than 1/8 inch (3.175 mm) from plane of faces of adjacent framing.
   4. Ensure that steel framing is isolated from building structure to prevent transfer of loading imposed by structural movement, at location indicated below to comply with details shown on drawings.
      a. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

E. For STC-rated or fire-resistance rated partitions that extend full height, install framing around structural members, as required to support gypsum board closures needed to make partitions continuous from floor to underside of structure above.

F. Brace partition framing, not extending full height to structure above, with studs same size and thickness as partition framing. Provide bracing at:
   1. 6 foot (1.8288 m) o.c. intervals along length of partitions.
   2. Not less than 6 foot (1.8288 m) from partition ends and corners.
   3. Door and window openings.

G. Do not bridge building expansion and control joints with steel framing or furring members, independently frame both sides of joints with framing or furring members or as indicated.

H. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
   1. Frame door openings to comply with details indicated, with GA-219 and with applicable published recommendations of gypsum wallboard manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

I. Standard Wall Furring: Install at concrete and masonry walls scheduled to receive gypsum wallboard, not more than 4 inches (100 mm) from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches (600 mm) on center.
   1. Orientation: Vertical.
   2. Spacing: At 16 inches on center (At 400 mm on center).

J. Furring for Fire-Resistance Ratings: Install as required for fire-resistance ratings indicated and to GA-600 requirements.

K. Blocking: Comply with details indicated and with recommendations of gypsum wallboard manufacturer.
   1. Install mechanically fastened steel sheet blocking or plywood blocking for support of:
      a. Framed openings.
      b. Wall-mounted cabinets.
      c. Plumbing fixtures.
      d. Toilet partitions.
      e. Toilet accessories.
      f. Wall-mounted door hardware.
      g. Marker and Tack Boards.
      h. Handrails.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
   1. Place one bead continuously on substrate before installation of perimeter framing members.
   2. Place continuous bead at perimeter of each layer of gypsum wallboard.
C. Acoustic Spray System:
   1. Install mineral wool backing at depth required per manufacturer's details.
   2. Apply acoustic spray to required thickness and overlap onto adjacent surfaces as recommended by manufacturer to achieve specified sound transmission classification.

3.04 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
B. Do Not install imperfect, damaged or damp/wet/water damaged boards.
C. Single-Layer Nonrated: Install gypsum wallboard perpendicular to framing on walls 8 feet -1 inch (2.46379 m) or less in height with ends and edges occurring over firm bearing.
   1. Exception: Tapered edges to receive joint treatment at right angles to framing.
D. Double-Layer, Nonrated: Use gypsum wallboard for first layer, placed parallel to framing or furring members, with ends and edges occurring over firm bearing. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.
E. Fire-Resistance-Rated Construction: Install gypsum wallboard in strict compliance with requirements of assembly listing.
F. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors and doors over 32 inches wide except where full grout is shown. Apply spot grout at each jamb anchor clip just before inserting board into frame.
G. Form control joints and expansion joints at locations indicated or as recommended, with space between edges of boards, prepared to receive trim accessories.
   1. Where a control joints occurs in an acoustical or fire-rated system, blocking shall be provide behind the control joint by using a backing material such as 5/8 inch (15.875 mm) type X gypsum panel product, or other tested equivalent.
H. Cover both faces of metal stud partition framing with gypsum board in concealed spaces (above ceiling, etc.), except in chase walls which are braced internally.
I. Except where concealed application is indicated or required for sound, fire, air or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq.ft. (0.74322 sq. m.) area, and may be limited to not less than 75 percent of full coverage.
J. Fit gypsum wallboard around ducts, pipes and conduits.
K. Isolate perimeters of non-load-bearing drywall partitions at structural abutments. Provide ¼ to ½ inch (6.35 to 12.7 mm) space to accept trim edge.
L. Where STC-rated gypsum wallboard assemblies are indicated or drawings indicate acoustical sealant, seal construction at perimeters, behind control and expansion joints, openings, and other penetrations with a continuous bead of acoustical sealant. Include a bead of sealant at both faces of partitions.
M. Comply with ASTM C 919 and manufacturer's recommendations for location of edge trim and closing off sound flanking paths around or through gypsum wallboard assemblies, including partitions extending above ceilings.
N. Where resilient furring channels are used over steel framing, the screws used to attach the gypsum panel product to the furring channels shall not contact the framing.
O. Gypsum panel products applied to walls shall be applied with the bottom edge spaced a minimum of 1/8 inch (3.175 mm) and maximum of ¼ inch (6.35 mm) above the floor.
P. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum wallboard), comply with gypsum wallboard manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

Q. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.

R. Installation on Wood Framing: For rated assemblies, comply with requirements of listing authority. For nonrated assemblies, install as follows:

1. Single-Layer Applications: Adhesive application.

S. ***Acoustical perforated gypsum panels***

1. ***Panel Priming: Apply one coat of primer with "dry Rolled" technique. See also 09 90 00 Painting and Coating.***
2. ***Finish Paint: Use "Dry Roller Technique" for paint application. Apply Two Coats of finish paint with low nap foam roller. Roll excess paint from brush prior to applying coat of paint. Avoid painting interior of perforations. Do not overload paint roller. See also 09 90 00 Painting and Coating.***
3. ***Filling of Holes at cut openings in tile: Apply USG Durabond© Setting-Type compound to holes adjacent to openings. Protect areas not to be filled with painting tape. Allow patching compound to dry, sand smooth, apply primer and paint where needed.***

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.

1. Not more than 30 feet (10 meters) apart on walls and ceilings over 50 feet (16 meters) long.
2. At exterior soffits, not more than 30 feet (10 meters) apart in both directions.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum wallboard abuts dissimilar materials.

1. Allow for a 3/8 inch (9.525 mm) gap to apply a sealant joint when indicated on the drawings.

3.06 JOINT TREATMENT

A. Glass Mat Faced Gypsum Wallboard: Use fiberglass joint tape, embed and finish with setting type joint compound.

B. Paper Faced Gypsum Wallboard: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.

C. Finish gypsum wallboard in accordance with levels defined in ASTM C840, as follows:

1. Level 5:
   a. All joints and interior angles shall have tape embedded in joint compound and two separate coats for joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. A thin skim coat of joint compound trowel applied, or a material manufactured especially for this purpose and applied in accordance with manufacturer's recommendations, shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges. When necessary, sand between coats and following final coat to provide smooth surface ready for decoration.
   b. For use on:
      1) All ceilings.
      2) Walls and/or soffits under skylights and clerestories.
      3) Walls with glass faced board, and as noted on drawings.
   c. When Level 5 finish is used, it shall extend to nearest inside or outside corner.

2. Level 4:
    a. All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. When necessary, sand between coats and following final coat to provide smooth surface ready for decoration.
    b. For use on:
        1) Walls scheduled for paint or wallcovering except those areas noted under Level 3 and 5.
3. Level 3:
    a. All joints and interior angles shall have tape embedded in joint compound and one additional coat of joint compound applied over all joints and interior angles. Fastener heads and accessories shall be covered with two separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges.
    b. For use on surfaces of mechanical and electrical spaces scheduled to receive paint.
        1) Surfaces of mechanical and electrical spaces scheduled to receive paint.
4. Level 2: All joints and interior angles shall have tape embedded in joint compound and wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Fastener heads and accessories shall be covered with a coat of joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.
    a. All joints and interior angles shall have tape embedded in joint compound and wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Fastener heads and accessories shall be covered with a coat of joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.
    b. For use on:
        1) Substrates for tile
5. Level 1/Fire Taping:
    a. All joints and interior angles shall have tape set in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. Tape and fasteners need not be covered.
    b. For use on:
        1) For use in plenum areas above ceilings.
        2) Gypsum wallboard not scheduled for paint or wallcovering.
        3) Gypsum wallboard concealed from view in the finished work, except as noted in level 2.

3.07 FINISHING ADJUSTMENT

A. Screw Pop
    1. Repair nail pop by driving new screw approximately 1-1/2 inches away and reseat screw.
    2. When face paper is punctured drive new screw approximately 1-1/2 inches from defective fastening and remove defective fastening.
    3. Fill damaged surface with compound in coats specified by required finish level.
B. Ridging
    1. Sand ridges to reinforcing tape without cutting through tape.
    2. Fill concave areas on both sides of ridge with topping compound.
    3. After fill is dry, blend in topping compound over repaired area.
C. Fill cracks with compound and finish smooth and flush.

3.08 TOLERANCES

A. Maximum Variation of Finished Gypsum Wallboard Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

3.09 CLEANING AND PROTECTION

A. Promptly remove any residual joint compound from adjacent surfaces.
B. Protect installed products from damage from weather, condensation, construction, and other causes during remainder of the construction period.
C. Remove and replace panels that are wet, moisture damaged, or mold damaged.
D. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
E. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 21 16

SECTION 26 36 50

PORTABLE GENERATOR DOCKING STATIONS

PART 1: GENERAL

1.1 SCOPE

A. This Section includes the furnishing of a portable generator docking station as described herein. The amperage, voltage, withstand, and close-on ratings shall be as shown on the plans.

B. All system equipment, materials, and components shall be of current production models and types, produced and marketed by manufacturers having an established reputation for satisfactory product performance and reliability.

1.2 RELATED SECTIONS

A. Section 25 20 26.36.50 Integrated Automation - BACnet Interface Device (Gateways/Native BACnet Devices) – Portable Generator Docking Stations (All Types).

B. 25 00 13 Integrated Automation – General Requirements – All Trades Work Responsibilities.

C. Division 25 Schedule 3 - BACNET SINGLE LINE DIAGRAM AND RESPONSIBILITY MATRIX (APPLIES TO ALL TRADES).

1.3 SUBMITTALS

A. Shop Drawings shall be submitted for each docking station. Include rated capacities, operating characteristics, interconnection diagrams, and furnished specialties and accessories. In addition, include the following:
   1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
   2. Single-Line Diagram: Show connections between generator and transfer switches; and show interlocking provisions.

B. Qualification Data: For manufacturer.

C. Field quality-control test reports.

D. Operation, Maintenance, and Warranty Data: For each type of product to include in emergency, operation, maintenance and warranty data manuals. In addition to items specified in Division 01 Section "Operation, Maintenance, and Warranty Data," include the following:
   1. Features and operating sequences, both automatic and manual.
   2. List of all factory settings of relays; provide relay-setting and calibration instructions, including software, where applicable.

E. Include the BACnet Interface Device with Submittal showing proprietary points listed in 25 20 26.36.50 are mapped to BACnet Object Types. Failure to do so will result in automatic rejection of the submittal.

1.4 QUALITY ASSURANCE

A. Manufacturer of docking stations shall be specialized in the manufacture and assembly of such equipment for a minimum of 10 years.

B. Equipment shall be listed and/or classified by Underwriters Laboratories and in accordance with standards listed in this Specification.

C. Installer Qualifications:
   1. An employer of workers qualified as defined in NEMA PB 1.1 and trained in electrical safety as required by NFPA 70E.

2. Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
3. Maintenance Proximity: Not more than four hours' normal travel time from Installer's place of business to Project site.

D. Manufacturer Qualifications: Maintain a service center capable of providing training, parts, and emergency maintenance repairs within a response period of less than eight hours from time of notification for 365 days per year..

E. Source Limitations: Obtain docking stations through one source from a single manufacturer.

F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

G. Comply with NFPA 70, 99, and 110.

H. Comply with UL 1008 unless requirements of these Specifications are stricter.

1.05 PROJECT CONDITIONS

A. Environmental Conditions: Engine-generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
1. Ambient Temperature: -20F to 100F.
2. Altitude: Sea level to 1000 feet.
3. Do not deliver or install interior engine-generator sets until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above engine-generators is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

B. Installation Pathway: Remove and replace access fencing, doors, lift-out panels, and structures to provide pathway for moving equipment into place.

1.6 REFERENCES

A. The products provided by this section shall comply with the following applicable references (latest edition):
1. NEMA ICS1 – Industrial Control and Systems.
2. NEMA ICB-10-1993.
3. NFPA 110 – Standard for Emergency and Standby Power Systems.
4. UL 1008 – Transfer Switch Equipment.
5. IEC 947-6-1.
6. IEEE Standard 446.

1.7 MAINTENANCE

A. Docking station manufacturer / vendor shall:
1. Make ordering of new equipment for expansions, replacements, and spare parts available to end user.
2. Make new replacement parts available for minimum of ten years from date of manufacture.
3. Provide on-site service support within 24 hours anywhere in continental United States.

1.8 COORDINATION

A. Coordinate size and location of docking stations. Coordinate layout and installation of docking stations with other construction including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

B. Mount on concrete pads where indicated. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

PART 2: PRODUCTS

2.1 GENERAL INFORMATION.

A. All electrical equipment and material shall be new and bear a recognized testing laboratory's label, where applicable. The type of equipment and/or material shall be designated by the location where it will be installed and so defined by NEMA / NFPA 70 standards.

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide docking station by one of the following:
   1. FoxFab FFIS-P2 (Basis of Design)
   2. American Midwest Power
   3. States Manufacturing
   4. EMI
   5. Trystar
   6. Approved Equal.
   7. ***ESL Power Systems***

2.3 GENERAL DOCKING STATION REQUIREMENTS

A. Generator docking stations shall be UL listed and shall consist of cam-style male connectors and grounding terminals, all housed within a pad lockable enclosure.
   1. Enclosure shall be NEMA 3R, constructed of 12 ga galvanealed steel. Enclosure shall be powder coated after fabrication; color shall be ANSI 61 gray.
   2. Phase and neutral bussing: Ampacity as indicated on plan, silver plated copper.
   3. Voltage to match generator output.
   4. Withstand rating: 65kA.
   5. Provide LSI electronic trip breakers:
      a. For temp generator: Ampacity as indicated on plan.
      b. For load bank: Ampacity as indicated on plan.
      c. For life safety breaker: Ampacity as indicated on plan. Provide barrier as required to completely isolate breaker.
   6. Concrete pad mounted.
   7. Main access shall be through hinged door which extends the full height of the enclosure. Access for portable generator cables with female cam-style plugs shall be via hinged lower door. All doors to have 3-point pad-lockable handles.
   8. Cam-style male connectors shall be UL listed. Connectors shall be color coded to match facility voltage colors. Connectors shall be provided for each phase, ground, and neutral. Provide size and quantities of mechanical lug connections required for specified amperage. Not be less than (2) 500 MCM per phase.
   9. The ground connectors shall be bonded to the enclosure, and a ground lug shall be provided for connection of the facility ground conductor. None of the cam-style male connectors shall be accessible unless the main access door is open.
   10. Phase rotation monitor.
      a. L1-L2-L3 indicator lights. Solid green light indicates correct phase rotation. Flashing red light indicates incorrect phase rotation. Solid red indicates phase loss.
      b. 1A time delay fusing for each light.
   11. Generator signal terminal wiring block and contacts.
   12. Selector switch.
      a. Interlocked with permanent generator output breaker. When selector switch is turned to temp generator, the output breaker of permanent generator is to open.
   13. Shore power: (2) 120V 30A L5-30 receptacle, 250V 50A 5-50 receptacle.
   14. Kirk key interlock.
   15. Provide BACnet Interface Devices for each Portable Generator Docking Station so that the units are presented as a series of AV, BV and MSV BACnet objects. See 25 20 26.36.50 for the list of objects that must be supported. This list is the minimum acceptable.

2.4 SOURCE QUALITY CONTROL

A. Factory test and inspect components, assembled switches, and associated equipment. Ensure proper operation.

2.5 CONCRETE BASES

A. Equipment Mounting (where floor-mounting is required): Install on concrete base, 4-inch nominal thickness. Comply with requirements for concrete base specified in Division 03 Section.
   1. Coordinate size of equipment bases with actual unit sizes provided. Fabricate base 4 inches larger in both directions than the overall dimensions of the supported unit. Chamfer top edge and corners of pad.
   2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
   3. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
   4. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
   5. Install anchor bolts to elevations required for proper attachment to transfer switch.

PART 3: EXECUTION

3.1 GENERAL INSTALLATION

A. Docking stations shall be installed in a neat and workmanlike manner. The NEIS Standard Practices for Good Workmanship in Electrical Contracting NECA 1-2006 is hereby adopted to define such workmanship and the installation of conductors and cables.

B. Provide all equipment, wiring, conduit, and junction boxes required for the installation of a complete and operating system in accordance with applicable local, state, and national codes, the manufacturers' recommendations, these plans and specifications.

C. Mount on 4” concrete bases where floor mounting is indicated.

D. Installation of Equipment BACnet Interface Devices:
   1. See Responsibility Matrix for the execution responsibilities for Equipment Supplier, Controls and Electrical Subcontractor.
   2. Equipment Supplier is responsible for supplying and installing the BACnet Interface Device.
   3. Division 25 is only responsible for communicating with the BACnet Interface Device using BACnet objects and services to access this data.
   4. Electrical is responsible for power and any control wiring if the device does not have a single point of connection.
   5. This BACnet Interface Device is a BACnet/IP device. See Division 27 for networking responsibilities.

3.2 EXAMINATION

A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting transfer switch performance.

B. Examine roughing-in of piping systems and electrical connections. Verify actual locations of connections before transfer switch installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Comply with manufacturers' written installation and alignment instructions and with NFPA 110. Verify / coordinate generator and transfer switch manufacturers' written installation and alignment instructions.

B. Identify components according to Division 26 Section "Identification for Electrical Systems."

3.4 CONNECTIONS

A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of generator and transfer switches as recommended by manufacturer. Increase raceway sizes as required to accommodate required wiring.

B. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

C. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.5 FIELD QUALITY CONTROL

A. Furnish temporary portable generator and provide tests and inspections and prepare test reports.
   1. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
   2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
   3. After energizing circuits, demonstrate interlocking sequence and operational function of circuit breakers.

B. Coordinate tests with tests of generator and transfer switch equipment and run them concurrently.

C. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.

D. Remove and replace malfunctioning units and retest as specified above.

E. Include all test results in Owner’s Operation, Maintenance, and Warranty Data manuals.

3.6 DEMONSTRATION

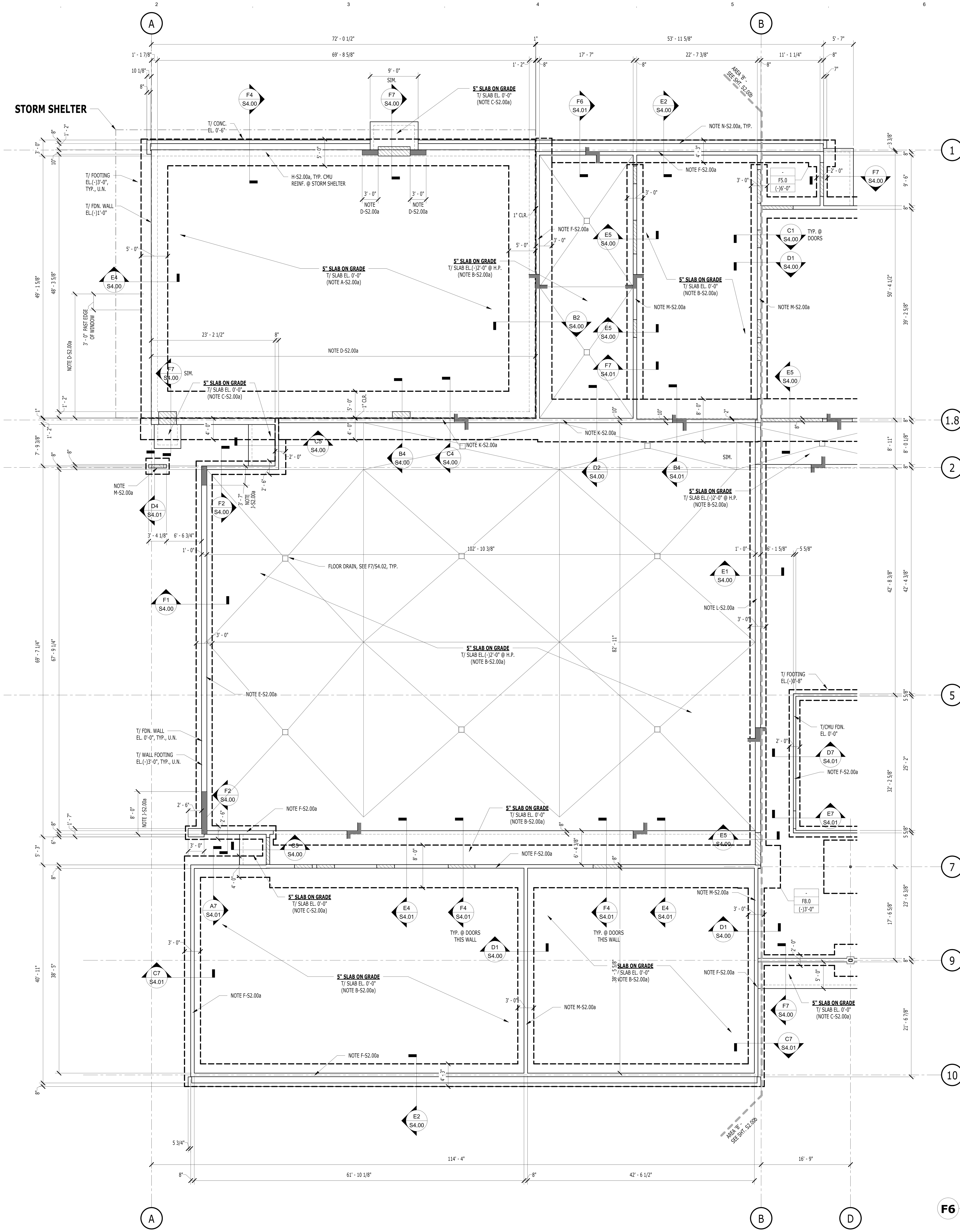
A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment as specified below. Refer to Division 01 Section "Demonstration and Training." Include up to 4 hours training.

B. Coordinate this training with that for generator and transfer switch equipment.

C. Refer to Division 25 20 26.36.50 for BACnet Interface Device commissioning, demonstration and training requirements.

D. Film training of systems as part of closeout documents. Refer to 01 79 00 Demonstration and Training for specific information.

END OF SECTION 26 36 00



F6 **FOUNDATION PLAN - AREA 'A'**
1/8" = 1'-0"

IL

A

DRAWING S2.00a GENERAL NOTES:

C? / P?	- INDICATES COLUMN MARK / PIER MARK; SEE B4 & D7/S0.11
F?	- INDICATES FOOTING MARK; SEE E7/S0.11
x'-x"	- INDICATES TOP OF FOOTING ELEVATION BELOW TOP OF SLAB ELEVATION.

DRAWING S2.00a LEGEND:

MP1	INDICATES MASONRY PIER, SEE SCHEDULE ON SHT. S0.11
MSW?	INDICATES CMU SHEAR WALL, SEE SCHEDULE ON SHT. S0.11
	INDICATES TOP OF FOUNDATION WALL TO BE DEPRESSED, SEE SECTION
	INDICATES EXTENT OF SHEAR WALL / BRACED BAY

DRAWING S2.00a KEYNOTES:

A-S2.00a: PROVIDE 5" SLAB ON GRADE, REINFORCED WITH #5@16" O.C. MID-DEPTH OF SLAB. PLACE SLAB ON VAPOR BARRIER OVER 6" OF COMPACTED GRANULAR FILL. SLOPE SLAB TO FLOOR DRAINS. SEE ARCHITECTURAL AND PLUMBING SHTS.

B-S2.00a: PROVIDE 5" SLAB ON GRADE, REINFORCED WITH 6x6-W2.9xW2.9 WELDED WIRE FABRIC. PLACE SLAB ON VAPOR BARRIER OVER 6" OF COMPACTED GRANULAR FILL. SLOPE SLAB TO FLOOR DRAINS. SEE ARCHITECTURAL AND PLUMBING SHTS.

C-S2.00a: PROVIDE 5" SLAB ON GRADE, REINFORCED WITH 6x6-W2.9xW2.9 WELDED WIRE FABRIC. PLACE SLAB OVER 6" OF COMPACTED GRANULAR FILL. SLOPE SLAB TO DRAIN AWAY FROM BUILDING.

D-S2.00a: PROVIDE #6 @ 8" O.C. EACH FACE - 12" CMU REINFORCING, FULL HEIGHT OF WALL IN GROUTED CELLS. PROVIDE MATCHING DOWELS IN FOUNDATION WALLS. PROVIDE MATCHING DOWELS IN FOUNDATION WALLS.

E-S2.00a: PROVIDE #8 @ 8" O.C. - 12" CMU REINFORCING EACH FACE, FULL HEIGHT OF WALL IN GROUTED CELLS. PROVIDE MATCHING DOWELS IN FOUNDATION WALLS.

1

F-S2.00a: PROVIDE #6 @ 16" O.C. - 8" CMU REINFORCING EACH FACE, FULL HEIGHT OF WALL IN GROUTED CELLS. PROVIDE MATCHING DOWELS IN FOUNDATION WALLS. GROUT ALL CELLS SOLID. PROVIDE #6 @ 8" O.C. REINFORCING EACH FACE IN GROUTED CELLS FOR A MINIMUM DISTANCE OF 2'-0" FROM CORNERS, ALLEDGES OF OPENINGS AND EACH SIDE OF CONROL JOINTS. PROVIDE MATCHING DOWELS IN FOUNDATION WALLS.

G-S2.00a: PROVIDE 10" THICKENED SLAB UNDER AREA OF NON-LOAD BEARING CMU WALL, SEE B6/S4.00. SEE ARCHITECTURAL SHEETS FOR EXACT LOCATIONS OF CMU WALLS.

H-S2.00a: PROVIDE #6 @ 16" O.C., EACH FACE - 12" CMU REINFORCING, FULL HEIGHT OF WALL IN GROUTED CELLS. PROVIDE MATCHING DOWELS IN FOUNDATION WALLS. PROVIDE 2-#6 ADDITIONAL - 12" CMU REINFORCING, FULL HEIGHT OF WALL IN GROUTED CELLS IN ALL CORNERS, ALL EDGES OF OPENINGS, AND AT EACH SIDE OF CONTROL JOINTS. PROVIDE MATCHING DOWELS IN FOUNDATION WALLS.

J-S2.00a: PROVIDE #9 @ 8" O.C. - 12" CMU REINFORCING EACH FACE, FULL HEIGHT OF WALL IN GROUTED CELLS. PROVIDE MATCHING DOWELS IN FOUNDATION WALLS.

K-S2.00a: PROVIDE #7 @ 16" O.C. - 10" CMU REINFORCING EACH FACE, FULL HEIGHT OF WALL IN GROUTED CELLS. GROUT ALL CELLS SOLID. PROVIDE MATCHING DOWELS IN FOUNDATION WALLS.

L-S2.00a: PROVIDE #6 @ 24" O.C., EACH FACE - 12" CMU REINFORCING, FULL HEIGHT OF WALL IN GROUTED CELLS. GROUT ALL CELLS SOLID PROVIDE MATCHING DOWELS IN FOUNDATION WALLS.

M-S2.00a: PROVIDE #6 @ 24" O.C., EACH FACE - 8" CMU REINFORCING, FULL HEIGHT OF WALL IN GROUTED CELLS. GROUT ALL CELLS SOLID PROVIDE MATCHING DOWELS IN FOUNDATION WALLS.

N-S2.00a: CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL SLEEVES PENETRATING THE FOUNDATION WALLS PRIOR TO POURING THE FOUNDATION. SEE DETAIL E1/S4.01.

Regional Operations and Communications Facility

Lake County Campus
Libertyville, IL 60048

LakeCounty

656 Winchester Rd,
Libertyville, IL 60048

Wold

WOLD ARCHITECTS AND ENGINEERS
220 North Smith Street, Suite 310
Palatine, Illinois 60067

woldae.com | 847 241 6100

RossDrulisCusenbery
18294 Sonoma Highway
Sonoma, CA 95476

rdcarchitecture.com | tel 707 996 8448

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed

under the laws of the State of

License Number: Date

Revisions		
Description	Date	Num
Issued for Bid	**12/30/22**	**0**
Addendum #4	**03.08.23**	**1**

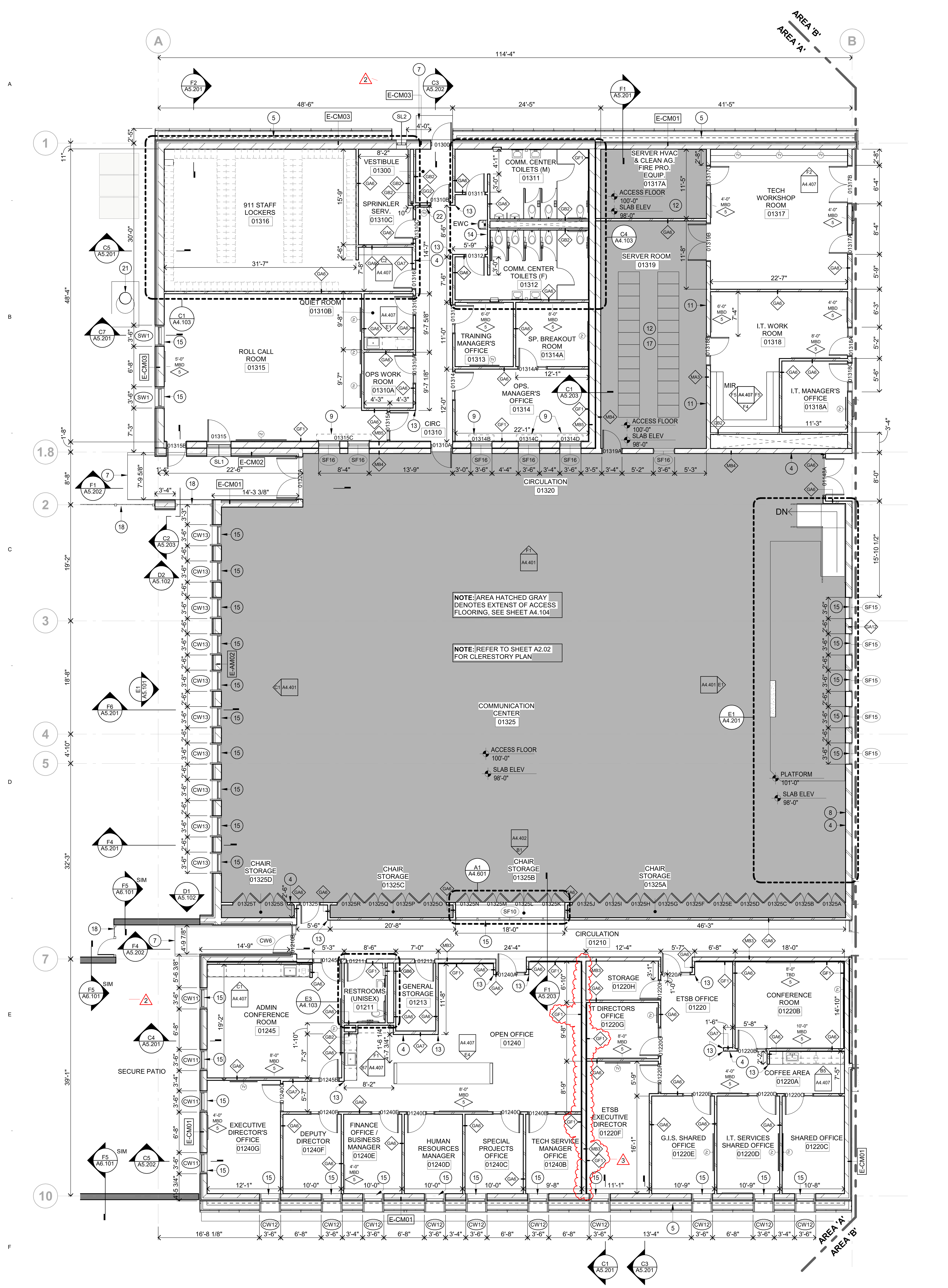
Comm: **213106**
Date: **12/30/2022**
Drawn: **PCW**
Check: **KLA**

North

FOUNDATION PLAN - AREA 'A'

Scale: 1/8" = 1'-0"

S2.00a



F1 MAIN LEVEL FLOOR PLAN - AREA 'A'

1/8" = 1'-0"

PLAN GENERAL NOTES

1. ALL PLAN DIMENSIONS ARE NOMINAL TO FACE OF WALL. WALL THICKNESSES ARE SHOWN NOMINAL, SEE WALL TYPES FOR ACTUAL THICKNESS.
2. ALL GYP. WALLS ARE TO BE 5 INCHES THICK UNLESS OTHERWISE NOTED.
3. ALL CONCRETE BLOCK WALLS ARE TO BE 8 INCHES THICK UNLESS OTHERWISE NOTED.
4. COORDINATE SIZE AND LOCATION OF ALL DUCT AND SHAFT OPENINGS IN WALLS AND FLOORS W/ MECH. AND ELEC. PROVIDE ALL REQUIRED LINTELS FOR OPENINGS. SEE LINTEL SCHEDULE.
5. FIELD VERIFY ALL MILLWORK OPENINGS.
6. SET FLOOR DRAINS 3/4" BELOW FINISHED CONCRETE FLOORS UNLESS OTHERWISE NOTED. PROVIDE CONSISTENT SLOPE FROM WALL TO DRAIN BY SLOPING CONCRETE, MIN. 1/4" PER FOOT.
7. VERIFY LOCATION, SIZE AND QUANTITY OF ALL MECHANICAL AND ELECTRICAL EQUIPMENT PADS.
8. ALL DOOR/SIDELITE OPENINGS TO BEGIN 4" FROM ADJACENT WALL UNLESS OTHERWISE NOTED.
9. ALL GYP. WALLS ARE CENTERED ON GRID UNLESS OTHERWISE NOTED. ALL EXPOSED CORNERS SHALL BE BULLNOSE.
10. FIRE RATED WALLS ARE INDICATED ON CODE PLANS.
11. PROVIDE BLOCKING AT ALL VISUAL DISPLAY BOARD AND MONITOR LOCATIONS. SEE DETAIL C7 / A4.102
12. COORDINATE FINAL LOCATION OF ALL MONITORS WITH OWNER PRIOR TO INSTALLATION.
13. CONTRACTOR TO PROVIDE BIM CLASH DETECTION IN ACCORDANCE WITH ALL REQUIREMENTS AS INDICATED IN SPECIFICATION SECTION 01 32 50

ROOM FINISH SCHEDULE GENERAL NOTES

1. SEE INTERIOR MATERIAL FINISH / COLOR SCHEDULE FOR ABBREVIATIONS
2. IF ALL WALLS IN ROOM HAVE THE SAME FINISH, THE "N WALL-TYP" COLUMN WILL BE USED.
3. DISCREPANCIES BETWEEN THE ROOM FINISH SCHEDULE AND DRAWINGS SHALL BE REPORTED TO THE ARCHITECT FOR FINISH DETERMINATION.
4. ON WALLS WHICH ARE COVERED WITH MILLWORK AND TACK SURFACES, A FINISH SHALL NOT BE APPLIED TO THE WALL BEHIND EXCEPT FOR LOCATIONS WHICH MAY BE EXPOSED (I.E. SPACE BETWEEN MILLWORK AND TACK SURFACE.) CONCRETE BLOCK BEHIND MILLWORK AND MARKERBOARDS TO BE TOOLED.
5. REFER TO MATERIAL FINISH/ COLOR SCHEDULE FOR SPECIFIC FINISH TYPES AND COLORS.
6. FOR CEILING MATERIAL WHEN MORE THAN ONE CEILING MATERIAL OCCURS THE CEILING FINISH IS INDICATED THUS: "/".

ROOM FINISH SCHEDULE REMARKS

1. SEE INTERIOR ELEVATIONS FOR ADDITIONAL FINISH INFORMATION.
2. PROVIDE GYPSUM BOARD SOFFIT ABOVE CASEWORK. (SEE CASEWORK ELEVATIONS AND REFLECTED CEILING PLANS.)
3. PROVIDE VINYL BASE AT CASEWORK.
4. PAINT CEILING AND ALL EXPOSED STRUCTURE, PIPING, CONDUIT, MECHANICAL DUCTS AND VENTS.
5. NOT USED
6. SEE A4.305 FOR TILE PATTERNS.
7. SEE FLOOR FINISH PLANS FOR ADDITIONAL FLOORING INSTALLATION INFORMATION.
8. PROVIDE FRP PANELS AND TRIM TO 4'-0" AFF AT ALL WALLS WITH PAINT ABOVE.

FLOOR PLAN KEY NOTES:

1. DOOR ACTUATORS
2. BOLLARD - SEE DETAIL 21001.
3. MOP SINK - SEE MECHANICAL
4. FIRE EXTINGUISHER. COORDINATE LOCATION WITH OWNER AND FIRE MARSHALL.
5. DRAIN TILE TO EXTENTS AS INDICATED BY DASHED LINE.
6. CABINET UNIT HEATER. SEE DETAIL 43046. SEE MECH. FOR SPECIFICATIONS, COORDINATE LOCATION WITH MECH.
7. CONCRETE STOOP, ALIGN WITH CENTER OF DOOR U.N.O - SEE STRUCT.
8. LOCATION OF SEMI-RECESSED DEFIBRILLATOR CABINET. COORDINATE LOCATION WITH OWNER.
9. WALL MOUNTED COILING FIRE/STORM SHUTTER
10. SHELF AND MOP HOLDER
11. FIRE RATED CONSTRUCTION WALL PANEL. FULL SHEETS MOUNTED VERTICALLY ABOVE WALL BASE - COORDINATE WITH ELEC
12. ALL DOORS, WALLS, AND WINDOWS ARE TO BE SEALED AIR TIGHT.
13. CORNER GAURD, SEE C4/A4.601
14. PROVIDE FULL HEIGHT TILE AT INDICATED WALL. SEE B7/A4.305
15. MANUAL ROLLER SHADE.
16. MOTORIZED ROLLER SHADE, SEE ELEC. & REFERENCE DETAIL F5/A4.903
17. SEE MAIN LEVEL ACCESS FLOOR PLAN FOR ADDITIONAL DETAIL
18. ORNAMENTAL METAL FENCE - SEE ARCH SITE PLAN
19. INTERCOM KIOSK
20. NEW AUXCOM TOWER - REFER TO SHEET R2.02
21. NEW 911 TOWER - REFER TO SHEET R2.01
22. WALL MOUNTED MONITOR. PROVIDED BLOCKING AS TYPICAL. VERIFY FINAL HEIGHT WITH OWNER

ROOM FINISH SCHEDULE

ROOM NO	ROOM NAME	FLOOR	BASE	N WALL - TYP MATL	N WALL - TYP FIN	E WALL MATL	E WALL FIN	S WALL MATL	S WALL FIN	W WALL MATL	W WALL FIN	REMARKS
01210	CIRCULATION	LVT-1	VB	GWB	PT 6A	GWB	PT 6A	B BLK-1 / GWB	-- / PT 6A	GWB	PT 6A	
01211	RESTROOMS (UNISEX)	P TILE-2	P TILE-1	GWB	PT 6A	GWB	P TILE-1	GWB	PT 6A	GWB	PT 6A	6
01213	GENERAL STORAGE	CPT-1	VB	CMU	PT 6A	GWB	PT 6A	GWB	PT 6A	GWB	PT 6A	
01220	ETSB OFFICE	CPT-3 / LVT-1	VB	GWB	PT 6A	GWB	PT 6D	GWB	PT 6A	GWB	PT 6A	7
01220A	COFFEE AREA	LVT-1	VB	GWB	PT 6A							2, 3, 7
01220B	CONFERENCE ROOM	CPT-3	VB	GWB	PT 6D	GWB	PT 6A	GWB	PT 6A	GWB	PT 6A	
01220C	SHARED OFFICE	CPT-1	VB	GWB	PT 6A							
01220D	I.T. SERVICES SHARED OFFICE	CPT-1	VB	GWB	PT 6A							
01220E	G.I.S. SHARED OFFICE	CPT-1	VB	GWB	PT 6A							
01220F	ETSB EXECUTIVE DIRECTOR	CPT-1	VB	GWB	PT 6A							
01220G	IT DIRECTORS OFFICE	CPT-1	VB	GWB	PT 6A							
01220H	STORAGE	CPT-1	VB	CMU	PT 6A	GWB	PT 6A	GWB	PT 6A	GWB	PT 6A	
01240	OPEN OFFICE	CPT-3 / LVT-1	VB	GWB	PT 6A	GWB	PT 6D	GWB	PT 6A	GWB	PT 6A	2, 3, 7
01240B	TECH SERVICE MANAGER OFFICE	CPT-1	VB	GWB	PT 6A							
01240C	SPECIAL PROJECTS OFFICE	CPT-1	VB	GWB	PT 6A							
01240D	HUMAN RESOURCES MANAGER	CPT-1	VB	GWB	PT 6A							
01240E	FINANCE OFFICE / BUSINESS MANAGER	CPT-1	VB	GWB	PT 6A							
01240F	DEPUTY DIRECTOR	CPT-1	VB	GWB	PT 6A							
01240G	EXECUTIVE DIRECTOR'S OFFICE	CPT-1	VB	GWB	PT 6A							
01245	ADMIN CONFERENCE ROOM	CPT-3 / LVT-1	VB	GWB	PT 6A	GWB	PT 6A	GWB	PT 6A	GWB	PT 6D	2, 3, 7
01300	VESTIBULE	CPT-4	VB	GWB	PT 6A							
01310	CIRC	LVT-1	VB	GWB	PT 6A	GWB	PT 6A / P TILE-1	GWB	PT 6A	GWB	PT 6A	6
01310A	OPS WORK ROOM	CPT-1	VB	GWB	PT 6A							
01310B	QUIET ROOM	CPT-1	VB	GWB	PT 6A							2, 3
01310C	SPRINKLER SERV.	CPT-1	VB	CMU	PT 6A	GWB	PT 6A	GWB	PT 6A	GWB	PT 6A	
01311	COMM. CENTER TOILETS (M)	P TILE-2	P TILE-1	CMU	P TILE-1	GWB	PT 6A	GWB	P TILE-1	GWB	PT 6A	6
01312	COMM. CENTER TOILETS (F)	P TILE-2	P TILE-1	GWB	P TILE-1	GWB	PT 6A	GWB	P TILE-1	GWB	PT 6A	6
01313	TRAINING MANAGER'S OFFICE	CPT-1	VB	GWB	PT 6A							
01314	OPS. MANAGER'S OFFICE	CPT-1	VB	GWB	PT 6A							
01314A	SP. BREAKOUT ROOM	CPT-1	VB	GWB	PT 6A							
01315	ROLL CALL ROOM	CPT-1	VB	GWB	PT 6A							
01316	911 STAFF LOCKERS	CPT-1	VB	CMU	PT 6A	GWB	PT 6A	GWB	PT 6A	CMU	PT 6A	
01317	TECH WORKSHOP ROOM	POLISHED CONC	VB	CMU	PT 6A	GWB	PT 6A	GWB	PT 6A	CMU	PT 6A	
01317A	SERVER HVAC & CLEAN AG. FIRE PRO. EQUIP.	HPL	VB	CMU	PT 6A	CMU	PT 6A	GWB	PT 6A	CMU	PT 6A	
01318	I.T. WORK ROOM 1	CPT-1	VB	GWB	PT 6A	GWB	PT 6A	GWB	PT 6A	CMU	PT 6A	
01318A	I.T. MANAGER'S OFFICE	CPT-1	VB	GWB	PT 6A							
01319	SERVER ROOM	HPL	VB	GWB	PT 6A	CMU	PT 6A	CMU	PT 6A	CMU	PT 6A	
01320	CIRCULATION	LVT-1	VB	B BLK-1	--	GWB	PT 6A	--	--	GWB	PT 6A	1
01325	COMMUNICATION CENTER	CPT-1 / CPT-2	VB	GWB	PT 6A	GWB	PT 6A / PT 6B	GWB	PT 6A	GWB	PT 6A / PT 6B	1, 7
01325A	CHAIR STORAGE	CPT-1	VB	GWB	PT 6A							
01325B	CHAIR STORAGE	CPT-1	VB	GWB	PT 6A							
01325C	CHAIR STORAGE	CPT-1	VB	GWB	PT 6A							
01325D	CHAIR STORAGE	CPT-1	VB	GWB	PT 6A							

Regional Operations and Communications Facility

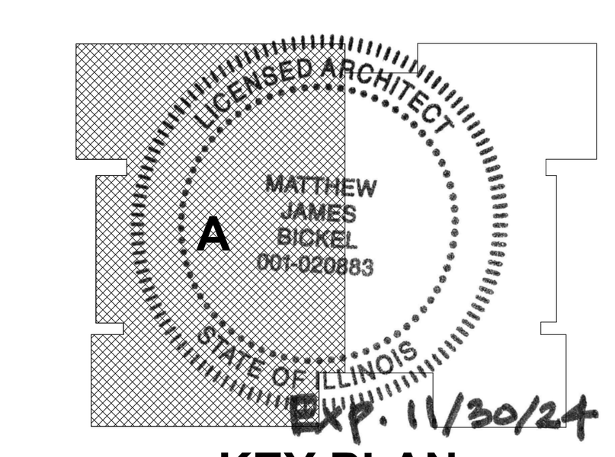
Lake County Campus
Libertyville, IL 60048

LakeCounty

656 Winchester Rd,
Libertyville, IL 60048

WOLD ARCHITECTS AND ENGINEERS
220 North Smith Street, Suite 310
Palatine, Illinois 60067
woldae.com | 847 241 6100

RossDrulisCusenbery
18294 Sonoma Highway
Sonoma, CA 95476
rdcarchitecture.com | tel 707 996 8448



KEY PLAN

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed **ARCHITECT** under the laws of the State of **Illinois**

Matthew J Bickel
License Number: **001.020883** Date **11/30/2024**

Revisions		
Description	Date	Num
Addendum #2	02/24/2023	1
Addendum #3	03/01/2023	2
Addendum #4	03/08/2023	3

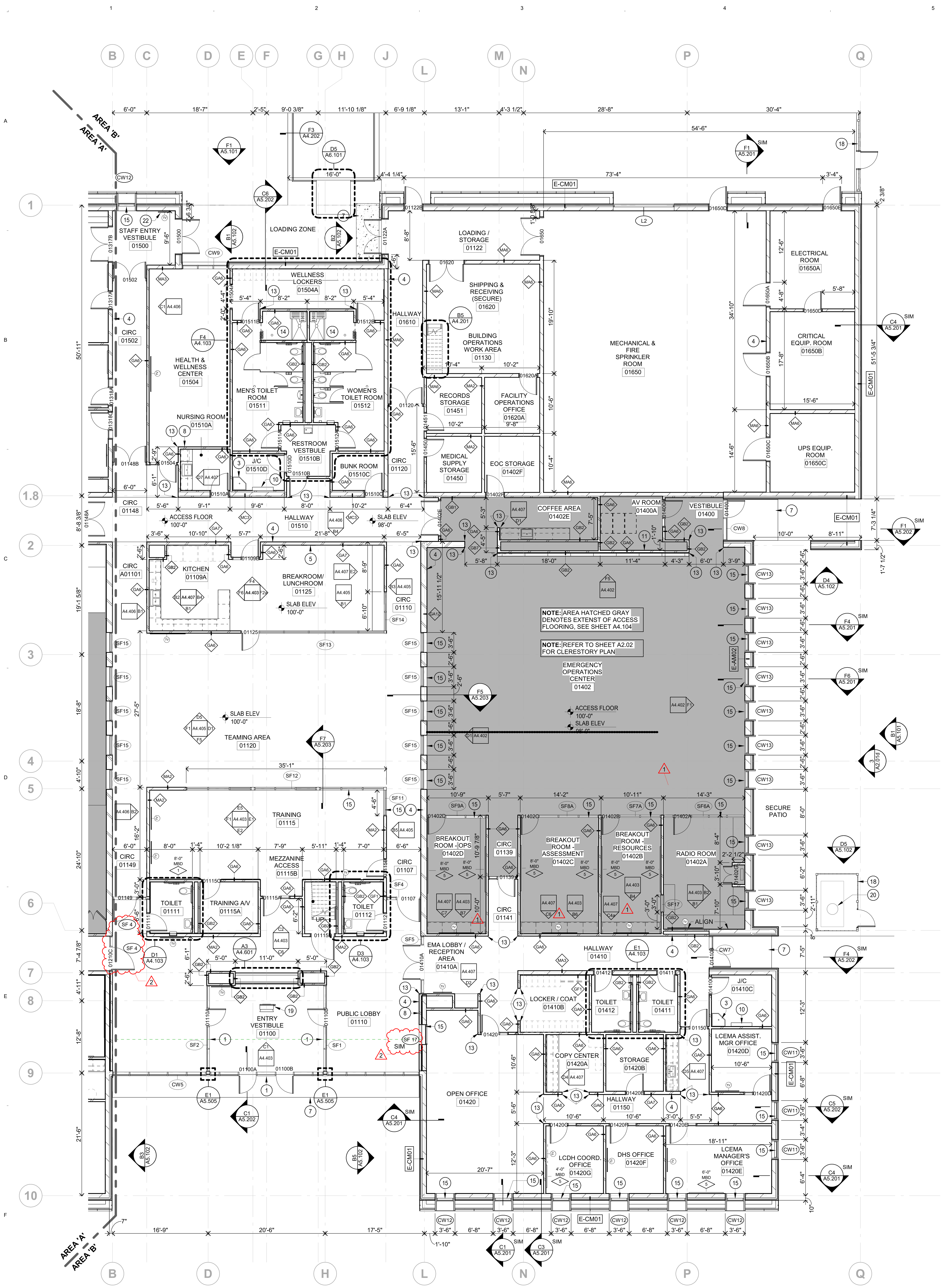
Comm: 213106
Date: 12/30/2022
Drawn: JMK / MB
Check: KME

North

FLOOR PLAN - AREA 'A'

Scale: As indicated

A2.01a



F1 MAIN LEVEL FLOOR PLAN - AREA 'B'
1/8" = 1'-0"

PLAN GENERAL NOTES

1. ALL PLAN DIMENSIONS ARE NOMINAL TO FACE OF WALL. WALL THICKNESSES ARE SHOWN NOMINAL, SEE WALL TYPES FOR ACTUAL THICKNESS.
2. ALL GYP. WALLS ARE TO BE 5 INCHES THICK UNLESS OTHERWISE NOTED.
3. ALL CONCRETE BLOCK WALLS ARE TO BE 8 INCHES THICK UNLESS OTHERWISE NOTED.
4. COORDINATE SIZE AND LOCATION OF ALL DUCT AND SHAFT OPENINGS IN WALLS AND FLOORS W/ MECH. AND ELEC. PROVIDE ALL REQUIRED LINTELS FOR OPENINGS. SEE LINTEL SCHEDULE.
5. FIELD VERIFY ALL MILLWORK OPENINGS.
6. SET FLOOR DRAINS 3/4" BELOW FINISHED CONCRETE FLOORS UNLESS OTHERWISE NOTED. PROVIDE CONSISTENT SLOPE FROM WALL TO DRAIN BY SLOPING CONCRETE, MIN. 1/4" PER FOOT.
7. VERIFY LOCATION, SIZE AND QUANTITY OF ALL MECHANICAL AND ELECTRICAL EQUIPMENT PADS.
8. ALL DOOR/SIDELITE OPENINGS TO BEGIN 4" FROM ADJACENT WALL UNLESS OTHERWISE NOTED.
9. ALL GYP. WALLS ARE CENTERED ON GRID UNLESS OTHERWISE NOTED. ALL EXPOSED CORNERS SHALL BE BULLNOSE.
10. FIRE RATED WALLS ARE INDICATED ON CODE PLANS.
11. PROVIDE BLOCKING AT ALL VISUAL DISPLAY BOARD AND MONITOR LOCATIONS. SEE DETAIL C7 / A4.102
12. COORDINATE FINAL LOCATION OF ALL MONITORS WITH OWNER PRIOR TO INSTALLATION.
13. CONTRACTOR TO PROVIDE BIM CLASH DETECTION IN ACCORDANCE WITH ALL REQUIREMENTS AS INDICATED IN SPECIFICATION SECTION 01 32 50

ROOM FINISH SCHEDULE GENERAL NOTES

1. SEE INTERIOR MATERIAL FINISH / COLOR SCHEDULE FOR ABBREVIATIONS
2. IF ALL WALLS IN ROOM HAVE THE SAME FINISH, THE "N WALL-TYP" COLUMN WILL BE USED.
3. DISCREPANCIES BETWEEN THE ROOM FINISH SCHEDULE AND DRAWINGS SHALL BE REPORTED TO THE ARCHITECT FOR FINISH DETERMINATION.
4. ON WALLS WHICH ARE COVERED WITH MILLWORK AND TACK SURFACES, A FINISH SHALL NOT BE APPLIED TO THE WALL BEHIND EXCEPT FOR LOCATIONS WHICH MAY BE EXPOSED (I.E. SPACE BETWEEN MILLWORK AND TACK SURFACE.) CONCRETE BLOCK BEHIND MILLWORK AND MARKERBOARDS TO BE TOOLED.
5. REFER TO MATERIAL FINISH/ COLOR SCHEDULE FOR SPECIFIC FINISH TYPES AND COLORS.
6. FOR CEILING MATERIAL WHEN MORE THAN ONE CEILING MATERIAL OCCURS THE CEILING FINISH IS INDICATED THUS: "/".

ROOM FINISH SCHEDULE REMARKS

1. SEE INTERIOR ELEVATIONS FOR ADDITIONAL FINISH INFORMATION.
2. PROVIDE GYPSUM BOARD SOFFIT ABOVE CASEWORK. (SEE CASEWORK ELEVATIONS AND REFLECTED CEILING PLANS.)
3. PROVIDE VINYL BASE AT CASEWORK.
4. PAINT CEILING AND ALL EXPOSED STRUCTURE, PIPING, CONDUIT, MECHANICAL DUCTS AND VENTS.
5. NOT USED
6. SEE A4.305 FOR TILE PATTERNS.
7. SEE FLOOR FINISH PLANS FOR ADDITIONAL FLOORING INSTALLATION INFORMATION.
8. PROVIDE FRP PANELS AND TRIM TO 4'-0" AFF AT ALL WALLS WITH PAINT ABOVE.

FLOOR PLAN KEY NOTES:

1. DOOR ACTUATORS
2. BOLLARD - SEE DETAIL 21001.
3. MOP SINK - SEE MECHANICAL
4. FIRE EXTINGUISHER. COORDINATE LOCATION WITH OWNER AND FIRE MARSHALL.
5. DRAIN TILE TO EXTENTS AS INDICATED BY DASHED LINE.
6. CABINET UNIT HEATER. SEE DETAIL 43046. SEE MECH. FOR SPECIFICATIONS, COORDINATE LOCATION WITH MECH.
7. CONCRETE STOOP, ALIGN WITH CENTER OF DOOR U.N.O - SEE STRUCT.
8. LOCATION OF SEMI-RECESSED DEFIBRILLATOR CABINET. COORDINATE LOCATION WITH OWNER.
9. WALL MOUNTED COILING FIRE/STORM SHUTTER
10. SHELF AND MOP HOLDER
11. FIRE RATED CONSTRUCTION WALL PANEL. FULL SHEETS MOUNTED VERTICALLY ABOVE WALL BASE - COORDINATE WITH ELEC
12. ALL DOORS, WALLS, AND WINDOWS ARE TO BE SEALED AIR TIGHT.
13. CORNER GAURD, SEE C4/A4.601
14. PROVIDE FULL HEIGHT TILE AT INDICATED WALL. SEE B7/A4.305
15. MANUAL ROLLER SHADE.
16. MOTORIZED ROLLER SHADE, SEE ELEC. & REFERENCE DETAIL F5/A4.903
17. SEE MAIN LEVEL ACCESS FLOOR PLAN FOR ADDITIONAL DETAIL
18. ORNAMENTAL METAL FENCE - SEE ARCH SITE PLAN
19. INTERCOM KIOSK
20. NEW AUXCOM TOWER - REFER TO SHEET R2.02
21. NEW 911 TOWER - REFER TO SHEET R2.01
22. WALL MOUNTED MONITOR. PROVIDED BLOCKING AS TYPICAL. VERIFY FINAL HEIGHT WITH OWNER

ROOM FINISH SCHEDULE

ROOM NO	ROOM NAME	FLOOR	BASE	N WALL - TYP MATL	N WALL - TYP FIN	E WALL MATL	E WALL FIN	S WALL MATL	S WALL FIN	W WALL MATL	W WALL FIN	REMARKS
01100	ENTRY VESTIBULE	CPT-4	VB	GWB	WD-1	--	--	--	--	--	--	1
01107	CIRC	CPT-2	VB	--	--	GWB	PT 6C	GWB	PT 6A	GWB / CMU	PT 6C / WD-1	1
01109A	KITCHEN	LVT-1	VB	GWB	PT 6A / WD-1	--	--	GWB	WD-1	GWB	WD-1	1, 2, 3
01110	PUBLIC LOBBY	LVT-1	VB	GWB / B BLK-1	PT 6A / WD-1/ --	GWB	PT 6A	-- / GWB	WD-1	GWB	PT 6A	1
01110	CIRC	CPT-2	VB	--	--	GWB	PT 6C	--	--	GWB	PT 6C / WD-1	1
01111	TOILET	P TILE-2	P TILE-1	GWB	PT 6A	GWB	P TILE-1	GWB	PT 6A	GWB	PT 6A	6
01112	TOILET	P TILE-2	P TILE-1	GWB	PT 6A	GWB	PT 6A	GWB	PT 6A	GWB	P TILE-1	6
01115	TRAINING	CPT-1 / CPT-2	VB	CMU	WD-1	CMU	WD-1	GWB	PT 6A / PT 6B	CMU	WD-1	1
01115A	TRAINING A/V	CPT-1	VB	GWB	PT 6A							
01115B	MEZZANINE ACCESS	CPT-1	VB	GWB	PT 6A							
01120	TEAMING AREA	LVT-1	VB	GWB	PT 6C / WD-1	GWB	PT 6A / PT 6C	CMU / GWB	PT 6C / WD-1	GWB	PT 6A / PT 6C	1
01120	CIRC	LVT-1	VB	GWB	PT 6A							
01122	LOADING / STORAGE	POLISHED CONC	VB	CMU	PT 6A							
01125	BREAKROOM/ LUNCHROOM	LVT-1	VB	GWB	WC-1	GWB	WD-1	GWB	WD-1	--	--	1
01130	BUILDING OPERATIONS WORK AREA	POLISHED CONC	VB	CMU	PT 6A							
01139	CIRC	CPT-1	VB	GWB	PT 6A							
01141	CIRC	LVT-1	VB	GWB	PT 6A							
01148	CIRC	LVT-1	VB	GWB	PT 6A							
01149	CIRC	CPT-2	VB	--	--	GWB / CMU	PT 6C / WD-1	GWB	PT 6A	GWB	PT 6C	1
01150	HALLWAY	CPT-3	VB	GWB	PT 6A							
01400	VESTIBULE	CPT-4	VB	GWB	PT 6A							
01400A	AV ROOM	CPT-1	VB	GWB	PT 6A							
01402	EMERGENCY OPERATIONS CENTER	CPT-1 / CPT-2	VB	GWB	PT 6A	GWB	PT 6B	GWB	PT 6A	GWB	PT 6B	1, 7
01402A	RADIO ROOM	CPT-1	VB	GWB	PT 6A							
01402B	BREAKOUT ROOM - RESOURCES	CPT-1	VB	GWB	PT 6A							3
01402C	BREAKOUT ROOM - ASSESSMENT	CPT-1	VB	GWB	PT 6A							3
01402D	BREAKOUT ROOM - OPS	CPT-1	VB	GWB	PT 6A							3
01402E	COFFEE AREA	LVT-1	VB	GWB	PT 6A							2, 3
01402F	EOC STORAGE	POLISHED CONC	VB	CMU	PT 6A							
01410	HALLWAY	LVT-1	VB	GWB	PT 6A	GWB	PT 6A	B BLK-1 / GWB	-- / PT 6A	--	--	
01410A	EMA LOBBY / RECEPTION AREA	LVT-1	VB	GWB	PT 6A							
01410B	LOCKER / COAT	CPT-1	VB	GWB	PT 6A							
01410C	J/C	POLISHED CONC	VB	CMU	PT 6A	CMU	PT 6A	GWB	PT 6A	GWB	PT 6A	8
01411	TOILET	P TILE-2	P TILE-1	GWB	PT 6A	GWB	PT 6A	GWB	PT 6A	GWB	P TILE-1	6
01412	TOILET	P TILE-2	P TILE-1	GWB	PT 6A	GWB	P TILE-1	GWB	PT 6A	GWB	PT 6A	6
01420	OPEN OFFICE	CPT-3	VB	GWB	PT 6A	GWB	PT 6A	GWB	PT 6D	GWB	PT 6A	
01420A	COPY CENTER	CPT-1	VB	GWB	PT 6A							
01420B	STORAGE	CPT-1	VB	GWB	PT 6A							
01420D	LCEMA ASSIST. MGR OFFICE	CPT-1	VB	GWB	PT 6A							
01420E	LCEMA MANAGER'S OFFICE	CPT-1	VB	GWB	PT 6A							
01420F	DHS OFFICE	CPT-1	VB	GWB	PT 6A							
01420G	LCDH COORD. OFFICE	CPT-1	VB	GWB	PT 6A							
01450	MEDICAL SUPPLY STORAGE	POLISHED CONC	VB	CMU	PT 6A	CMU	PT 6A	CMU	PT 6A	GWB	PT 6A	
01451	RECORDS STORAGE	POLISHED CONC	VB	CMU	PT 6A	CMU	PT 6A	CMU	PT 6A	GWB	PT 6A	
01500	STAFF ENTRY VESTIBULE	CPT-4	VB	GWB	PT 6A							
01502	CIRC	LVT-1	VB	GWB	PT 6A							
01504	HEALTH & WELLNESS CENTER	RAF-1	VB	GWB	PT 6A	GWB	WC-2	GWB	PT 6A	GWB	PT 6A	1
01504A	WELLNESS LOCKERS	CPT-3	VB	GWB	PT6A							
01510	HALLWAY	LVT-1	VB	GWB	PT 6A							
01510A	NURSING ROOM	CPT-1	VB	GWB	PT 6A							2, 3
01510B	RESTROOM VESTBULE	LVT-1	VB	GWB	P TILE-1	GWB	PT 6A	GWB	PT 6A	GWB	PT 6A	6
01510C	BUNK ROOM	CPT-1	VB	GWB	PT 6A							
01510D	J/C	POLISHED CONC	VB	GWB	PT 6A							8
01511	MEN'S TOILET ROOM	P TILE-2	P TILE-1	GWB	PT 6A	GWB	P TILE-1	GWB	PT 6A	GWB	PT 6A	6
01512	WOMEN'S TOILET ROOM	P TILE-2	P TILE-1	GWB	PT 6A	GWB	PT 6A	GWB	PT 6A	GWB	P TILE-1	6
01610	HALLWAY	POLISHED CONC	VB	--	--	GWB / CMU	PT 6A	GWB	PT 6A	CMU	PT 6A	
01620	SHIPPING & RECEIVING (SECURE)	POLISHED CONC	VB	CMU	PT 6A							
01620A	FACILITY OPERATIONS OFFICE	POLISHED CONC	VB	CMU	PT 6A							
01650	MECHANICAL & FIRE SPRINKLER ROOM	POLISHED CONC	VB	CMU	PT 6A							
01650A	ELECTRICAL ROOM	POLISHED CONC	VB	CMU	PT 6A							
01650B	CRITICAL EQUIP. ROOM	POLISHED CONC	VB	CMU	PT 6A							
01650C	UPS EQUIP. ROOM	POLISHED CONC	VB	CMU	PT 6A							

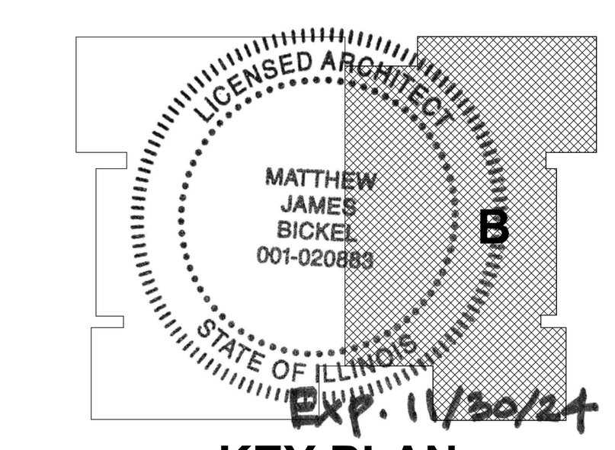
Regional Operations and Communications Facility

Lake County Campus
Libertyville, IL 60048

656 Winchester Rd,
Libertyville, IL 60048

WOLD ARCHITECTS AND ENGINEERS
220 North Smith Street, Suite 310
Palatine, Illinois 60067
woldae.com | 847 241 6100

RossDrulisCusenbery
18294 Sonoma Highway
Sonoma, CA 95476
rdcarchitecture.com | tel 707 996 8448



KEY PLAN

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed **ARCHITECT** under the laws of the State of **Illinois**

Matthew J Bickel
License Number: 001.020883 Date 11/30/2024

Description	Date	Num
Addendum #2	02/24/2023	1
Addendum #4	03/08/2023	2

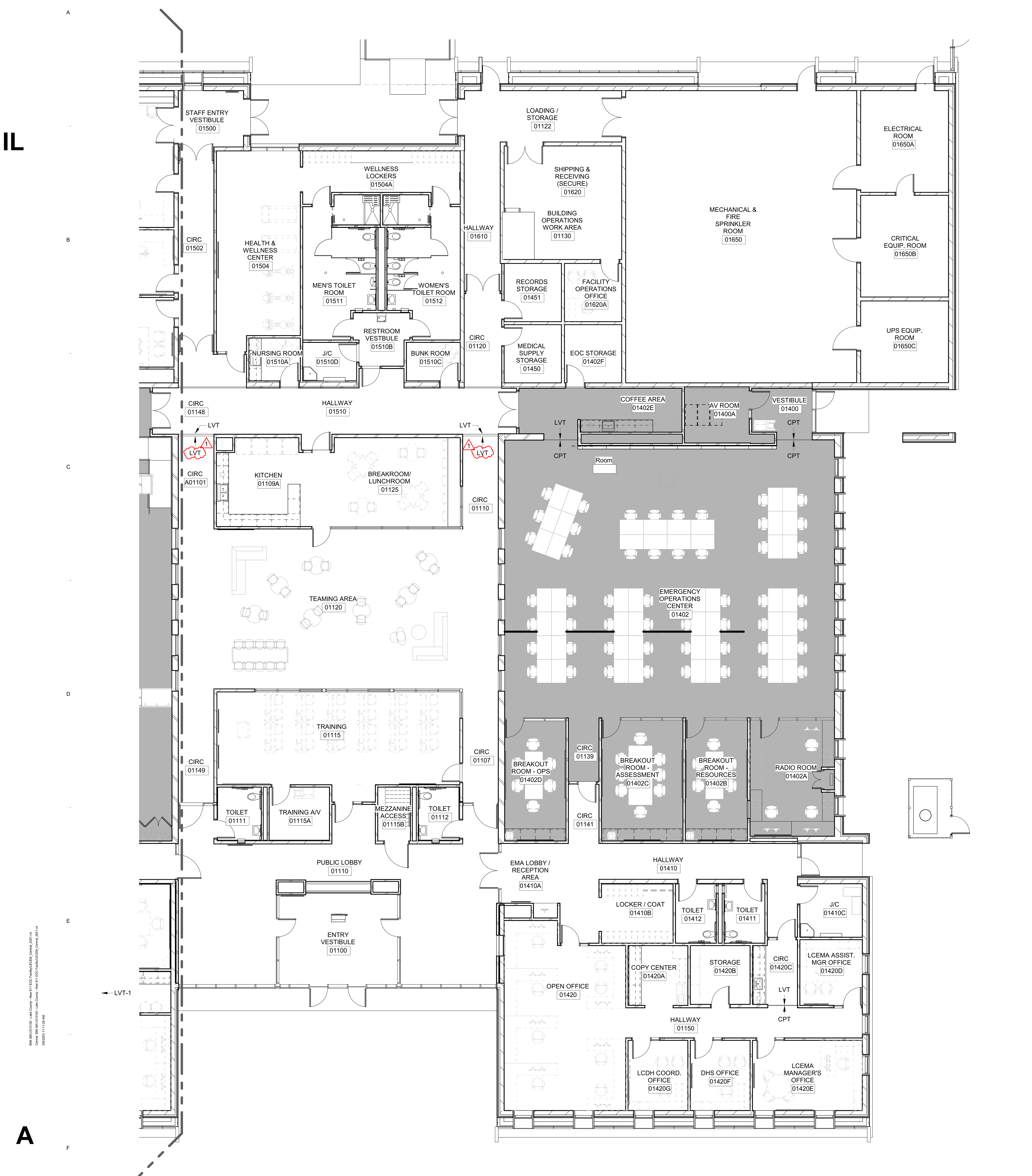
Comm: 213106
Date: 12/30/2022
Drawn: JMK / MB
Check: KME

North

FLOOR PLAN AREA 'B'

Scale: As indicated

A2.01b



F1 **FLOOR FINISH PLAN - AREA 'B'**
1/8" = 1'-0" 0 6' 12'

Regional Operations and Communications Facility

Lake County Campus
Libertyville, IL 60048

LakeCounty
656 Winchester Rd,
Libertyville, IL 60048

Wold

WOLD ARCHITECTS AND ENGINEERS
220 North Smith Street, Suite 310
Palatine, Illinois 60067
woldae.com | 847 241 6100

RossDrulisCusenbery
18294 Sonoma Highway
Sonoma, CA 95476
rdcarchitecture.com | tel 707 996 8448

LICENSED ARCHITECT MATTHEW JAMES BICKEL 001-020883 STATE OF ILLINOIS
EXP. 11/30/24

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed ARCHITECT under the laws of the State of Illinois

Matthew J Bickel
License Number: 001.020883 Date: 11/30/2024

Revisions

Description	Date	Num
Addendum #4	03/08/2023	1

Comm: 213106
Date: 12/30/2022
Drawn: MB
Check: JMK

North

FLOOR FINISH PLAN - AREA 'B'

Scale: 1/8" = 1'-0"

A4.306

Regional Operations and Communications Facility

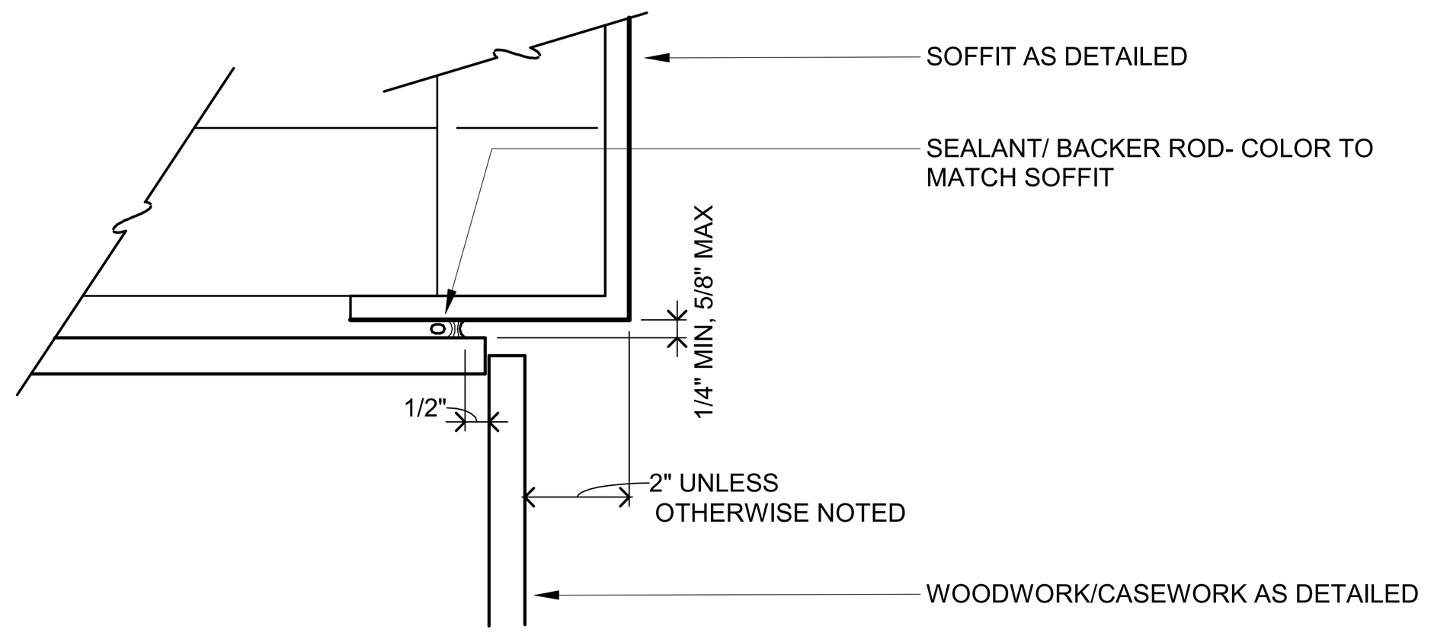
Lake County Campus
Libertyville, IL 60048

LakeCounty
656 Winchester Rd,
Libertyville, IL 60048

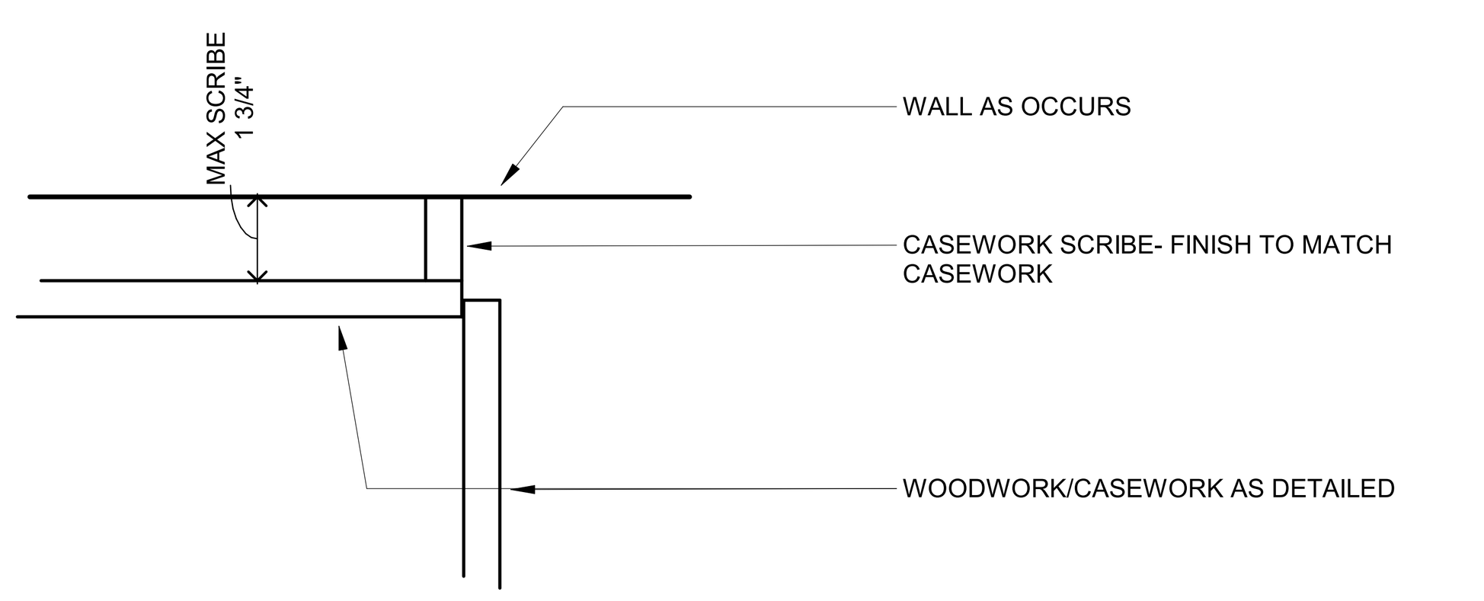
Wold
WOLD ARCHITECTS AND ENGINEERS
220 North Smith Street, Suite 310
Palatine, Illinois 60067
woldae.com | 847 241 6100

RossDrulisCusenbery
18294 Sonoma Highway
Sonoma, CA 95476
rdcarchitecture.com | tel 707 996 8448

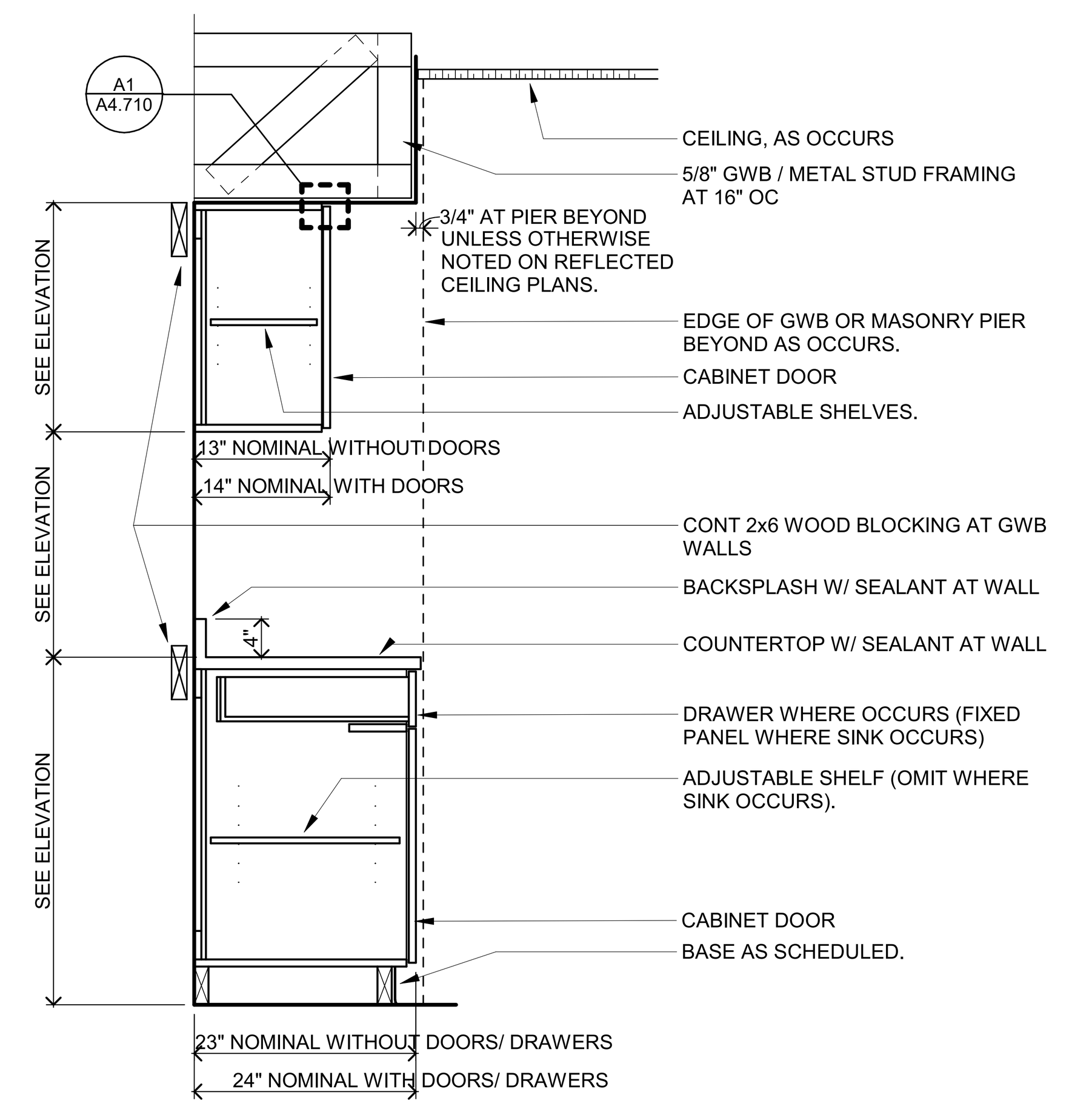
IL



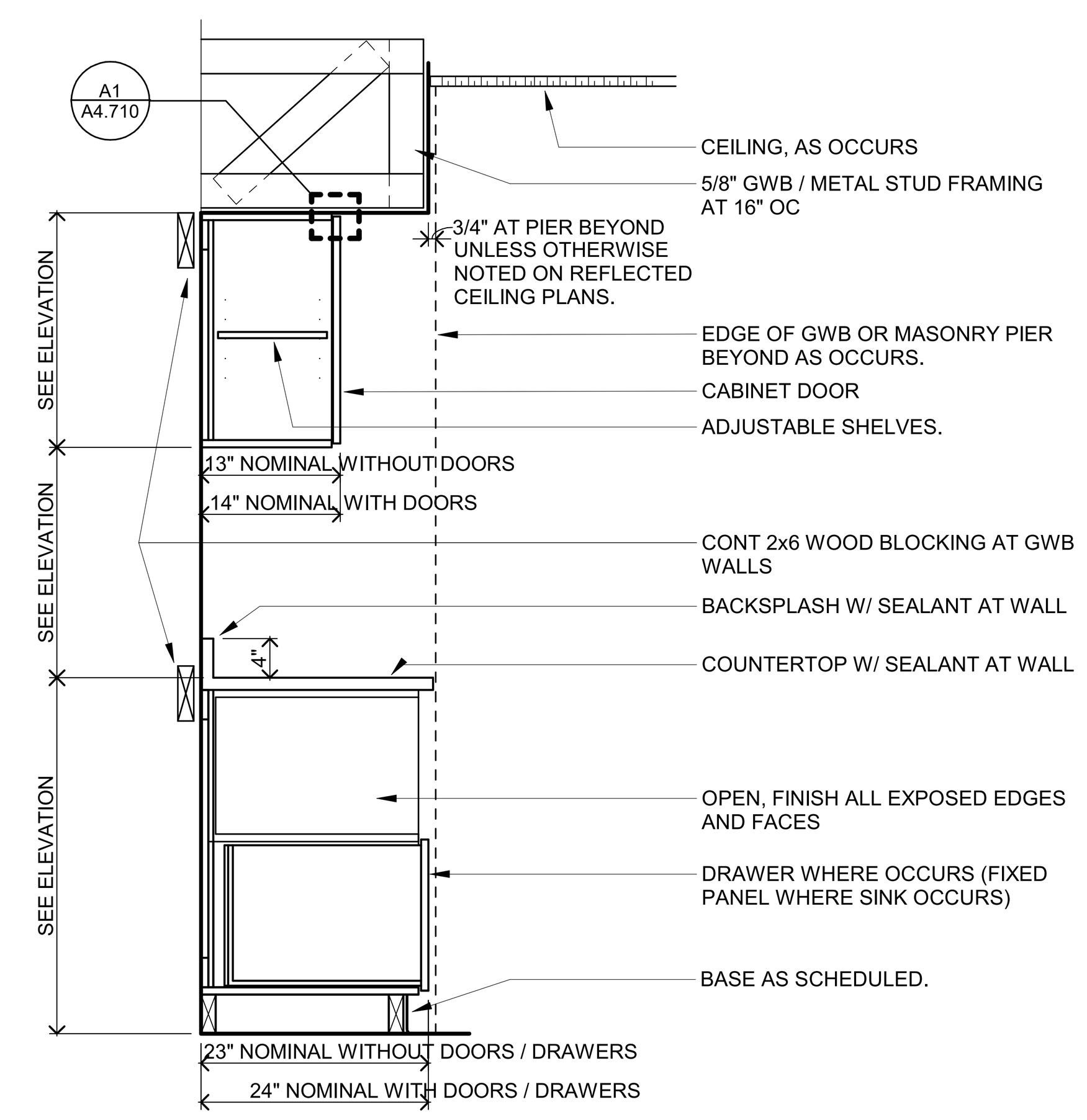
A1 SECTION AT CASEWORK
3" = 1'-0"



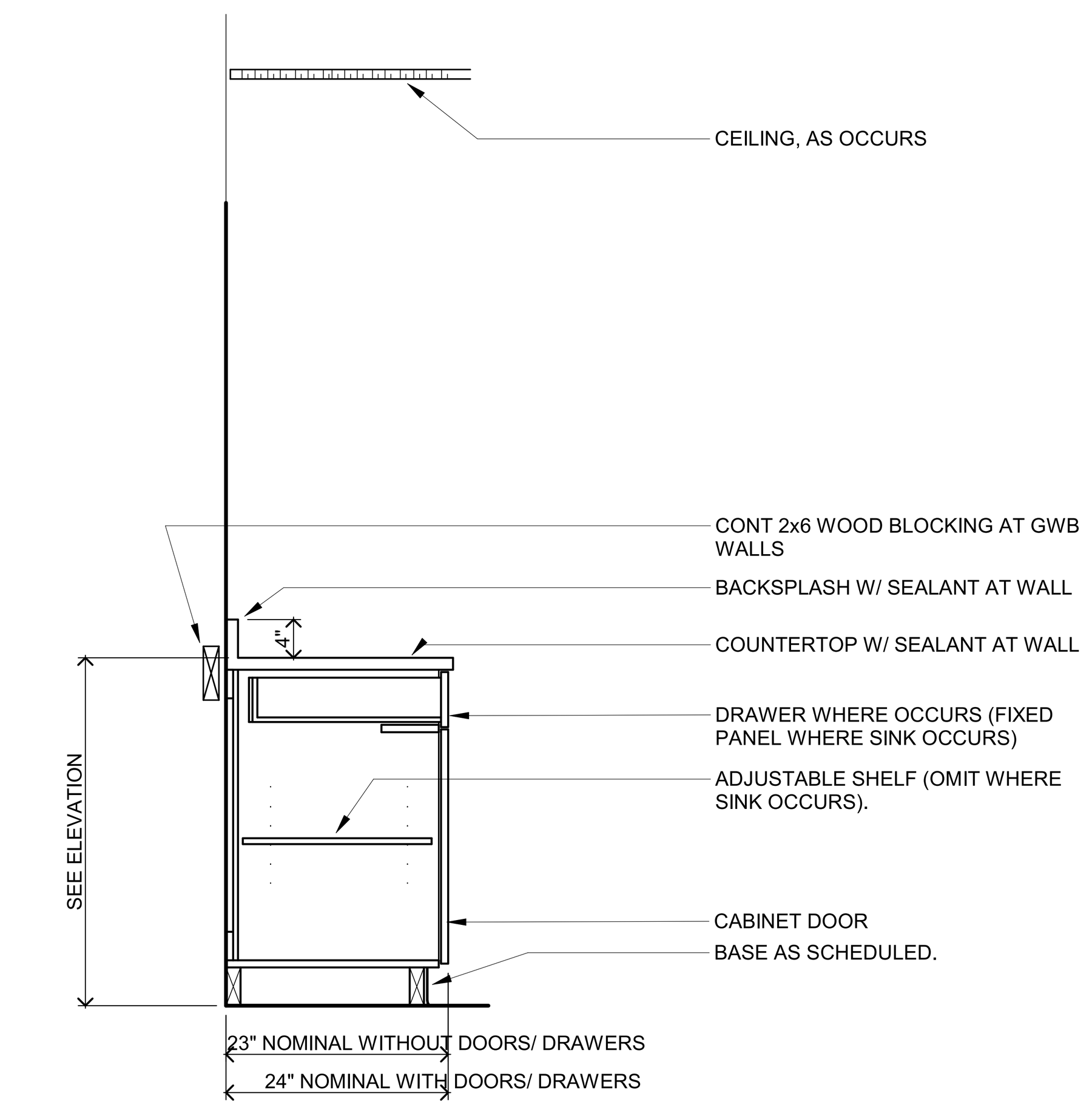
B1 PLAN AT CASEWORK
3" = 1'-0"



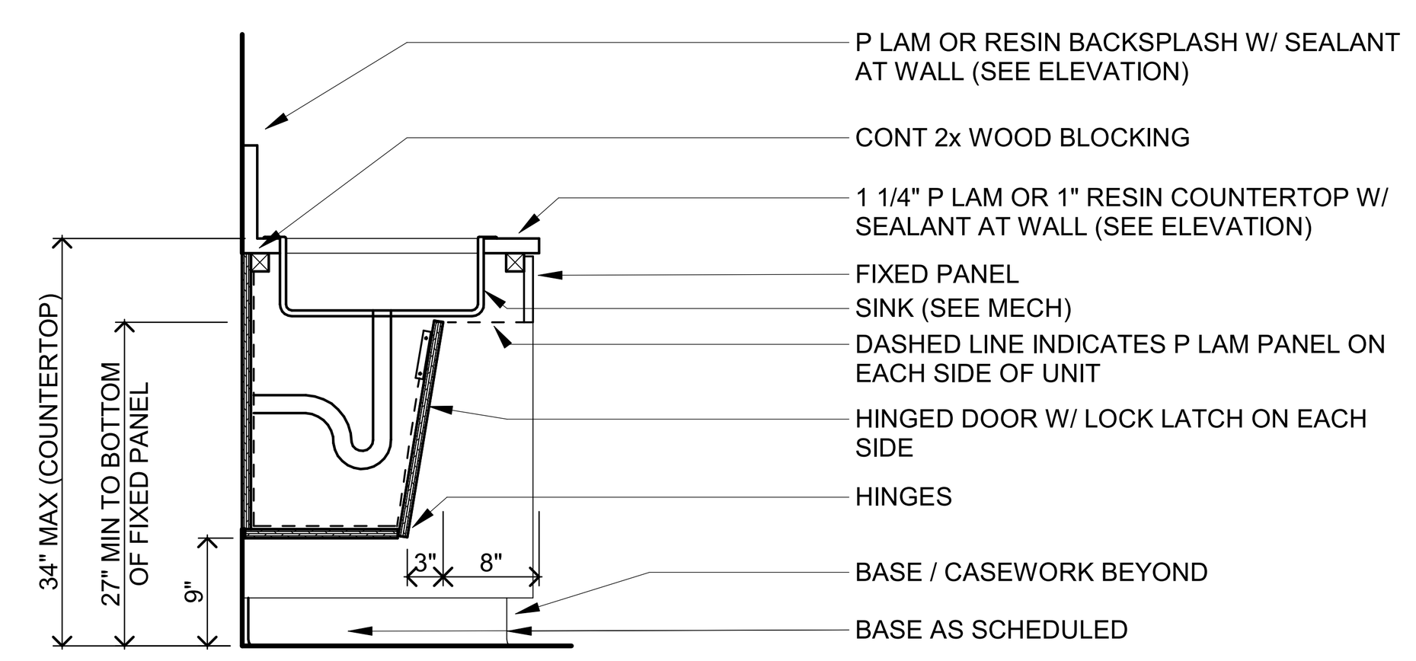
B3 TYPICAL CASEWORK SECTION
3/4" = 1'-0"



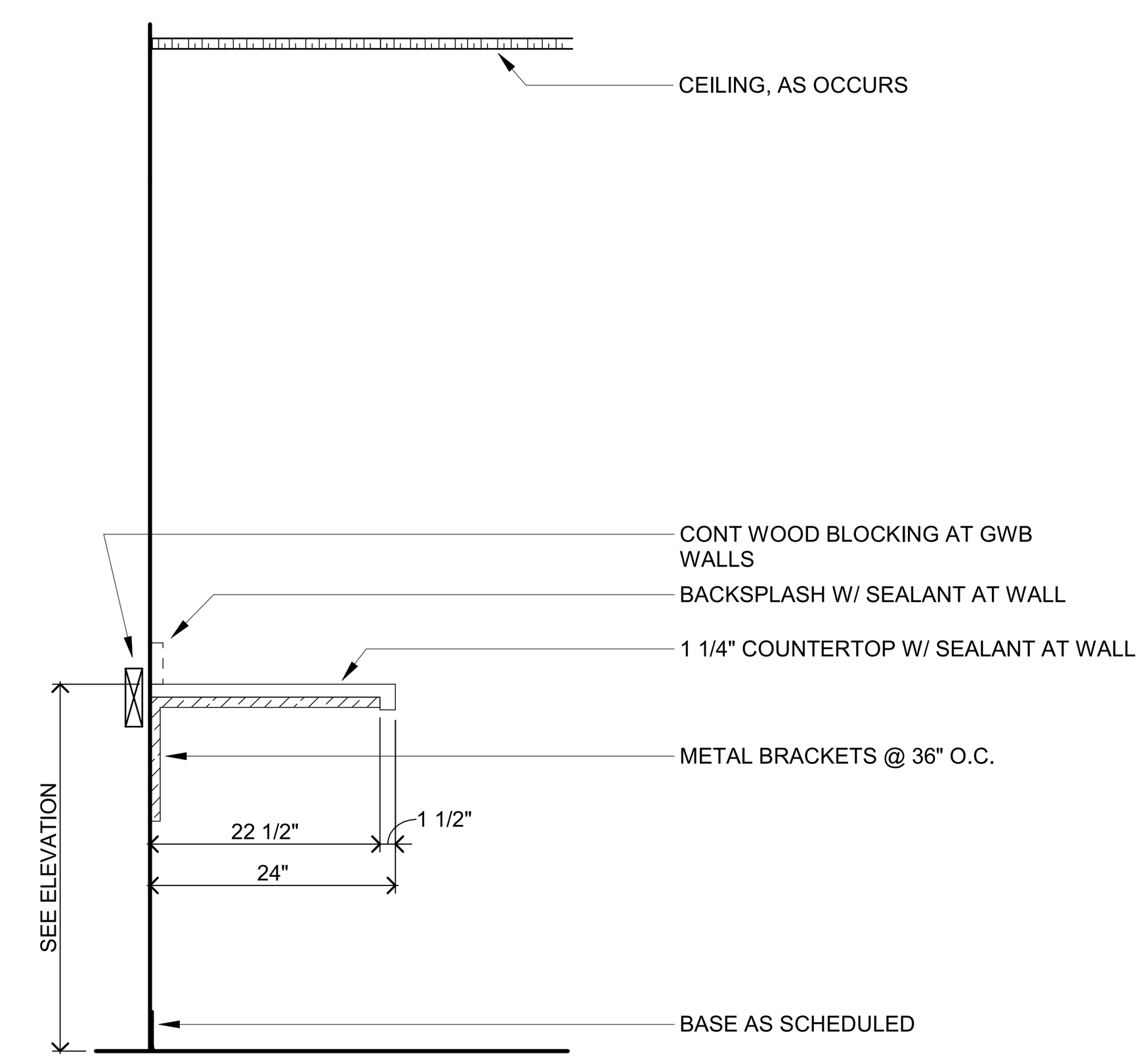
B5 SECTION AT MICROWAVE CABINET
3/4" = 1'-0"



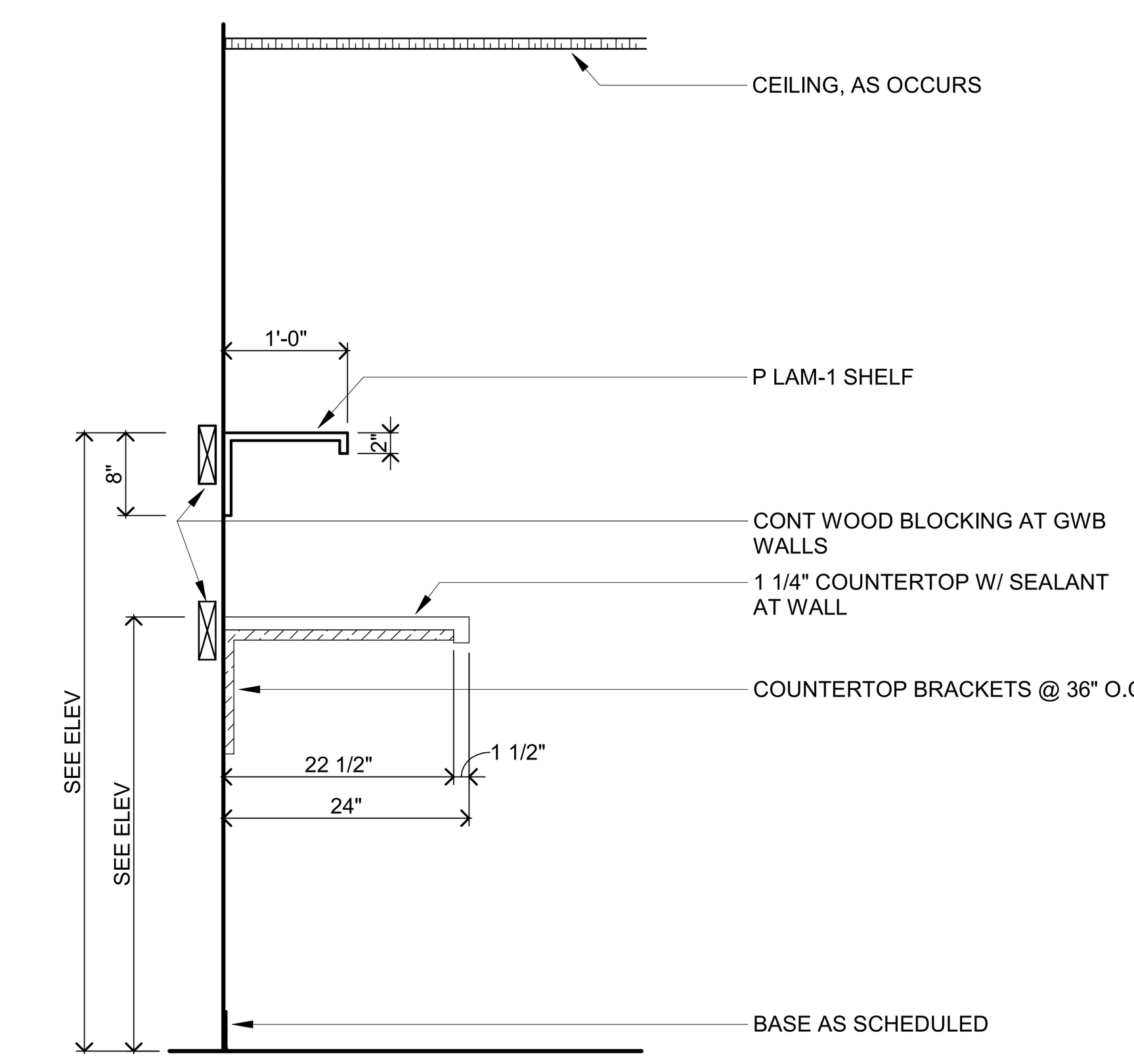
B7 SECTION AT BASE CABINET
3/4" = 1'-0"



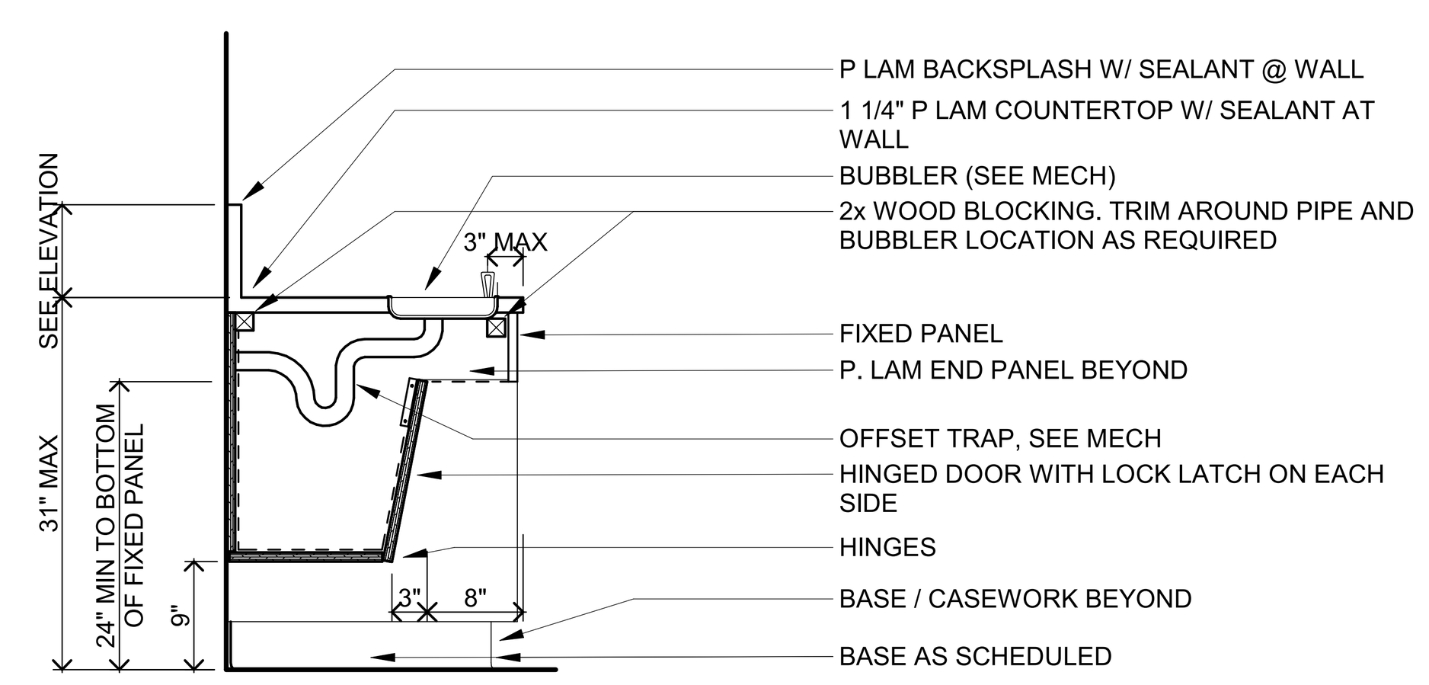
D3 SECTION AT ACCESSIBLE SINK
3/4" = 1'-0"



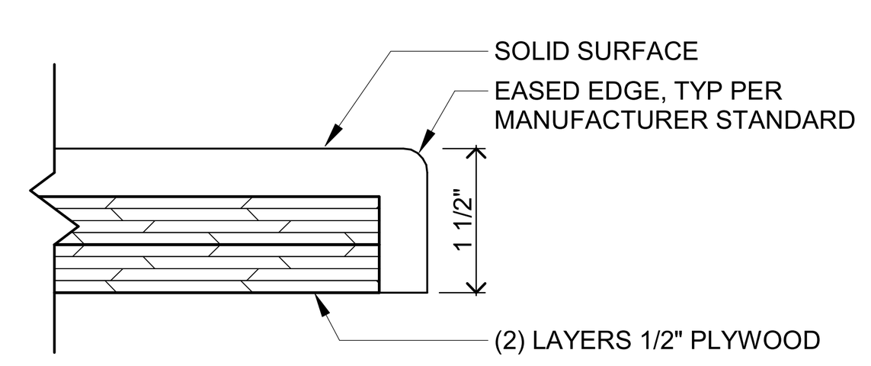
D5 SECTION AT COUNTERTOP
3/4" = 1'-0"



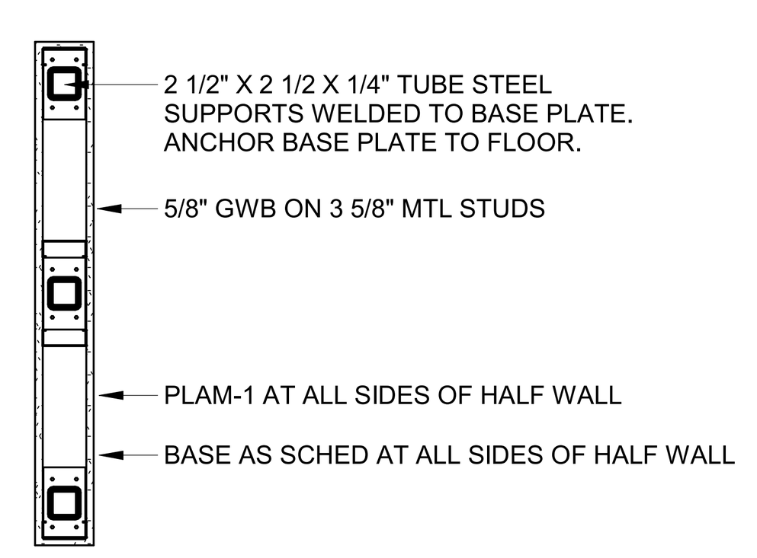
D7 SECTION AT COUNTERTOP W/ SHELF
3/4" = 1'-0"



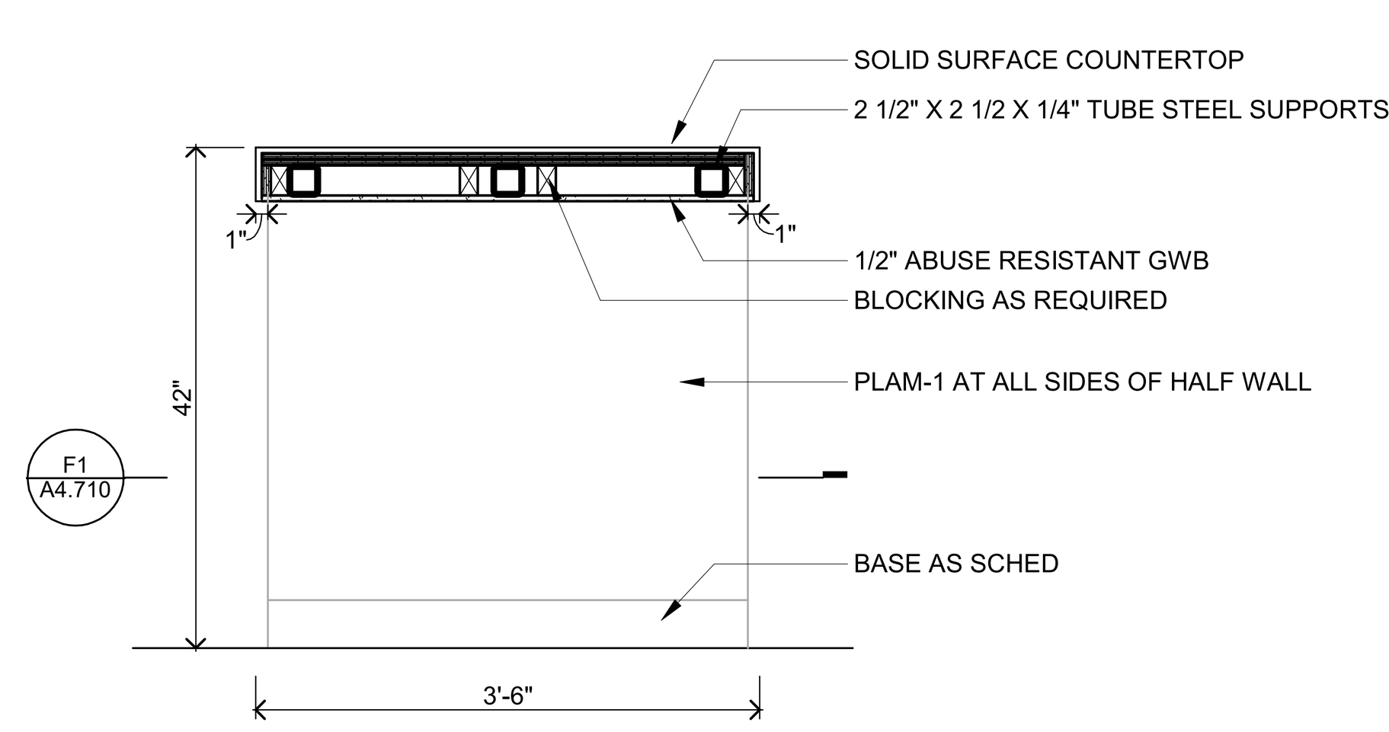
E3 SECTION AT ACCESSIBLE BUBBLER
3/4" = 1'-0"



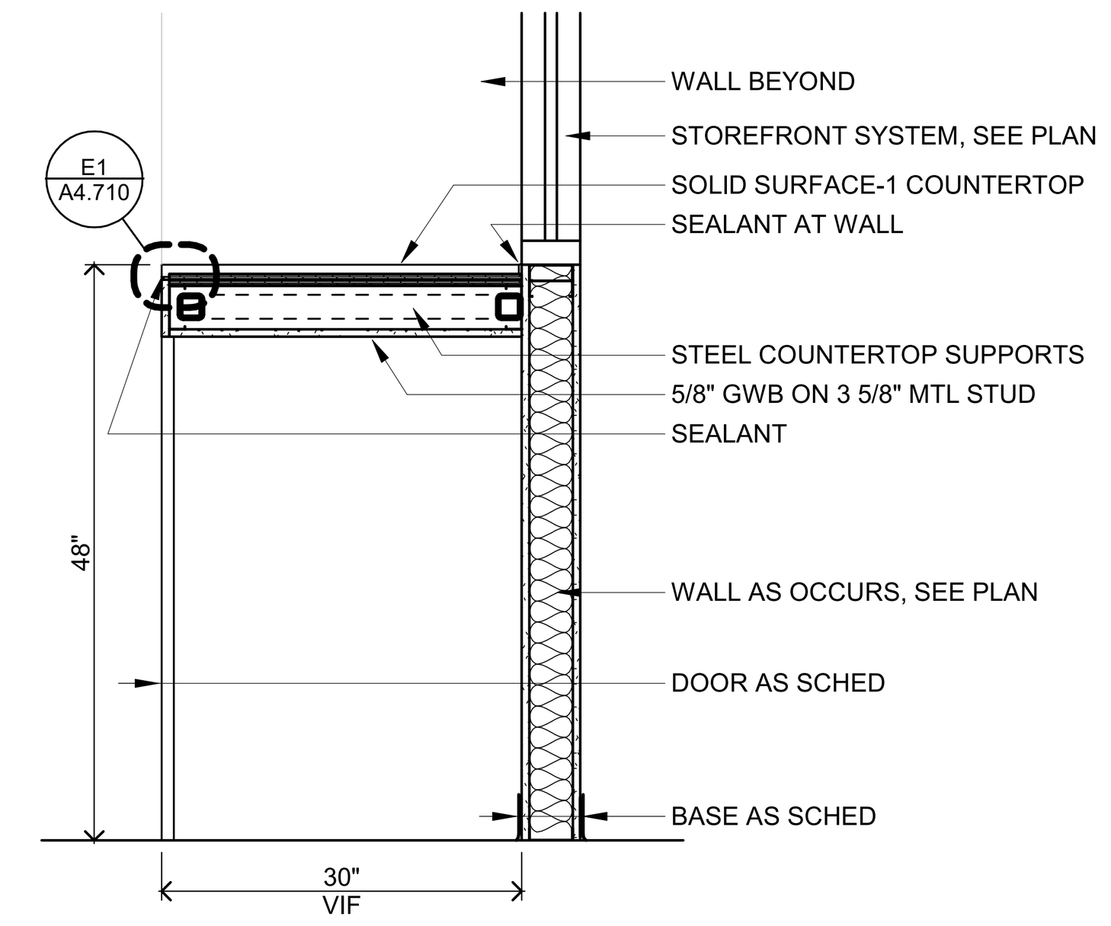
E1 DETAIL AT SOLID SURFACE EDGE
6" = 1'-0"



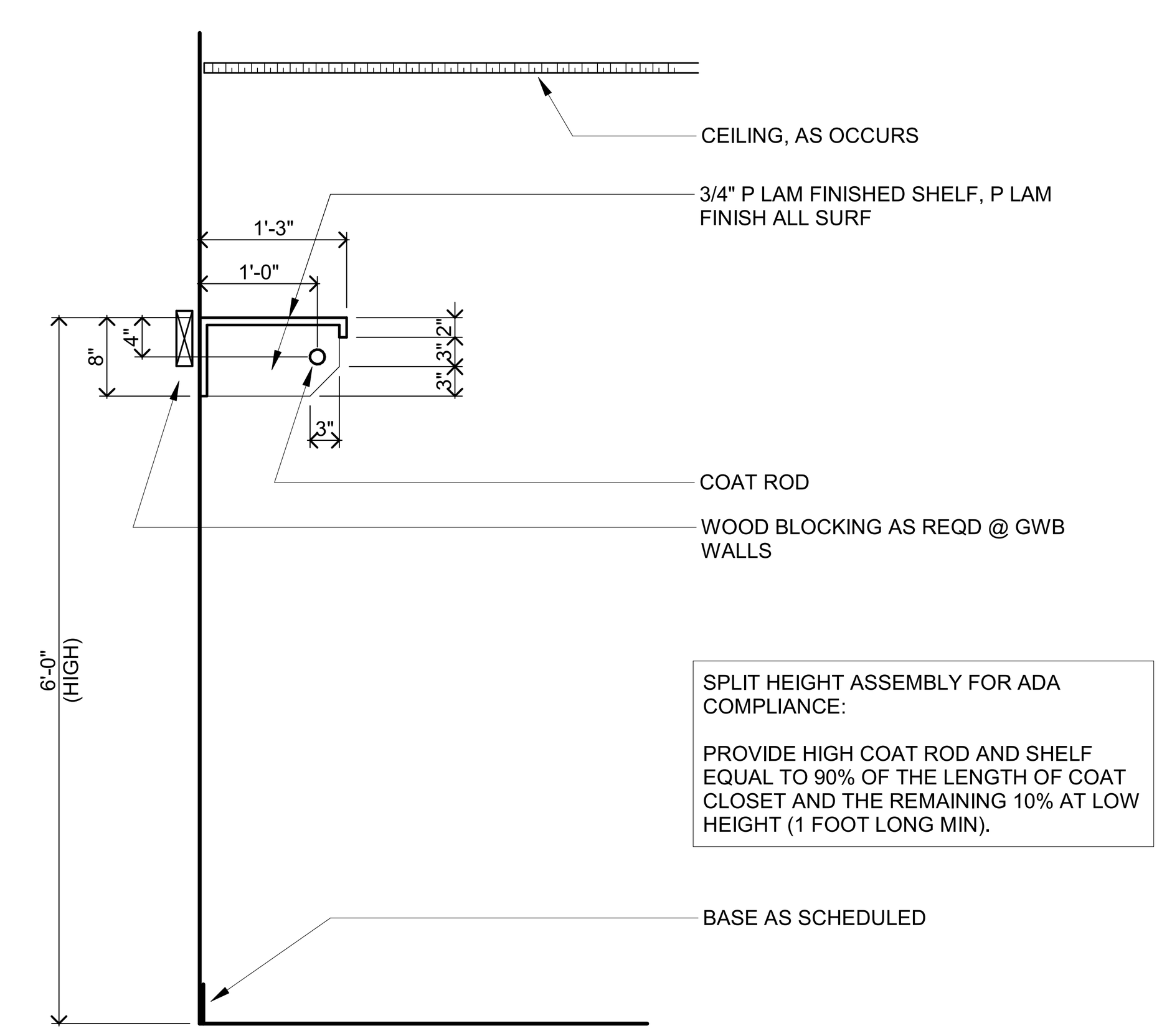
F1 PLAN DETAIL AT STANDING COUNTER
3/4" = 1'-0"



F3a SECTION AT STANDING COUNTERT
3/4" = 1'-0"



F5 SECTION AT CHAIR STORAGE
3/4" = 1'-0"



F7 COAT ROD AND SHELF SECTION
3/4" = 1'-0"

A

LICENSED ARCHITECT MATTHEW JAMES BICKEL 001-020883 STATE OF ILLINOIS
EXP. 11/30/24

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed ARCHITECT under the laws of the State of Illinois
Matthew J Bickel
License Number: 001.020883 Date: 11/30/2024

Revisions

Description	Date	Num
Addendum #4	03/08/2023	1

Comm: 213106
Date: 12/30/2022
Drawn: MB
Check: JMK

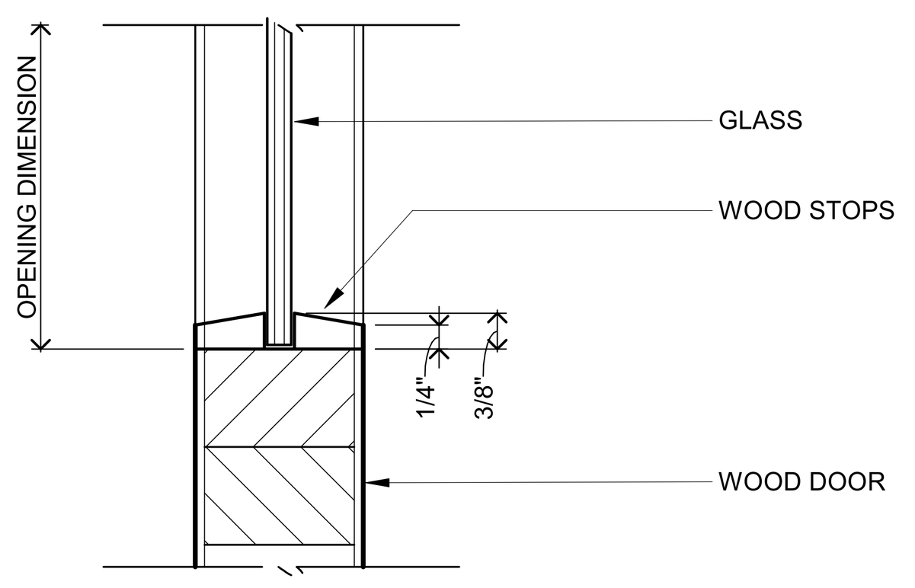
North

DETAILS - INTERIOR CASEWORK SECTIONS

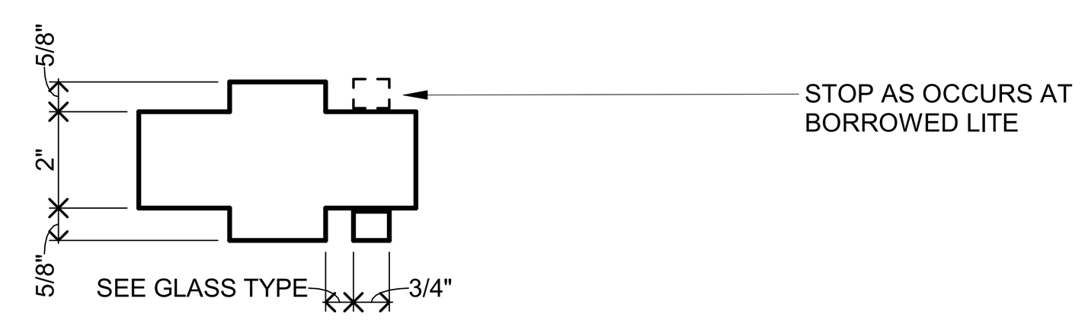
Scale: As indicated

A4.710

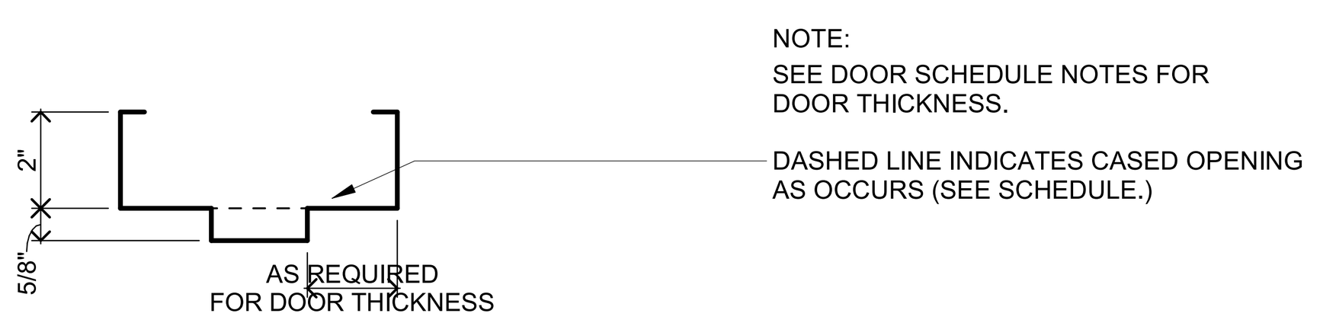
IL



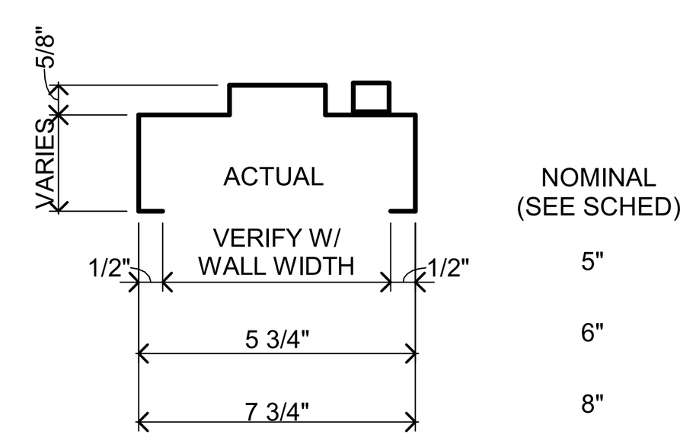
A1 GLAZING AT WOOD DOOR - NON RATED
6" = 1'-0"
0 1.5" 3"



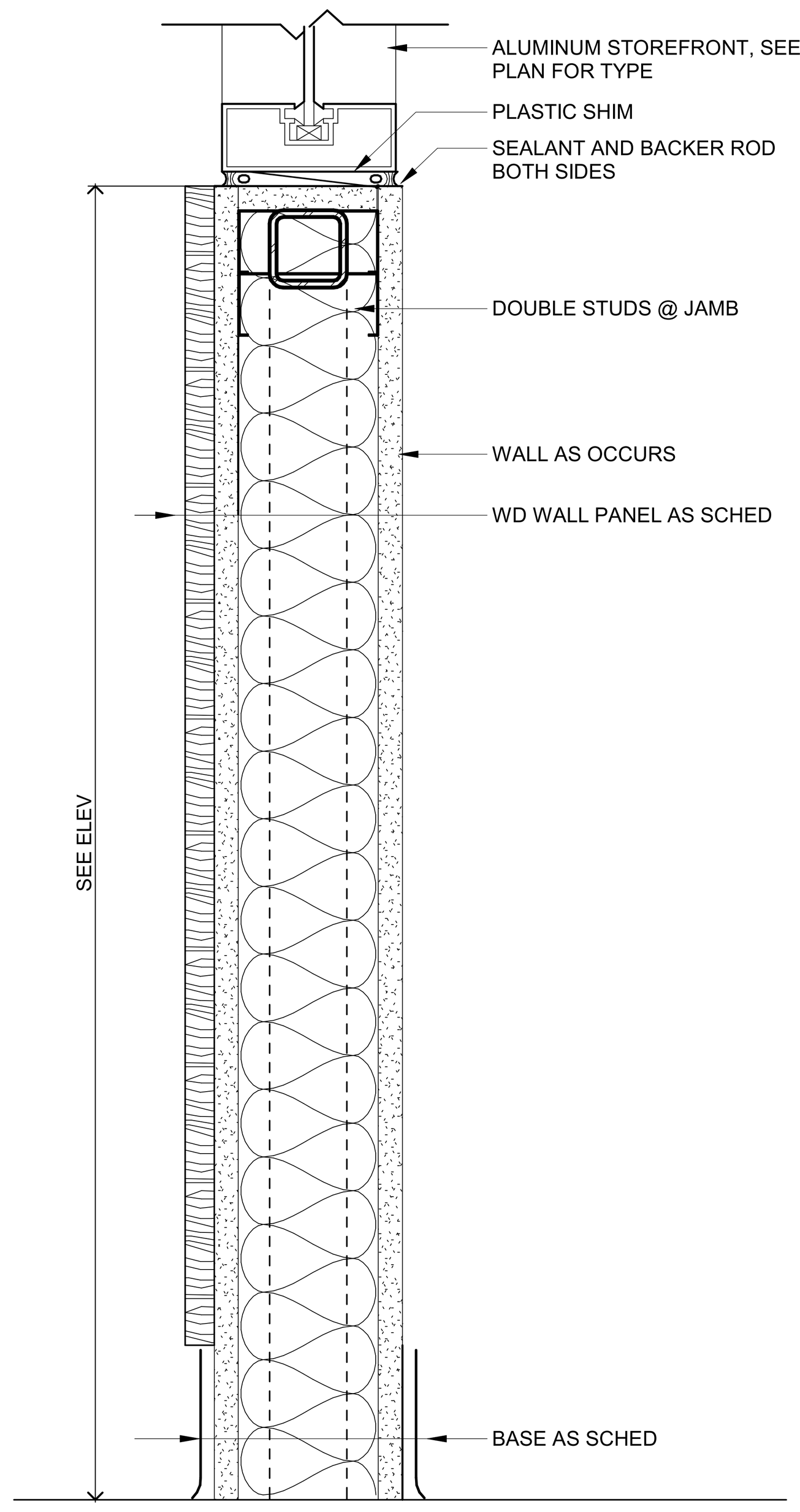
A3 MULLION AT DOOR AND BORROWED LITE
3" = 1'-0"
0 3" 6"



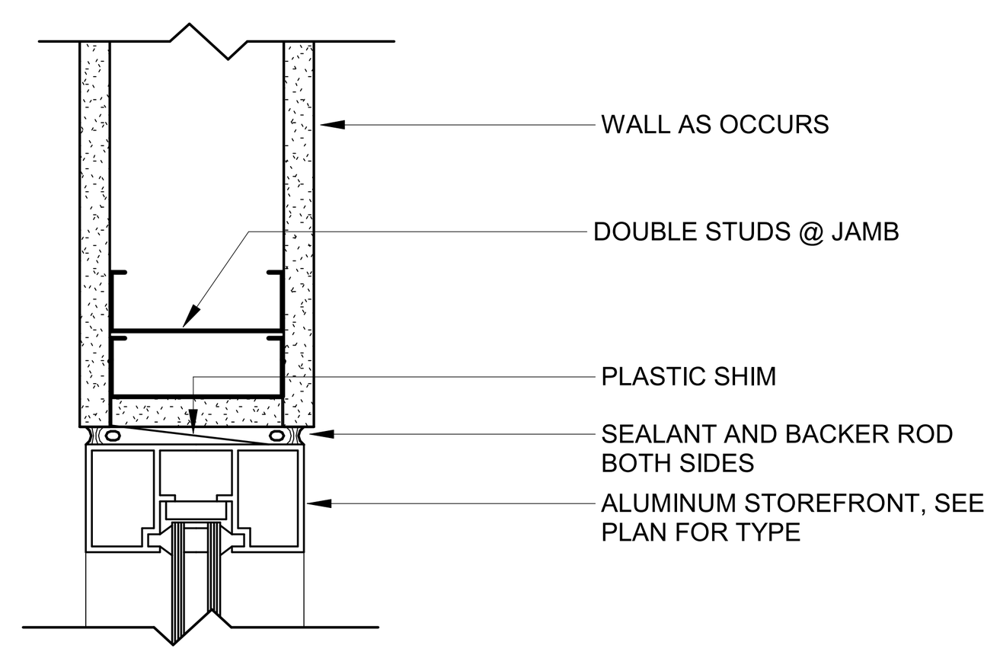
B1 HEAD/JAMB AT DOOR
3" = 1'-0"
0 3" 6"



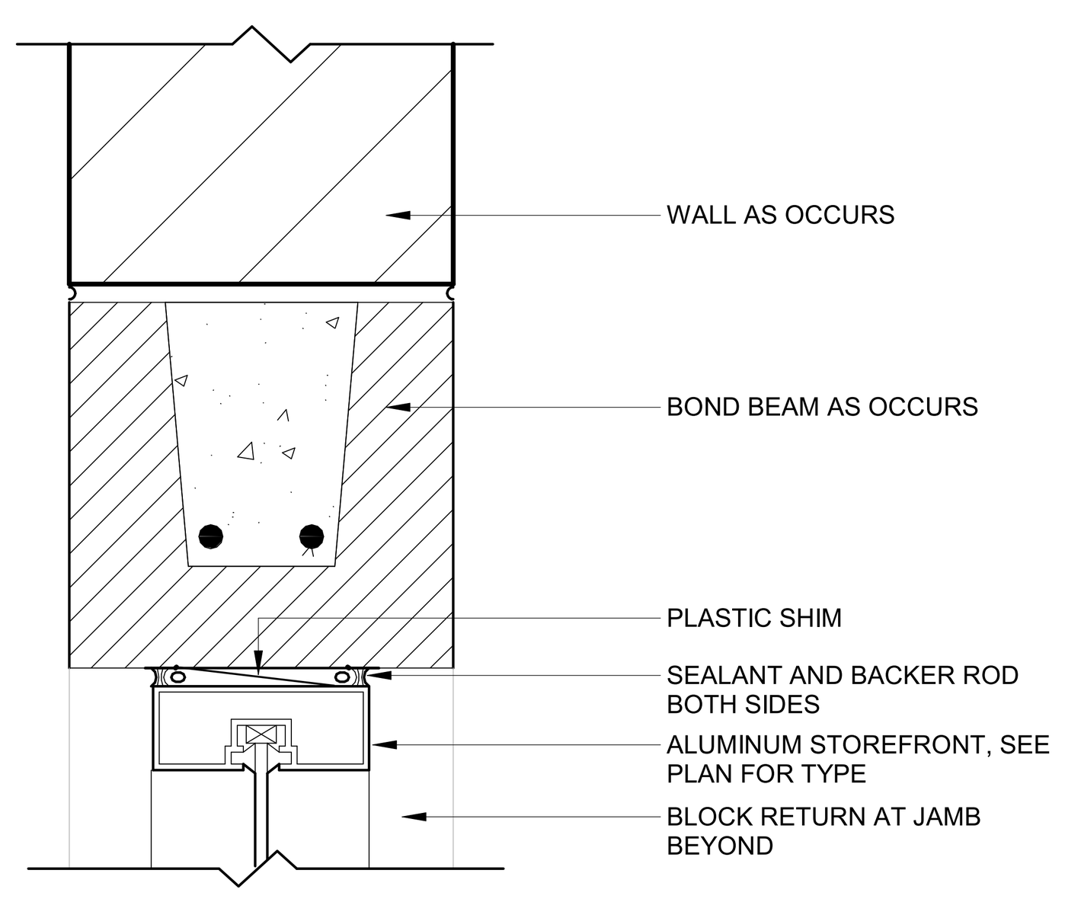
B3 HEAD/JAMB/SILL AT BORROWED LITE
3" = 1'-0"
0 3" 6"



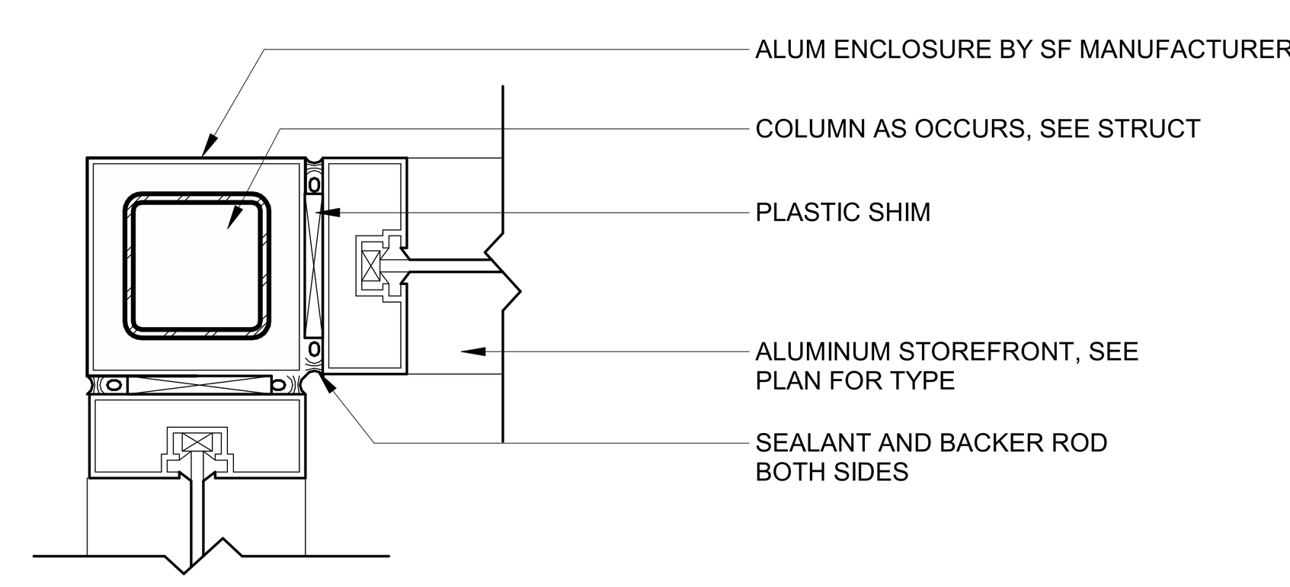
C7 SILL AT SF
3" = 1'-0"
0 3" 6"



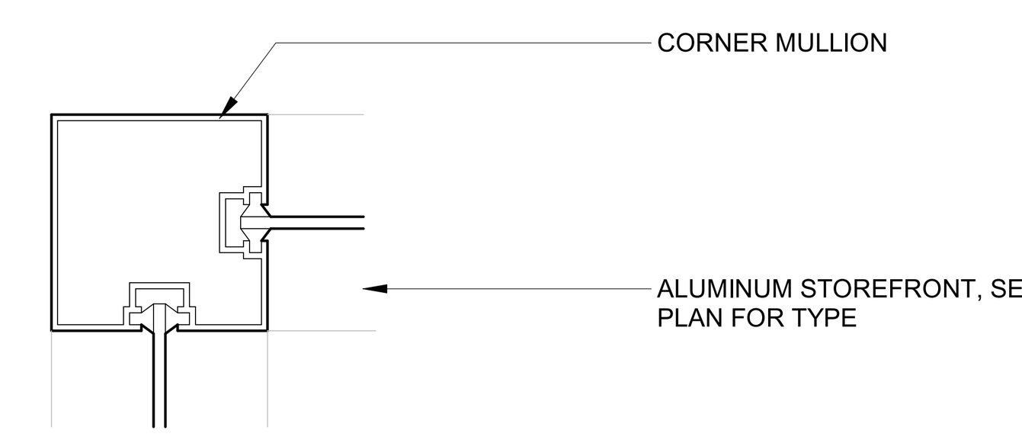
D1 HEAD AT SF (JAMB & SILL, SIM)
3" = 1'-0"
0 3" 6"



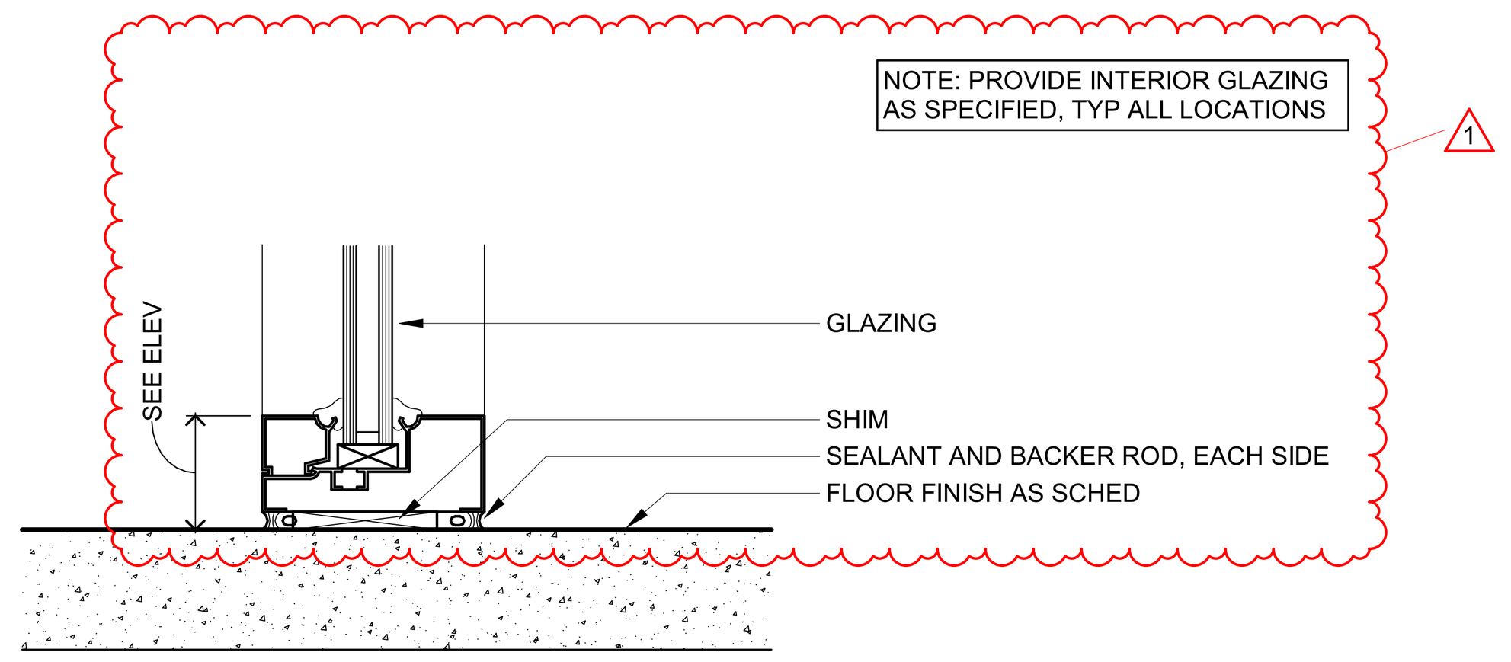
D3 HEAD AT SF / INTERIOR MASONRY
3" = 1'-0"
0 3" 6"



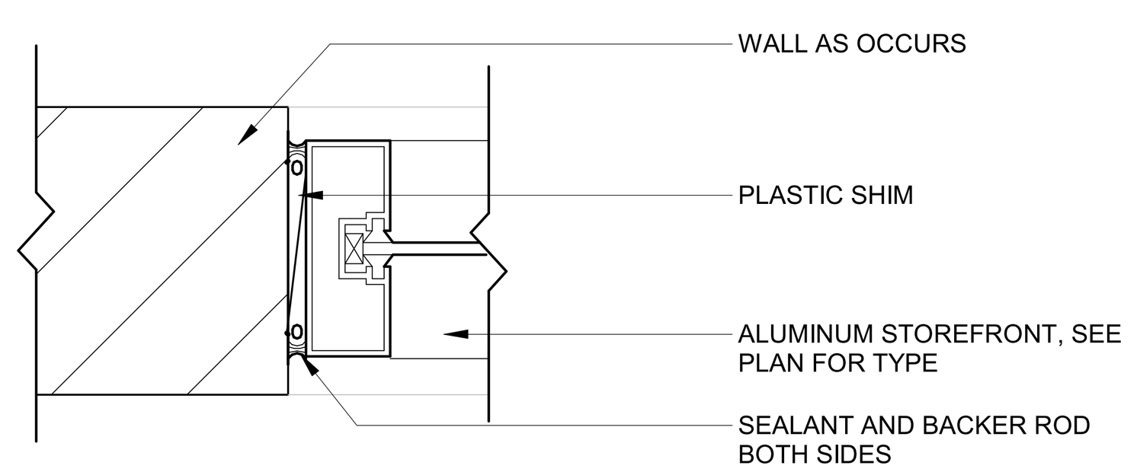
D4 CORNER AT SF / COLUMN
3" = 1'-0"
0 3" 6"



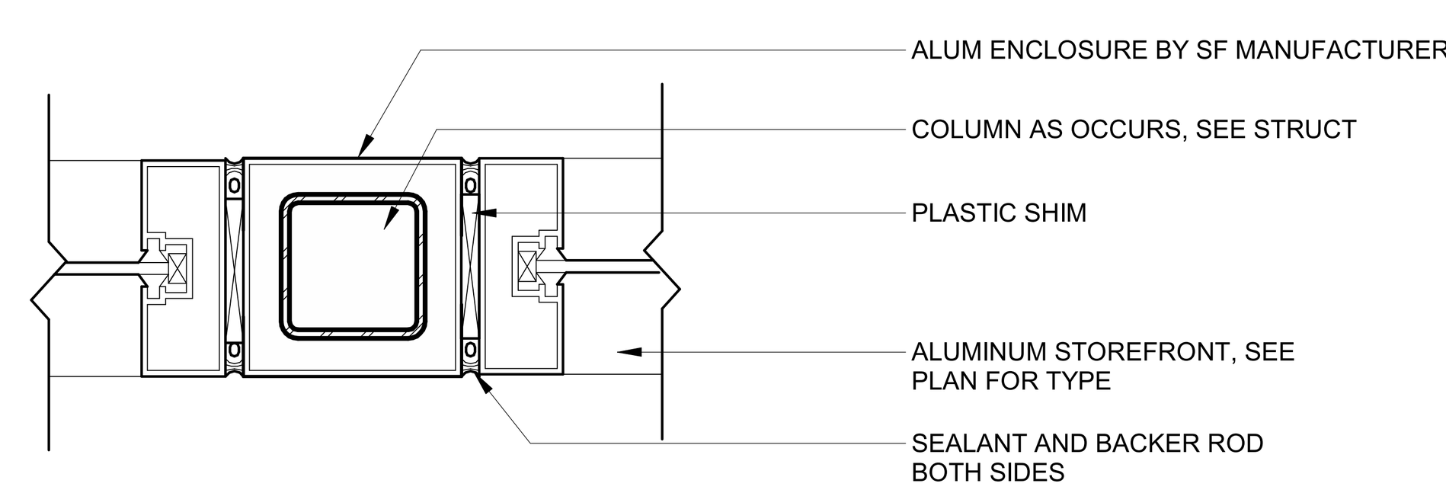
D7 CORNER AT SF
3" = 1'-0"
0 3" 6"



E1 SILL AT SF
3" = 1'-0"
0 3" 6"

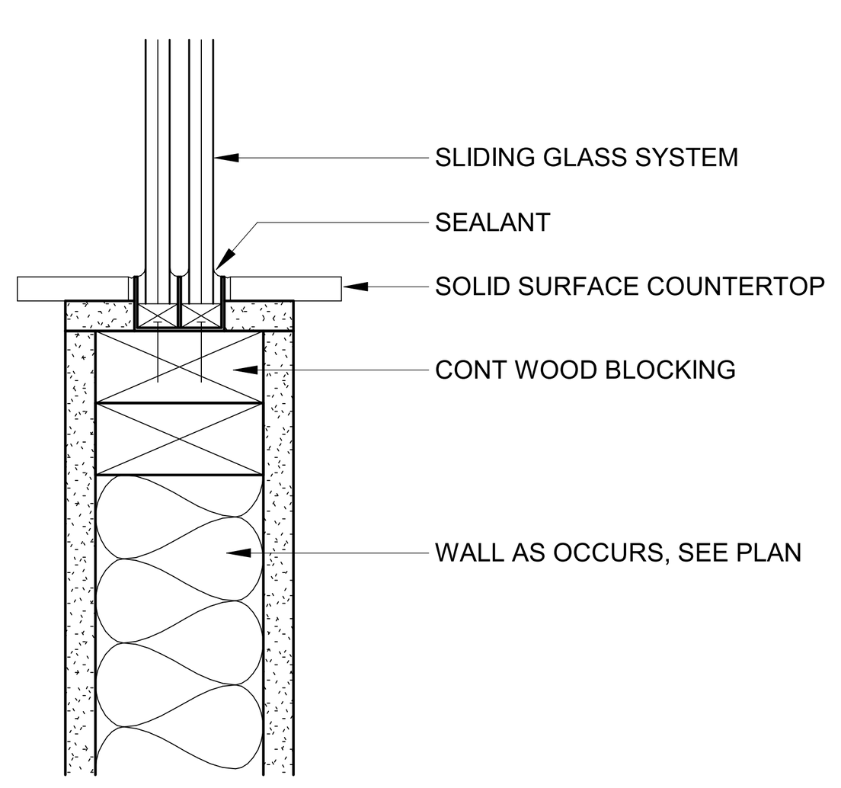


E3 JAMB AT SF / INTERIOR MASONRY
3" = 1'-0"
0 3" 6"

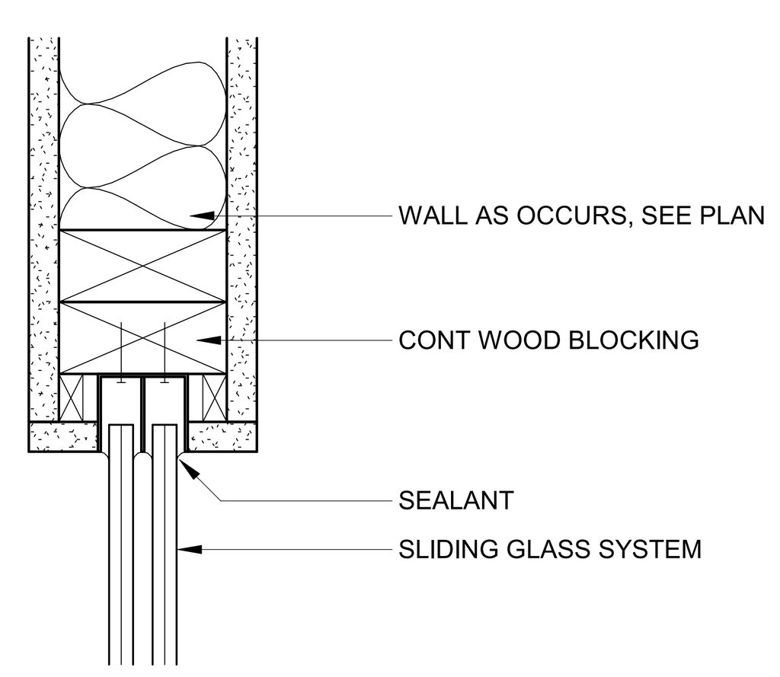


E4 DETAIL AT SF / COLUMN
3" = 1'-0"
0 3" 6"

A



F1 SILL AT SLIDING WINDOW
3" = 1'-0"
0 3" 6"



F2 HEAD AT SLIDING WINDOW
3" = 1'-0"
0 3" 6"

Regional Operations and Communications Facility

Lake County Campus
Libertyville, IL 60048

LakeCounty
656 Winchester Rd,
Libertyville, IL 60048

WOLD ARCHITECTS AND ENGINEERS
220 North Smith Street, Suite 310
Palatine, Illinois 60067
woldae.com | 847 241 6100

RossDrulisCusenbery
18294 Sonoma Highway
Sonoma, CA 95476
rdcarchitecture.com | tel 707 996 8448

LICENSED ARCHITECT
MATTHEW JAMES BICKEL
001-020883
STATE OF ILLINOIS
EXP. 11/30/24

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed
ARCHITECT
under the laws of the State of Illinois
Matthew J Bickel
License Number: 001.020883 Date: 11/30/2024

Revisions

Description	Date	Num
Addendum #4	03/08/2023	1

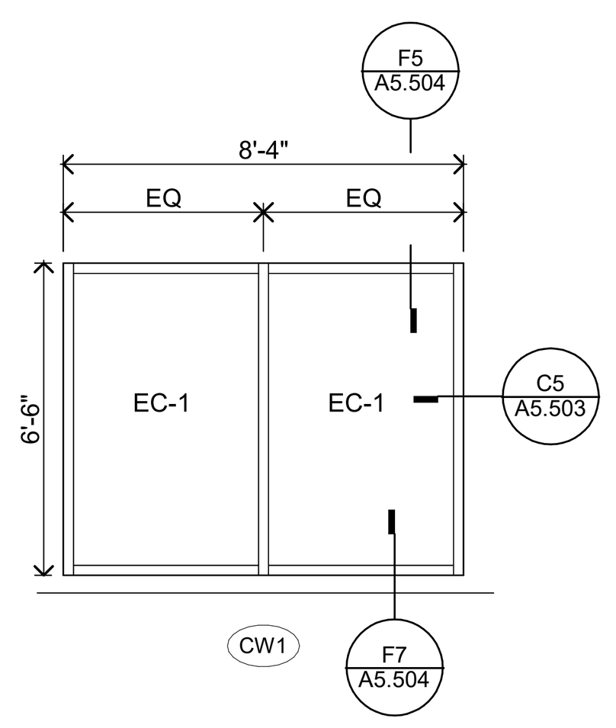
Comm: 213106
Date: 12/30/2022
Drawn: MB
Check: JMK

North

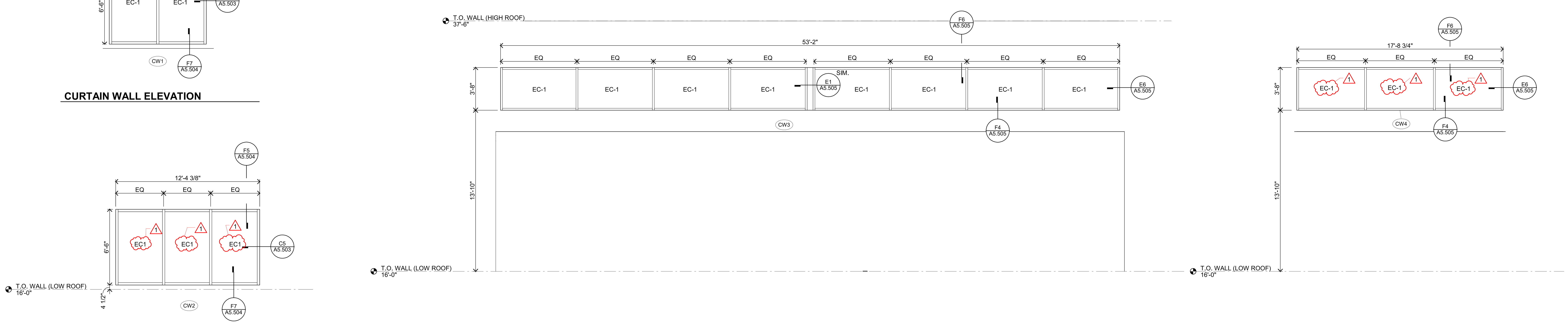
DETAILS - INTERIOR OPENING DETAILS

Scale: As indicated

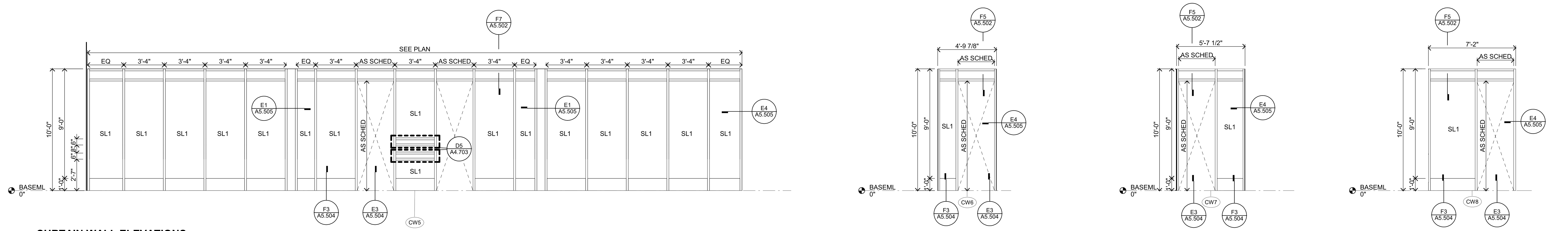
A4.802



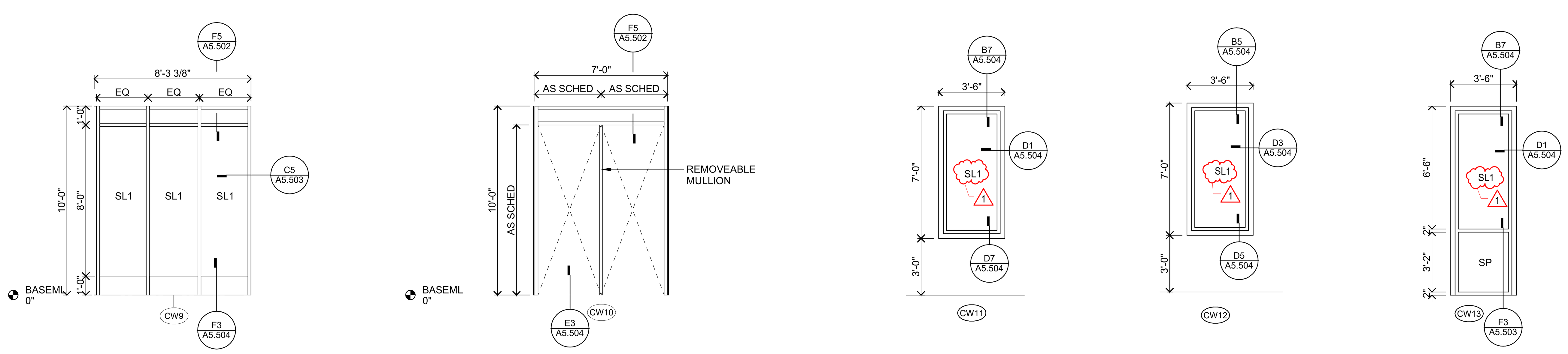
CURTAIN WALL ELEVATION



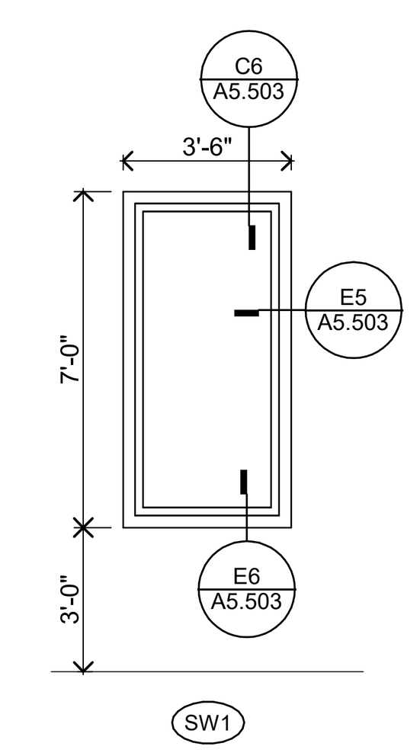
CURTAIN WALL ELEVATIONS



CURTAIN WALL ELEVATIONS



CURTAIN WALL ELEVATIONS



STORM WINDOW ELEVATIONS

Regional Operations and Communications Facility

Lake County Campus
Libertyville, IL 60048

LakeCounty

656 Winchester Rd,
Libertyville, IL 60048

Wold

WOLD ARCHITECTS AND ENGINEERS
220 North Smith Street, Suite 310
Palatine, Illinois 60067
woldae.com | 847 241 6100

RossDrulisCusenbery
18294 Sonoma Highway
Sonoma, CA 95476
rdcarchitecture.com | tel 707 996 8448

LICENSED ARCHITECT
MATTHEW JAMES BICKEL
001-020883
STATE OF ILLINOIS
EXP. 11/30/24

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed ARCHITECT under the laws of the State of Illinois

Matthew J Bickel
License Number: 001.020883 Date: 11/30/2024

Revisions

Description	Date	Num
Addendum #4	03/08/2023	1

Comm: 213106
Date: 12/30/2022
Drawn: ML
Check: JMK

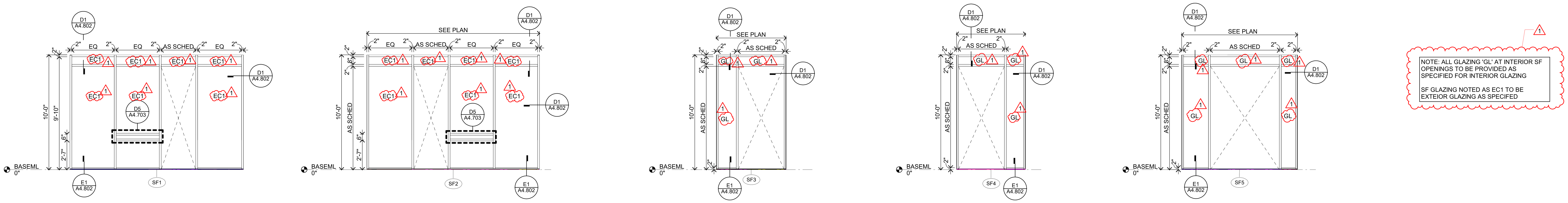
North

CURTAINWALL ELEVATIONS

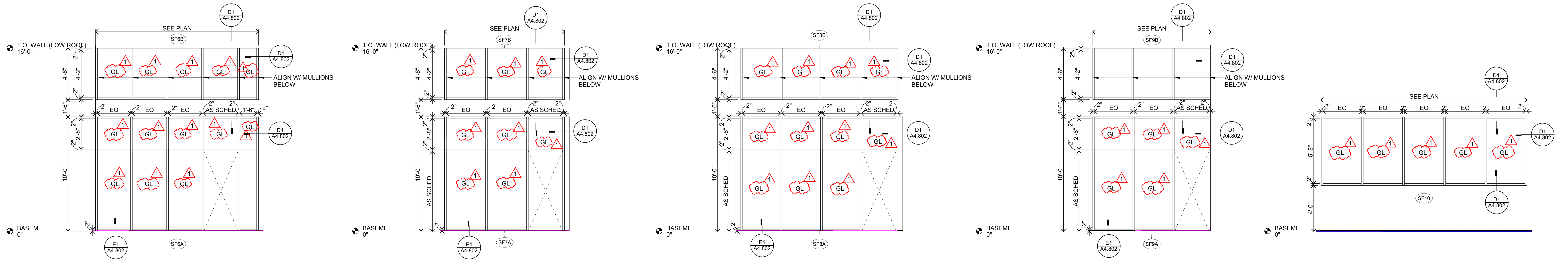
Scale: 1/4" = 1'-0"

A5.301

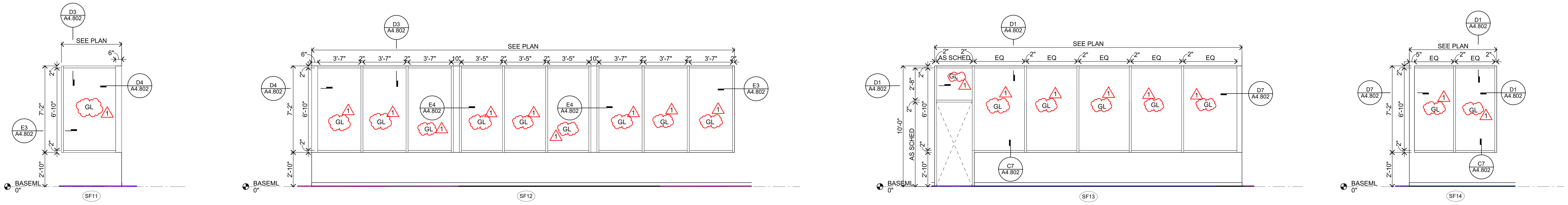
IL



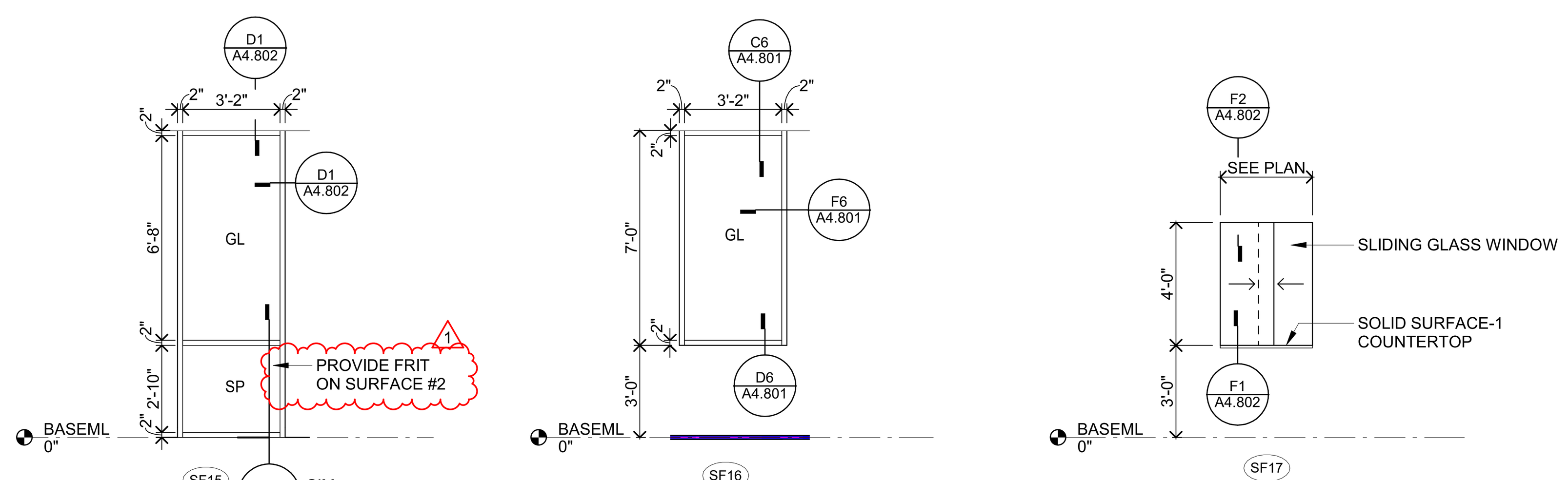
STOREFRONT ELEVATIONS



STOREFRONT ELEVATIONS



STOREFRONT ELEVATIONS



STOREFRONT ELEVATIONS

A

Regional Operations and Communications Facility

Lake County Campus
Libertyville, IL 60048

LakeCounty

656 Winchester Rd,
Libertyville, IL 60048

Wold

WOLD ARCHITECTS AND ENGINEERS
220 North Smith Street, Suite 310
Palatine, Illinois 60067

woldae.com | 847 241 6100

RossDrulisCusenbery
18294 Sonoma Highway
Sonoma, CA 95476

rdcarchitecture.com | tel 707 996 8448

LICENSED ARCHITECT
MATTHEW JAMES BICKEL
001-020883
STATE OF ILLINOIS
Exp. 11/30/24

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed ARCHITECT under the laws of the State of Illinois

Matthew J Bickel
License Number: 001.020883 Date: 11/30/2024

Revisions

Description	Date	Num
Addendum #4	03/08/2023	1

Comm: 213106
Date: 12/30/2022
Drawn: MB
Check: JMK

North

STOREFRONT ELEVATIONS

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

A5.302