

ADDENDUM NO. 1
PROJECT: VA Bath – CLC 2
OWNER: VAMC Bath
CONSTRUCTION
DRAWINGS ISSUED: 8/6/2015
DATE ISSUED: 3/1/2016

GENERAL INSTRUCTIONS:

This addendum constitutes part of the specifications and contract. Should conflicts occur between the specifications and the items in the addendum, the addendum shall govern. Bidders shall carefully examine all items and determine for themselves what subcontractors are affected, and notify all bidders or subcontractors of changes, explanations, interpretations, or additions affecting their work. Work described in this addendum shall be in accordance with the specifications for like items unless stated otherwise.

GENERAL:

1. None

RFC'S FOR ADDENDUM #x:

1. Interior Window Schedule on A602 lists Interior Borrow Lights #BL326 and BL365; neither of which can be found on the drawings. The numbering implies they may be on the 3rd Floor? Please confirm if and where they are required.

RESPONSE: This third floor work is no longer part of this project. BL326 and BL365 are to be eliminated from the Interior Window Schedule on A602

2. Door 21 "Porch": Exterior Elevation on A201 refers us to Section 10/A502 Typical. This section shows gauge metal framing & drywall assembly within the opening with an HSS tube steel section across the opening. Is the HSS piece applicable to this masonry opening? It needs vertical posts on either side of the door frame, not shown. Door Schedule on A601 for Door 21 references details 10/A503 for Jamb Detail and 4/A504 for Head Detail. These details show repaired masonry opening with a new galvanized WF beam/plate lintel, no DW. These details seem to conflict on what is done at this opening.

RESPONSE: The detail reference on A201 for section 10/A502 is incorrect at the door location. The details for at the door location should be per the door schedule, details 10/A503 and 4/A504.

3. Door #22, replacement of an existing door at three locations (one at each Stair Tower): the applicable head detail 11/A503 shows installing a new double-angle lintel at each opening and associated masonry repair; the jamb detail 8/A503 and the demo drawings do not indicate the new door is any wider than the existing. Why is a new lintel installed at each opening? Is this required specifically at Stair Tower Doors #22?

RESPONSE: The existing lintel can remain at the stair doors. There is to be new frames and doors at these locations due to hardware changes, so some masonry patching will be required.

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03/01/16

4. Door Schedule A601, Doors #23A & #23B “Closets” are listed as types “A” & “B” stile/rail doors, but as an “SC” not an “MDF”. Please confirm/verify.

RESPONSE: This was a mistake on the drawings. The stile/rail type is correct and these should be listed as a MDF construction.

5. Plan A102-103-104, Linen Closets behind the Residence Toilets: The Plan implies these might be built-in wardrobe units; there is no door number listed at each opening. The referenced interior elevation 10/AI403 (and corresponding section 2/AI411) shows pairs or triples of swinging doors within a HM frame, but there is no center post to hang the inner door leaves. Please clarify, are these doors & frames or millwork/casework? If doors, please provide door schedule info. If Wardrobe Units, please provide casework detail.

RESPONSE: The intention of these is for the Linen closets that are accessed from the corridor will be millwork. See attached drawing SK-2 for revised detail.

6. A103, in Snoezelen Room 240, there is a Closet Door #4. There is no door #4 listed on the door schedule on A601. Please advise.

RESPONSE: Doors to be a pair of 1'-6" doors. Include butt hinges, (2) dummy levers, and (2) roller latches

7. Please provide a specification for the fluid-applied waterproof coating at the porch with grit aggregate. It is not found in Div-7. Is there a certain brand of product and color desired?

RESPONSE: See attached spec. section 07 14 16-Liquid-Applied Waterproofing.

8. Please provide a specification for the self-adhering sheet waterproofing within the thin-brick/rigid insulation assembly. It was not listed in the brick section or in Div-7.

RESPONSE: Provide self-sealing, self-adhering rubberized asphalt membrane backed by a layer of high density cross laminated polyethylene.

9. Partition Types: Plan A103 – the partitions between Corridor C200-11A and (each) Public Toilet #263 and HVAC #260 is tagged “13I”, the remaining partitions in this area are typically “B3I”. There is no continuity of the 1-hour rating. Please verify partition tag.

RESPONSE: This is a mistake on the drawings. Both of these tags should be shown as B3I.

10. Similar situation on Plan A104 outside of Electric #258. On section of partition is tagged “13I”; there is no continuity of rating in this area.

RESPONSE: This is a mistake on the drawings. This tag should be B3I.

11. Spec 095100 indicates special ceiling “ACT-2” is to be installed in Kitchens (and other specific locations). Reflected Ceiling Plans A111, A112, A113 indicate ACT-2 is only in the one cross corridor #C200-2 (and not in the opposing corridor C200-10). It is not shown in Kitchens or other clean areas. Please confirm. In addition, spec indicates “ACT-2” is a 24" x 24" system; the drawings appear to depict a 12" x 12" system. Please confirm.

RESPONSE: ACT-2 indicated within the specification is incorrect. ACT-2 is intended to be a drop-in tin ceiling. Refer to item 16 for spec description.

12. It is shown on the Reflected Ceiling Plan drawings that there are Patient Lifts required, however there is no Spec Section regarding the Patient Lifts. Please supply a Spec.

RESPONSE: Refer to attached drawing SK-1 for track installation. Owner provided vendor to provide track and lift mechanism. Coordinate with vendor for exact unistrut placement.

13. On 1A-502 Detail 10, should the cast-iron rail be sandblasted and powder-coated?

RESPONSE: Per drawing AD101, these are to be removed, sandblasted, repainted and reinstalled after new wall infill is finished.

14. On 1A-502 Detail 4, Pre-Finished Aluminum Louver, is there a preferred manufacture?

RESPONSE: This is a public bid, the expectation is to meet specifications.

15. On AQ-107 there is an "Existing Equipment Schedule" can you please clarify who is responsible for removing and storing the equipment before reinstalling, Owner or GC?

RESPONSE: The VA (owner) will be responsible for removing and storing equipment.

16. On drawing A-112 in reference to the Tin Ceiling, can you please provide spec or manufacture?

RESPONSE: Provide Class A, 2x2 drop-in faux antique look ceiling tiles with metallic finish as selected by Interior Designer.

17. Is there a preferred manufacture for the pre-manufactured Shower Pan?

RESPONSE: This is a public bid, the expectation is to meet specifications and drawings details. Critical element is that it requires a trench drain located at the front edge of the pan.

18. On drawing A1-402 detail 3 for Limestone slab surround, is there a preferred manufacture?

RESPONSE: This is a public bid, the expectation is to meet specifications and drawings details.

19. On drawing A1-405, can you provide further details regarding the Patient Room Headwalls, cut sections, etc.? It doesn't appear to be a pre-manufactured system.

RESPONSE: See attached millwork details SK-3 & SK-4.

SPECIFICATION ITEMS:

Add or Replace the following Specification Sections

1. 05 50 00 Metal Fabrications
2. 06 20 00 Interior Architectural Woodwork
3. 07 14 16 Liquid-Applied Waterproofing
4. 08 12 17 Trim-Applied Steel Door Frames
5. 08 41 10 Aluminum & Glass Folding Panel System

- 6. 08 41 23 Fire Rated Glass & Framing Systems
- 7. 10 31 08 Manufactured Electric Fireplaces

ATTACHMENTS:

- 1. Drawing SK1 “ Patient Lift Track Detail” Dated 3/2/16
- 2. Drawing SK2 “ Linen Closet” Dated 3/2/16
- 3. Drawing SK3 “ Headwall Sections” Dated 3/2/16
- 4. Drawing SK4 “ Headwall Details” Dated 3/2/16

END OF ADDENDUM 1

SECTION 05 50 00
METAL FABRICATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies items and assemblies fabricated from structural steel shapes and other materials as shown and specified.
- B. Items specified.
 - 1. Support for Wall and Ceiling Mounted Items
 - 2. Loose Lintels
 - 3. Mechanical supports

1.2 RELATED WORK

- A. Prime and finish painting: Section 09 91 00, PAINTING.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
- C. Shop Drawings:
 - 1. Each item specified, showing complete detail, location in the project, material and size of components, method of joining various components and assemblies, finish, and location, size and type of anchors.
 - 2. Mark items requiring field assembly for erection identification and furnish erection drawings and instructions.
 - 3. Provide templates and rough-in measurements as required.
- D. Manufacturer's Certificates:
 - 1. Anodized finish as specified.
 - 2. Live load designs as specified.
- E. Design Calculations for specified live loads including dead loads.
- F. Furnish setting drawings and instructions for installation of anchors to be preset into concrete and masonry work, and for the positioning of items having anchors to be built into concrete or masonry construction.

1.4 QUALITY ASSURANCE

- A. Each manufactured product shall meet, as a minimum, the requirements specified, and shall be a standard commercial product of a manufacturer regularly presently manufacturing items of type specified.
- B. Each product type shall be the same and be made by the same manufacturer.

- C. Assembled product to the greatest extent possible before delivery to the site.
- D. Include additional features, which are not specifically prohibited by this specification, but which are a part of the manufacturer's standard commercial product.

1.5 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society of Mechanical Engineers (ASME):
 - B18.6.1-81(R1997).....Wood Screws
 - B18.2.2-87(R2005).....Square and Hex Nuts
- C. American Society for Testing and Materials (ASTM):
 - A36/A36M-05.....Structural Steel
 - A47-99(R2004).....Malleable Iron Castings
 - A48-03.....Gray Iron Castings
 - A53-06.....Pipe, Steel, Black and Hot-Dipped, Zinc-Coated
Welded and Seamless
 - A123-02.....Zinc (Hot-Dip Galvanized) Coatings on Iron and
Steel Products
 - A167-99(R2004).....Stainless and Heat-Resisting Chromium-Nickel
Steel Plate, Sheet and Strip
 - A269-07.....Seamless and Welded Austenitic Stainless Steel
Tubing for General Service
 - A307-07.....Carbon Steel Bolts and Studs, 60,000 PSI Tensile
Strength
 - A312/A312M-06.....Seamless, Welded, and Heavily Cold Worked
Austenitic Stainless Steel Pipes
 - A653/A653M-07.....Steel Sheet, Zinc Coated (Galvanized) or Zinc-
Iron Alloy Coated (Galvannealed) by the Hot-Dip
Process
 - B221-06.....Aluminum and Aluminum-Alloy Extruded Bars, Rods,
Wire, Shapes, and Tubes
 - B456-03.....Electrodeposited Coatings of Copper Plus Nickel
Plus Chromium and Nickel Plus Chromium
 - B632-02.....Aluminum-Alloy Rolled Tread Plate
 - C1107-07.....Packaged Dry, Hydraulic-Cement Grout (Nonshrink)

- F436-07.....Hardened Steel Washers
- F468-06.....Nonferrous Bolts, Hex Cap Screws, and Studs for
General Use
- F593-02.....Stainless Steel Bolts, Hex Cap Screws, and Studs
- F1667-05.....Driven Fasteners: Nails, Spikes and Staples
- D. American Welding Society (AWS):
 - D1.1-04.....Structural Welding Code Steel
 - D1.2-03.....Structural Welding Code Aluminum
 - D1.3-98.....Structural Welding Code Sheet Steel
- E. National Association of Architectural Metal Manufacturers (NAAMM)
 - AMP521-01.....Pipe Railing Manual
 - AMP 500-505-1988.....Metal Finishes Manual
 - MBG 531-00.....Metal Bar Grating Manual
 - MBG 532-00.....Heavy Duty Metal Bar Grating Manual
- F. Structural Steel Painting Council (SSPC):
 - SP 1-05.....No. 1, Solvent Cleaning
 - SP 2-05.....No. 2, Hand Tool Cleaning
 - SP 3-05.....No. 3, Power Tool Cleaning
- G. Federal Specifications (Fed. Spec):
 - RR-T-650E.....Treads, Metallic and Nonmetallic, Nonskid

PART 2 - PRODUCTS

2.1 DESIGN CRITERIA

- A. In addition to the dead loads, design fabrications to support the following live loads unless otherwise specified.
- C. Railings and Handrails: 900 N (200 pounds) in any direction at any point.

2.2 MATERIALS

- A. Structural Steel: ASTM A36.
- B. Stainless Steel: ASTM A167, Type 302 or 304.
- C. Aluminum, Extruded: ASTM B221, Alloy 6063-T5 unless otherwise specified.
For structural shapes use alloy 6061-T6 and alloy 6061-T4511.
- D. Steel Pipe: ASTM A53.
 - 1. Galvanized for exterior locations.
 - 2. Type S, Grade A unless specified otherwise.
 - 3. NPS (inside diameter) as shown.
- E. Primer Paint: As specified in Section 09 91 00, PAINTING.
- F. Modular Channel Units:
 - 1. Factory fabricated, channel shaped, cold formed sheet steel shapes, complete with fittings bolts and nuts required for assembly.

2. Form channel with in turned pyramid shaped clamping ridges on each side.
3. Provide case hardened steel nuts with serrated grooves in the top edges designed to be inserted in the channel at any point and be given a quarter turn so as to engage the channel clamping ridges. Provide each nut with a spring designed to hold the nut in place.
4. Factory finish channels and parts with oven baked primer when exposed to view. Channels fabricated of ASTM A525, G90 galvanized steel may have primer omitted in concealed locations. Finish screws and nuts with zinc coating.
5. Fabricate snap-in closure plates to fit and close exposed channel openings of not more than 0.3 mm (0.0125 inch) thick stainless steel.

K. Grout: ASTM C1107, pourable type.

2.3 HARDWARE

A. Rough Hardware:

1. Furnish rough hardware with a standard plating, applied after punching, forming and assembly of parts; galvanized, cadmium plated, or zinc-coated by electro-galvanizing process. Galvanized G-90 where specified.
2. Use G90 galvanized coating on ferrous metal for exterior work unless non-ferrous metal or stainless is used.

B. Fasteners:

1. Bolts with Nuts:
 - a. ASME B18.2.2.
 - b. ASTM A307 for 415 MPa (60,000 psi) tensile strength bolts.
 - c. ASTM F468 for nonferrous bolts.
 - d. ASTM F593 for stainless steel.
2. Screws: ASME B18.6.1.
3. Washers: ASTM F436, type to suit material and anchorage.
4. Nails: ASTM F1667, Type I, style 6 or 14 for finish work.

2.4 FABRICATION GENERAL

A. Material

1. Use material as specified. Use material of commercial quality and suitable for intended purpose for material that is not named or its standard of quality not specified.
2. Use material free of defects which could affect the appearance or service ability of the finished product.

B. Size:

1. Size and thickness of members as shown.

2. When size and thickness is not specified or shown for an individual part, use size and thickness not less than that used for the same component on similar standard commercial items or in accordance with established shop methods.

C. Connections

1. Except as otherwise specified, connections may be made by welding, riveting or bolting.
2. Field riveting will not be approved.
3. Design size, number and placement of fasteners, to develop a joint strength of not less than the design value.
4. Holes, for rivets and bolts: Accurately punched or drilled and burrs removed.
5. Size and shape welds to develop the full design strength of the parts connected by welds and to transmit imposed stresses without permanent deformation or failure when subject to service loadings.
6. Use Rivets and bolts of material selected to prevent corrosion (electrolysis) at bimetallic contacts. Plated or coated material will not be approved.
7. Use stainless steel connectors for removable members machine screws or bolts.

D. Fasteners and Anchors

1. Use methods for fastening or anchoring metal fabrications to building construction as shown or specified.
2. Where fasteners and anchors are not shown, design the type, size, location and spacing to resist the loads imposed without deformation of the members or causing failure of the anchor or fastener, and suit the sequence of installation.
3. Use material and finish of the fasteners compatible with the kinds of materials which are fastened together and their location in the finished work.
4. Fasteners for securing metal fabrications to new construction only, may be by use of threaded or wedge type inserts or by anchors for welding to the metal fabrication for installation before the concrete is placed or as masonry is laid.
5. Fasteners for securing metal fabrication to existing construction or new construction may be expansion bolts, toggle bolts, power actuated drive pins, welding, self drilling and tapping screws or bolts.

E. Workmanship

1. General:
 - a. Fabricate items to design shown.

- b. Furnish members in longest lengths commercially available within the limits shown and specified.
 - c. Fabricate straight, true, free from warp and twist, and where applicable square and in same plane.
 - d. Provide holes, sinkages and reinforcement shown and required for fasteners and anchorage items.
 - e. Provide openings, cut-outs, and tapped holes for attachment and clearances required for work of other trades.
 - f. Prepare members for the installation and fitting of hardware.
 - h. Fabricate surfaces and edges free from sharp edges, burrs and projections which may cause injury.
2. Welding:
- a. Weld in accordance with AWS.
 - b. Welds shall show good fusion, be free from cracks and porosity and accomplish secure and rigid joints in proper alignment.
 - c. Where exposed in the finished work, continuous weld for the full length of the members joined and have depressed areas filled and protruding welds finished smooth and flush with adjacent surfaces.
 - d. Finish welded joints to match finish of adjacent surface.
3. Joining:
- a. Miter or butt members at corners.
 - b. Where frames members are butted at corners, cut leg of frame member perpendicular to surface, as required for clearance.
4. Anchors:
- a. Where metal fabrications are shown to be preset in concrete, weld 32 x 3 mm (1-1/4 by 1/8 inch) steel strap anchors, 150 mm (6 inches) long with 25 mm (one inch) hooked end, to back of member at 600 mm (2 feet) on center, unless otherwise shown.
 - b. Where metal fabrications are shown to be built into masonry use 32 x 3 mm (1-1/4 by 1/8 inch) steel strap anchors, 250 mm (10 inches) long with 50 mm (2 inch) hooked end, welded to back of member at 600 mm (2 feet) on center, unless otherwise shown.
5. Cutting and Fitting:
- a. Accurately cut, machine and fit joints, corners, copes, and miters.
 - b. Fit removable members to be easily removed.
 - c. Design and construct field connections in the most practical place for appearance and ease of installation.
 - d. Fit pieces together as required.

- e. Fabricate connections for ease of assembly and disassembly without use of special tools.
 - f. Joints firm when assembled.
 - g. Conceal joining, fitting and welding on exposed work as far as practical.
 - h. Do not show rivets and screws prominently on the exposed face.
 - i. The fit of components and the alignment of holes shall eliminate the need to modify component or to use exceptional force in the assembly of item and eliminate the need to use other than common tools.
- F. Finish:
- 1. Finish exposed surfaces in accordance with NAAMM Metal Finishes Manual.
 - 2. Aluminum: NAAMM AMP 501.
 - a. Mill finish, AA-M10, as fabricated, use unless specified otherwise.
 - d. Painted: AA-C22R10.
 - 3. Steel and Iron: NAAMM AMP 504.
 - a. Zinc coated (Galvanized): ASTM A123, G90 unless noted otherwise.
 - 1) All exterior exposed framing to be galvanized.
 - b. Surfaces exposed in the finished work:
 - 1) Finish smooth rough surfaces and remove projections.
 - 2) Fill holes, dents and similar voids and depressions with epoxy type patching compound.
 - c. Shop Prime Painting:
 - 1) Surfaces of Ferrous metal:
 - a) Items not specified to have other coatings.
 - b) Galvanized surfaces specified to have prime paint.
 - c) Remove all loose mill scale, rust, and paint, by hand or power tool cleaning as defined in SSPC-SP2 and SP3.
 - d) Clean of oil, grease, soil and other detrimental matter by use of solvents or cleaning compounds as defined in SSPC-SP1.
 - e) After cleaning and finishing apply one coat of primer as specified in Section 09 91 00, PAINTING.
 - 2) Non ferrous metals: Comply with MAAMM-500 series.
- G. Protection:
- 1. Insulate aluminum surfaces that will come in contact with concrete, masonry, plaster, or metals other than stainless steel, zinc or white

bronze by giving a coat of heavy-bodied alkali resisting bituminous paint or other approved paint in shop.

2. Spot prime all abraded and damaged areas of zinc coating which expose the bare metal, using zinc rich paint on hot-dip zinc coat items and zinc dust primer on all other zinc coated items.

2.5 SUPPORTS

A. General:

1. Fabricate ASTM A36 structural steel shapes as shown.
2. Use clip angles or make provisions for welding hangers and braces to overhead construction.
3. Field connections may be welded or bolted.
4. Provide supports for ceiling hung pilasters at dressing booths and entrance screen to toilet room similar to support for toilet stall pilasters.
5. Provide galvanized finish at exterior locations.

B. For Trapeze Bars:

1. Construct assembly above ceilings as shown and design to support not less than a 340 kg (750 pound) working load at any point.
2. Fabricate trapeze supports as shown, with all exposed members, including screws, nuts, bolts and washers, fabricated of stainless steel.
3. Fabricate concealed components of structural steel shapes unless shown otherwise.
4. Stainless steel ceiling plate drilled for eye bolt.
5. Continuously weld connections where welds shown.
6. Use modular channel where shown with manufacturers bolts and fittings.
 - a. Weld ends of steel angle braces to steel plates and secure to modular channel units as shown. Drill plates for anchor bolts.
 - b. Fabricate eye bolt, special clamp bolt, and plate closure full length of modular channel at ceiling line and secure to modular channel unit with manufacturers standard fittings.

2.6 GUARDS

B. Steel Frames:

1. Form frame from structural steel angles as shown. Where not shown use 63 x 63 x 6 mm (2-1/2 x 2-1/2 x 1/4 inch) angles for frame openings over 1200 mm (4 feet) long and 50 x 50 x 6 mm (2 ix 2 x 1/4 inch) for frame openings less than 1200 mm (4 feet).
2. Fabricate intermediate supporting members from steel "T's" or angles; located to support cover section edges.

3. Where covers are required use steel border bars at frames so that top of cover will be flush with frame and finish floor.
4. Weld steel strap anchors to frame. Space straps not over 600 mm (24 inches) o.c., not shown otherwise between end anchors. Use 6 x 25 x 200 mm (1/4 x 1 x 8 inches) with 50 mm (2 inch) bent ends strap anchors unless shown otherwise.
5. Drill and tap frames for screw anchors where plate covers occur.

C. Steel Bar Gratings:

1. Fabricate grating using steel bars, frames, supports and other members shown in accordance with Metal Bar Grating Manual.
2. Galvanize steel members after fabrication in accordance with ASTM A123, G-90 for exterior gratings, gratings in concrete floors, and interior grating where specified.
3. Interior gratings: Prime paint unless specified galvanized.

2.7 LOOSE LINTELS

- A. Furnish lintels of sizes shown. Where size of lintels is not shown, provide the sizes specified.
- B. Fabricate lintels with not less than 150 mm (6 inch) bearing at each end for nonbearing masonry walls, and 200 mm (8 inch) bearing at each end for bearing walls.
- C. Provide one angle lintel for each 100 mm (4 inches) of masonry thickness as follows except as otherwise specified or shown.
 1. Openings 750 mm to 1800 mm (2-1/2 feet to 6 feet) - 100 x 90 x 8 mm (4 x 3-1/2 x 5/16 inch).
 2. Openings 1800 mm to 3000 mm (6 feet to 10 feet) - 150 x 90 x 9 mm (6 x 3-1/2 x 3/8 inch).
- D. For 150 mm (6 inch) thick masonry openings 750 mm to 3000 mm (2-1/2 feet to 10 feet) use one angle 150 x 90 x 9 mm (6 x 3-1/2 x 3/8 inch).
- E. Provide bearing plates for lintels where shown.
- F. Weld or bolt upstanding legs of double angle lintels together with 19 mm (3/4 inch bolts) spaced at 300 mm (12 inches) on centers.
- G. Insert spreaders at bolt points to separate the angles for insertion of metal windows, louver, and other anchorage.
- H. Where shown or specified, punch upstanding legs of single lintels to suit size and spacing of anchor bolts.

2.8 RAILINGS

- A. In addition to the dead load design railing assembly to support live load specified.
- B. Fabrication General:
 1. Provide continuous welded joints, dressed smooth and flush.

2. Standard flush fittings, designed to be welded, may be used.
3. Exposed threads will not be approved.
4. Form handrail brackets to size and design shown.

C. Handrails:

1. Close free ends of rail with flush metal caps welded in place except where flanges for securing to walls with bolts are shown.
2. Make provisions for attaching handrail brackets to wall, posts, and handrail as shown.

D. Steel Pipe Railings:

1. Fabricate of steel pipe with welded joints.
2. Number and space of rails as shown.
3. Space posts for railings not over 1800 mm (6 feet) on centers between end posts.
4. Form handrail brackets from malleable iron.

E. Ceiling Hatch:

1. Construct hatch with "T" or angle frame designed to support edge of ceiling and hatch, weld to well lining.
2. Form hatch panels of 3 mm (1/8 inch) steel, 5 mm (3/16 inch) aluminum or 1 mm (0.0359 inch) thick steel of pan type construction with 25 mm (one inch) of mineral fiber insulation between.
3. Use counter balance device, hinges, latch, hangers and other accessories required for installation and operation of hatch with not over 90 N (20 pounds) of force.
4. Fabricate panels flush and reinforced to remain flat.
5. Locate hatch panel flush with frame.

F. Finish with baked on prime coat.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set work accurately, in alignment and where shown, plumb, level, free of rack and twist, and set parallel or perpendicular as required to line and plane of surface.
- B. Items set into concrete or masonry.
 1. Provide temporary bracing for such items until concrete or masonry is set.
 2. Place in accordance with setting drawings and instructions.
 3. Build strap anchors, into masonry as work progresses.
- D. Field weld in accordance with AWS.
 1. Design and finish as specified for shop welding.

- E. Install anchoring devices and fasteners as shown and as necessary for securing metal fabrications to building construction as specified. Power actuated drive pins may be used except for removable items and where members would be deformed or substrate damaged by their use.
- F. Spot prime all abraded and damaged areas of zinc coating as specified and all abraded and damaged areas of shop prime coat with same kind of paint used for shop priming.
- G. Isolate aluminum from dissimilar metals and from contact with concrete and masonry materials as required to prevent electrolysis and corrosion.
- H. Secure escutcheon plate with set screw.

3.2 INSTALLATION OF SUPPORTS

- A. Anchorage to structure.
 - 1. Secure angles or channels and clips to overhead structural steel by continuous welding unless bolting is shown.
 - 2. Secure supports to concrete inserts by bolting or continuous welding as shown.
 - 3. Secure supports to mid height of concrete beams when inserts do not exist with expansion bolts and to slabs, with expansion bolts. unless shown otherwise.
 - 4. Secure steel plate or hat channels to studs as detailed.
- C. Supports for Wall Mounted items:
 - 1. Locate center of support at anchorage point of supported item.
 - 2. Locate support at top and bottom of wall hung cabinets.
 - 3. Locate support at top of floor cabinets and shelving installed against walls.
 - 4. Locate supports where required for items shown.

3.3 OTHER FRAMES

- A. Set frame flush with surface unless shown otherwise.
- B. Anchor frames at ends and not over 450 mm (18 inches) on centers unless shown otherwise.
- C. Set in formwork before concrete is placed.

3.4 STEEL LINTELS

- A. Use lintel sizes and combinations shown or specified.
- B. Install lintels with longest leg upstanding, except for openings in 150 mm (6 inch) masonry walls install lintels with longest leg horizontal.
- C. Install lintels to have not less than 150 mm (6 inch) bearing at each end for nonbearing walls, and 200 mm (8 inch) bearing at each end for bearing walls.

3.5 RAILINGS

A. Anchor to Walls:

1. Anchor rails to concrete or solid masonry with machine screws through flanged fitting to steel plate.
 - a. Anchor steel plate to concrete or solid masonry with expansion bolts.
 - b. Anchor steel plate to hollow masonry with toggle bolts.
2. Anchor flanged fitting with toggle bolt to steel support in frame walls.

B. Handrails:

1. Anchor brackets for metal handrails as detailed.
2. Install brackets within 300 mm (12 inches) of return of walls, and at evenly spaced intermediate points not exceeding 1200 mm (4 feet) on centers unless shown otherwise.
3. Expansion bolt to concrete or solid masonry.
4. Toggle bolt to installed supporting frame wall and to hollow masonry unless shown otherwise.

3.6 CLEAN AND ADJUSTING

- A. Adjust movable parts including hardware to operate as designed without binding or deformation of the members centered in the opening or frame and, where applicable, contact surfaces fit tight and even without forcing or warping the components.
- B. Clean after installation exposed prefinished and plated items and items fabricated from stainless steel, aluminum and copper alloys, as recommended by the metal manufacture and protected from damage until completion of the project.

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SECTION 06 20 00
INTERIOR ARCHITECTURAL WOODWORK

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 the following:
 - 1. Interior standing and running trim.
 - 2. Plastic-laminate cabinet boxes.
 - 3. Hardwood cabinet doors.
 - 4. Solid-surfacing-material countertops.
 - 5. Solid-surface sills.
 - 6. Solid-surface vanity tops with integral sinks.
 - 7. Closet and utility shelving.
 - 8. Shop finishing of interior woodwork.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.

1.3 DEFINITIONS

- A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

1.4 SUBMITTALS

- A. Product Data: For panel products high-pressure decorative laminate solid-surfacing material cabinet hardware and accessories finishing materials and processes.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 2. Show locations and sizes of cutouts and holes for plumbing fixtures faucets and other items installed in architectural woodwork.
- C. Samples for Initial Selection:
 - 1. Shop-applied transparent finishes.
 - 2. Shop-applied opaque finishes.
 - 3. PVC edge material.

- D. Samples for Verification:
 - 1. Lumber with or for transparent finish, not less than 50 sq. in.(300 sq. cm), for each species and cut, finished on 1 side and 1 edge.
- E. Product Certificates: For each type of product, signed by product manufacturer.
- F. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- G. Qualification Data: For fabricator.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.
- B. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
- C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.

1.8 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring,

reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Species and Cut for Transparent Finish: Maple, plain sliced or as otherwise noted.
- C. Wood Species for Opaque Finish: Any closed-grain hardwood .
- D. Wood Products: Comply with the following:
 - 1. Hardboard: AHA A135.4. Tempered hardboard, smooth 2 sides (2S2).
 - 2. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
 - 3. Particleboard: ANSI A208.1, Grade M-2.
 - 4. Softwood Plywood: DOC PS 1.
 - 5. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1.
 - a. Veneer core, APA rated, A-A. For use at counter supports and where noted.
- E. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
 - 1. Provide PVC or polyester edge banding complying with LMA EDG-1 on components with exposed or semiexposed edges.
- F. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
- G. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with ISSFA-2.
 - 1. Type: Standard type, unless Special Purpose type is indicated.

2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this Article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified.
 - 1. Do not use treated materials that do not comply with requirements of referenced woodworking standard or that are warped, discolored, or otherwise defective.
 - 2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
 - 3. Identify fire-retardant-treated materials with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable

to authorities having jurisdiction.

- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Comply with performance requirements of AWPA C20 (lumber) and AWPA C27 (plywood). Use the following treatment type:
1. Interior or Exterior Type: Organic-resin-based formulation thermally set in wood by kiln drying.
 2. Interior Type A: Low-hygroscopic formulation.
 3. Kiln-dry materials before and after treatment to levels required for untreated materials.

2.3 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 8 Section "Door Hardware (Scheduled by Naming Products)."

- B. Cabinet Hardware Schedule:

ITEM	MODEL	FINISH
Hinges	35mm dia. cup style, diecast, grade 1, overlay institutional hinge	nickel plated
Drawer Slides	100# ¾ extension roller slide.	Standard
Door and Drawer Pulls	4" 3 ¾" decorative pull. \$5.00 Allowance per pull.	TBD
Cabinet Locks	7/8" x 2"	Polished Nickel
Grommets	3" Diameter	Black
Adjustable Shelf Pins	Plastic locking wing shelf support	Clear
Metal Counter Supports	24" x 29" x 1/8" thick	Black powder coat

2.4 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- B. Adhesive for Bonding Plastic Laminate: Woodworker's option.
1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.5 FABRICATION, GENERAL

- A. Interior Woodwork Grade: As shown on details and elsewhere in the specifications, but no less than AWI Custom Grade.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.

- D. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 - 1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members 3/4 Inch(19 mm) Thick or Less: 1/16 inch(1.5 mm).
 - 2. Edges of Rails and Similar Members More Than 3/4 Inch(19 mm) Thick: 1/8 inch(3 mm).
 - E. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - 1. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
 - F. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 - 1. Seal edges of openings in countertops with a coat of varnish.
 - G. Install glass to comply with applicable requirements in Division 8 Section "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.
- 2.6 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH
- A. Grade: Custom.
 - B. Wood Species and Cut: Match species and cut indicated for other types of transparent-finished architectural woodwork located in same area of building, unless otherwise indicated.
 - C. For trim items wider than available lumber, use veneered construction. Do not glue for width.
 - D. For rails wider or thicker than available lumber, use veneered construction. Do not glue for width or thickness.
 - E. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
 - F. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- 2.7 INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH
- A. Medium Density Fiberboard (MDF) product
 - B. ANSI Standard A208.2 Compliant.
 - 1. Density: 39 lbs.

2. Internal Bond: 100 psi
3. Face Screw Withdrawal: 225 lbs.
4. Edge Screw Withdrawal: 200 lbs.

- C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- D. Assemble casings in plant except where limitations of access to place of installation require field assembly.

2.8 PLASTIC-LAMINATE CABINETS

- A. Grade: As shown on details and elsewhere in the specifications, but no less than AWI Custom Grade.
- B. AWI Type of Cabinet Construction: Flush overlay.
- C. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
1. Horizontal Surfaces Other Than Tops: Grade HGS.
 2. Postformed Surfaces: Grade HGP.
 3. Vertical Surfaces: Grade HGS.
 4. Edges: Grade HGS or, if available and approved by the architect PVC edge banding, 0.12 inch(3 mm) thick, matching laminate in color, pattern, and finish per details..
- D. Materials for Semiexposed Surfaces:
1. Surfaces Other Than Drawer Bodies: Thermoset decorative panels.
 2. Drawer Sides and Backs: Drawer body to be 3/4" poplar faced on all surfaces with melamine. .
 3. Drawer Bottoms: Drawer bottom to be 1/4" melamine faced veneer core panel, 1/2" where noted. .
- E. Concealed Backs of Panels with Exposed Plastic Laminate Surfaces: High-pressure decorative laminate, Grade BKL.
- F. Provide tops and bottoms on all fillers and open corners of wall hung and full height cabinets. Delete tops when cabinets are installed with drywall or plastic Laminate soffits.
- G. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. As selected by Architect from laminate manufacturer's full range in the following categories: See color schedule.
 - a. Solid colors, matte finish.
 - b. Wood grains, matte finish.
 - c. Patterns, matte finish.

2.9 HARDWOOD CABINET DOORS

- A. Solid hardwood style and rail doors with mortise and tenon construction to be installed to plastic laminate cabinet box.
1. Species to be Maple
 2. Style as indicated on drawings.
 3. All doors are to be prefinished at the factory or fabricators

shop with stain selection by Architect from manufacturer's standard stain selection.

2.10 PLASTIC-LAMINATE COUNTERTOPS

- A. Grade: As shown on details and elsewhere in the specifications, but no less than AWI Custom Grade. .
- B. High-Pressure Decorative Laminate Grade: HGS or HGP at postformed countertops..
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As selected by Architect from manufacturer's full range in the following categories: See color schedule.
 - a. Solid colors, matte finish.
 - b. Wood grains, matte finish.
 - c. Patterns, matte finish.
- D. Grain Direction: Parallel to cabinet fronts.
- E. Edge Treatment: As indicated.
- F. Core Material: Particleboard .
- G. Core Material at Sinks: Particleboard made with exterior glue or exterior-grade plywood.
- H. Backer Sheet: Provide plastic-laminate backer sheet, Grade BKL, on underside of all countertops.

2.11 QUARTZ SURFACE-MATERIAL COUNTERTOPS

- A. Material:
 - 1. Homogeneous quartz surfaces material.
 - 2. Material shall have minimum physical and performance properties specified.
- B. Thickness:
 - 1. 2 cm (3/4").
 - 2. 3 cm (1 1/8").
- C. Edge treatment:
 - 1. As indicated.
- D. Seam width:
 - 1. <1/8" unless otherwise specified.
- E. Sink mounting:
 - 1. Undermount.
 - 2. Drop in.
- F. Backsplash:
 - 1. Applied.
- G. Endsplash:

1. Applied.

Property	Typical Result	Test Procedure
Flexural Strength	>5,300 psi	ASTM D 790
Flexural Modulus	5.3-5.7E6 psi	ASTM D 790
Flexural Elongation	>0.1%	ASTM D 790
Compression Strength (Dry)	27,000 psi	ASTM C 170
Compression Strength (Wet)	24,000 psi	ASTM C 170
Hardness	7	Mohs' Hardness Scale
Thermal Expansion	1.45 x 10 ⁻⁵ in./in./°C	ASTM D 696
Gloss (60° Gardner)	45-50	ANSI Z 124
Colorfastness	Passes	ANSI Z 124.6.5.1
Wear and Cleanability	Passes	ANSI Z 124.6.5.3
Stain Resistance	Passes	ANSI Z 124.6
(stain 5.2, chemical 5.5, cigarette 5.4 resistances)		
Fungal and Bacterial Resistance	No growth	ASTM G 21 & G 22
High Temperature Resistance (356°F)	None to slight effect	NEMA LD 3.3.6*
Boiling Water Resistance	None to slight effect	NEMA LD 3.3.5*
Freeze-Thaw Cycling	Unaffected	ASTM C 1026
Point Impact	Passes	ANSI Z 124.6.4.2
Ball Impact	164 inches	NEMA LD 3.3.8*
Slip Resistance	Above 0.80 for textured models	ASTM C 1028
Static Coefficient of Friction (as received)	0.89/0.61 (wet/dry)	ASTM C 1028
Static Coefficient of Friction (with renovator)	0.87/0.65 (wet/dry)	ASTM C 1028
Abrasion Resistance	139	ASTM C 501
Specific Gravity	2.44	ASTM D 792
Density		~2400 kg/m ³
Water Absorption	0.12%	ASTM C 373
Long- and Short-Term	<0.04%	ASTM D 570
Moisture Expansion	<0.01% on average	ASTM C 370
Toxicity	Passes, LC50=68-128	Pittsburgh Protocol
Flammability	For all colors tested	ASTM E 84,
UL 723		
(Class I and Class A)		and NFPA 255
Flame Spread Index	FSI <10 for 3 cm and <15 for 2 cm	
Smoke Developed Index	SDI <50 for 3 cm and <100 for 2 cm	
Nominal Thickness		2 cm and 3 cm
Nominal Weight		10 lb./ft. ² (2 cm)
15 lb./ft. ² (3 cm)		

* NEMA results based on the NEMA LD 3-2000

2.12 SOLID-SURFACING-MATERIAL COUNTERTOPS

- A. Grade: Custom.
- B. Solid-Surfacing-Material Thickness: As indicated.
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
 1. See Color Schedule.
- D. Fabricate tops in one piece, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
 1. Fabricate tops with shop-applied edges of materials and

configuration indicated.

2. Fabricate tops with shop-applied backsplashes.

E. Install integral sink bowls (where shown) in countertops in shop.

F. Drill holes in countertops for plumbing fittings and soap dispensers in shop.

2.13 SHOP FINISHING

A. Grade: Provide finishes of same grades as items to be finished.

B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.

C. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

1. Back priming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require back priming when surfaced with plastic laminate, backing paper, or thermoset decorative panels.

D. Transparent Finish:

1. Grade: Custom.

2. AWI Finish System: Catalyzed polyurethane.

3. Staining: Match Architect's sample.

4. Wash Coat for Stained Finish: Apply wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.

5. Filled Finish for Open-Grain Woods: After staining (if any), apply paste wood filler to open-grain woods and wipe off excess. Tint filler to match stained wood.

a. Apply wash-coat sealer after staining and before filling.

6. Sheen: Satin, 31-45 gloss units measured on 60-degree gloss meter per ASTM D 523.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and back priming.

3.2 INSTALLATION

A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.

- B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches(3 mm in 2400 mm).
- D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- F. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation.
- G. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- H. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 96 inches(2400 mm) long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.
 - 1. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base if finished.
 - 2. Install wall railings on indicated metal brackets securely fastened to wall framing.
 - 3. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches(3 mm in 2400 mm).
- I. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch(3 mm in 2400-mm) sag, bow, or other variation from a straight line.
 - 2. Maintain veneer sequence matching of cabinets with transparent finish.
 - 3. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches(400 mm) o.c. with No. 10 wafer-head screws sized for 1-inch(25-mm) penetration into wood framing, blocking, or hanging strips toggle bolts through metal backing or metal framing behind wall finish.
- J. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints

- smooth, remove surface scratches, and clean entire surface.
2. Install countertops with no more than 1/8 inch in 96-inch(3 mm in 2400-mm) sag, bow, or other variation from a straight line.
 3. Secure backsplashes to tops with concealed metal brackets at 16 inches(400 mm) o.c. and to walls with adhesive.
 4. Set back splashes in silicone sealant. Calk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."
- K. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.
- L. Refer to Division 9 Sections for final finishing of installed architectural woodwork not indicated to be shop finished.
- 3.3 ADJUSTING AND CLEANING
- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
 - B. Clean, lubricate, and adjust hardware.
 - C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

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SECTION 07 14 16
LIQUID-APPLIED FULLY-REINFORCED WATERPROOFING SYSTEM

PART 1 GENERAL

1.01 SYSTEM DESCRIPTION

- A. The following specification outlines the requirements for a fully reinforced, cold fluid-applied, (PMMA) methyl-methacrylate liquid resin fountain waterproofing membrane with textured surfacing and all other ancillary waterproofing work including but not limited to, installation of drains, pipe flashings, penetration flashings, sealants and metal work as specified.

1.02 SECTION INCLUDES

- A. Adhered fully reinforced cold fluid-applied (PMMA) methyl-methacrylate liquid resin waterproofing system including, membrane, penetration flashings, base flashings, and expansion joints.
- B. Substrate preparation, cleaning, leveling and patching
- C. Temporary waterproofing and priming
- D. Wearing/surfacing layer

1.03 SUBMITTALS FOR REVIEW

- A. Membrane System Product Data: Provide current standard printed product literature indicating characteristics of membrane materials, flashing materials, components, and accessories product specification and installation.
- B. Submit sample copies of both the Manufacturer and Applicator warranties for the periods stipulated. Each specimen must be a preprinted representative sample of the issuing company's standard warranty for the system specified.
- C. Submit copies of current Material Safety Data Sheets (MSDS) for all components of the work.

1.04 QUALITY ASSURANCE

- A. Membrane Manufacturer: Company specializing in manufacturing fully reinforced, cold fluid-applied liquid resin waterproofing membrane products as specified in this section with a minimum of five (5) years of documented applications in the United States. Membrane Manufacturer shall submit the following certifications for review:
- B. Applicator: Company specializing in performing the work of this section with (3) years documented experience and approved by system manufacturer for warranted membrane installation. Applicator shall submit the following certification for review:
 - 1. Applicator shall submit documentation from the membrane manufacturer to verify contractor's status as an approved applicator for warranted installations.

1.05 REGULATORY REQUIREMENTS

- A. Conform to applicable building and jurisdictional codes for balcony

waterproofing assembly and fire resistance requirements.

- B. Comply with requirements of OSHA, NIOSH or local governing authority for work place safety.
- C. Comply with authority or agency "Confined Space Policy" during and throughout all work to be performed.

1.06 PRE-INSTALLATION MEETING

- A. Convene a pre-installation meeting at the job site (1) week before starting work of this section. Require attendance of parties directly affecting work of this section, including but not limited to, Architect, Owner's Representative, Waterproofing Contractor, and Membrane Manufacturer's Representative. Review waterproofing preparation and installation procedures, coordination and scheduling required with related work, and condition and structural loading limitations of deck/substrate.

1.07 FIELD INSPECTION SERVICES

- A. Manufacturer's technical representative shall provide the following inspections of the membrane application:
 - 1. Job start inspection at the beginning of each phase of the project, to review special detailing conditions and substrate preparation.
 - 2. Final punch-list inspection at the completion of each phase of the project prior to installation of any surfacing or overburden materials.

1.08 DELIVERY, STORAGE, AND PROTECTION

- A. The Contractor together with the Owner or his designated Representative shall define a storage area for all components. The area shall be cool, dry, out of direct sunlight, and in accordance with manufacturer's recommendations and relevant regulatory agencies. Materials shall not be stored in quantities that will exceed design loads, damage substrate materials, hinder installation or drainage.
- B. Store solvent-bearing solutions, resins, additives, inhibitors or adhesives in accordance with the MSDS and/or local fire authority. After partial use of materials replace lids promptly and tightly to prevent contamination.
- C. Roll goods shall be stored horizontally on platforms sufficiently elevated to prevent contact with water and other contaminants. DO NOT use rolls that are wet, dirty or have damaged ends.
- D. Waterproofing materials must be kept dry at all times. If stored outside, raise materials above ground or roof level on pallets and cover with a tarpaulin or other waterproof material. Plastic wrapping installed at the factory should **not** be used as outside storage covers.
- E. Follow manufacturer's directions for protection of materials prior to and during installation. Do not use materials that have been damaged to the point that they will not perform as specified. Fleece

reinforcing materials must be clean, dry and free of all contaminants.

- F. Copies of all current MSDS for all components shall be kept on site. Provide any and all crew members with appropriate safety data information and training as it relates to the specific chemical compound he or she may be expected to deal with. Each crew member shall be fully aware of first-aid measures to be undertaken in case of incidents. Comply with requirements of OSHA, NIOSH or local governing authority for work place safety.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply waterproofing membrane during or with the threat of inclement weather.
- B. Application of cold fluid-applied reinforced (PMMA) methyl-methacrylate waterproofing membrane may proceed while air temperature is between 23°F (-5°C) and 95°F (35°C) providing the substrate is a minimum of 5°F above the dew point.
- C. When ambient temperatures are at or expected to fall below 32°F (0°C), or reach 86°F (30°C) or higher, follow Membrane System Manufacturer's recommendations for weather related application procedures.
- D. Ensure that substrate materials are dry and free of contaminants. DO NOT commence with the application unless substrate conditions are suitable. Contractor shall demonstrate that substrate conditions are suitable for the application of the materials.
- E. Where required by the Owner or his designated Representative, Contractor shall implement odor control and elimination measures prior to and during the application of the waterproofing materials. Control/elimination measures shall be field tested at off-hours and typically consists of one (1) or a multiple of the following measures:
 - 1. Sealing of air intakes with activated carbon filters. Install filters in accordance with requirements and recommendations of the filter manufacturer. Seal filters at joints and against building exterior walls to prevent leakage of unfiltered air where required due to size of intake opening. Provide track system to secure filters.
 - 2. Erection and use of moveable enclosure(s) sized to accommodate work area(s) and stationary enclosure for resin mixing station. Enclosure shall be field constructed or pre-manufactured of fire retardant materials in compliance with local code requirements in accordance with requirements of the Owner or his designated Representative. Equipment enclosure(s) with mechanical air intake/exhaust openings and Odor Control Air Cleaners, as required to clean enclosed air volume and to prevent odor migration outside the enclosure. Exhaust opening shall be sealed with activated carbon filter.
 - 3. Placement of odor elimination stations inside and outside of the enclosure(s) as required by field condition, in coordination with the Owner or his designated Representative.

4. Protection of Contractor personnel and occupants of the structure and surrounding buildings as necessary to comply with requirements of OSHA, NIOSH and/or governing local authority.
5. When disposing of all refuse or unused materials, observe all EPA, OSHA or local disposal requirements.

1.10 COORDINATION & PROTECTION

- A. Coordinate the work with the installation of associated metal flashings, accessories, appurtenances, etc. as the work of this section proceeds.
- B. Building components shall be protected adequately (with tarp or other suitable material) from soil, stains, or spills at all hoisting points and areas of application. Contractor shall be responsible for preventing damage from any operation under its Contract. Any such damage shall be repaired at Contractor's expense to Owner's satisfaction or be restored to original condition.
- C. Provide barricades, retaining ropes, safety elements (active/passive) and any appropriate signage required by OSHA, NIOSH, and NSC and/or the Owner or designated Representative.
- D. Protect finished waterproofing membrane from damage by other trades. Do not allow waste products containing petroleum, grease, acid, solvents, vegetable or mineral oil, animal oil, animal fat, etc. or direct steam venting to come into direct contact with the membrane.

1.11 WARRANTY

- A. Manufacturer's Standard Warranty: Provide ten year standard manufacturer's material warranty under provisions of this section.
- B. Waterproofing Contractor's Warranty: Provide 2 year "Applicator Maintenance Warranty" covering workmanship for all work of this section including installation of membrane, flashings, metal work, and waterproofing accessories.
- C. Submit (2) executed copies of both the manufacturer and applicator warranties for the periods stipulated, starting from the date of substantial completion. Each warranty must be signed by an authorized representative of the issuing company.

1.12 MATERIAL SUBSTITUTIONS

- A. Materials proposed for use in the performance of the work that are not specified herein must be submitted to the Owner/Owner's Representative for evaluation no later than ten days prior to bid.

PART 2 PRODUCTS

2.01 GENERAL

- A. The products herein specified are totally pre-engineered products of the listed manufacturer and establish criteria for the approval of substitutions. Products must be part of a pre-engineered system, equivalent in function, quality, composition and method of application to be considered for approval as an "Approved

Substitute". Substitute materials must meet or exceed the physical performance characteristics of the specified materials. Unsaturated polyesters or single and two component urethane resin systems will not be accepted.

2.02 FIELD MEMBRANE

A. Field Membrane: Two-component, with catalyst, cold fluid-applied (PMMA) methyl-methacrylate waterproofing membrane reinforced with weave polyester, for a finished nominal dry film membrane thickness of .080 inch per ply. Provide products manufactured and supplied by the following: **LOW SMELL**

1. Waterproofing Membrane: rapid-curing, polymethacrylate (PMA) liquid resin for use in a fully adhered waterproofing membrane system.

B. Physical Properties:

Property	Value	Test Method
Color	Pebble Gray	-
Physical state	(Liquid) Cures to solid	-
Nominal thickness	115 mils	-
Tensile strength @ break	> 1200 psi	ASTM D-412
Elongation	> 62%	ASTM D-412
Tear resistance	>1100 lbf	ASTM D-624
Water vapor transmission	0.45 Perms	ASTM E-96
Water absorption	< 1%	ASTM D-570
Impact resistance	Shore A 85	ASTM D-2240
Usage time*	15-20 minutes	-
Rainproof after*	30 minutes	-
Solid to walk on after*	1 hour	-
Solid to drive on with air rubber tires after*	3 hours	-
Overburden may be applied after	3 hours	-
Completely hardened after	3 hours	-
Crack spanning	2mm/0.08 inch	-
Resistance to temperatures up to (short term)	250°C/482°F	-
*All times are approximate and depend upon wind, humidity and temperature.		

2.03 PRIMERS

A. Supplied by membrane manufacturer; two-component, primer for use in improving adhesion of membrane to substrate surfaces.

1. Rapid curing, polymethyl methacrylate (PMMA) primer.

2.05 SURFACE

A. Textured Surfacing: Two-component, with catalyst, cold fluid-applied (PMMA) methyl methacrylate resin, with pre-mixed grain, surface finish.

1. Textured Finish resin for use as a surface finish in reinforced systems.

2. Color Pack is added to the Textured Finish resin to provide color.

2.06 REINFORCEMENT

- A. Reinforcing Fleece: Non-woven, needle-punched polyester weave fabric reinforcement.
 - 1. Fleece used to improve tear strength, puncture resistance, flexural fatigue and crack bridging capabilities while maintaining membrane uniformity.
 - a. Color: White
 - b. Nominal thickness: 40 mils
 - c. Weight: 110 g/m²
 - d. Tensile Strength @ break (N/50mm): ≥ 130 MD / 150 CMD
 - e. Elongation (%): ≥ 50 MD / 70 CMD
 - e. Tear Resistance: 20>daN
 - f. Puncture Resistance: 24>daN
 - g. Water absorption (%): <1

2.07 ACCESSORIES

- A. Tools, Accessories, and Cleaners: Supplied and/or approved by membrane manufacturer for product installation.
- B. Strip in membrane shall be a min 40 mil self-adhered membrane.
- C. Caulking: Single component, non-sag elastomeric polyurethane sealant, as recommended and supplied by membrane manufacturer for use in making airtight and watertight seals where required.
- D. Miscellaneous Fasteners: Appropriate for purpose intended and approved by fastener manufacturer; length required for thickness of material [with metal washers]; as supplied and approved by membrane manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck/substrate openings, curbs, and protrusions through deck/substrate, wood cant strips and reglets are in place and solidly set.
- C. Verify deck/substrate is structurally supported, secure and sound.

3.02 PREPARATION OF SUBSTRATE

- A. General: All existing waterproofing materials are to be removed down to the structural deck.
- B. Surfaces to be prepared as a substrate for the new waterproofing system as follows:

1. The contractor shall determine the condition of the existing structural deck/substrate. All defects in the deck or substrate shall be corrected before new waterproofing work commences. Areas of deteriorated deck/substrate, porous or other affected materials must be removed and replaced with new to match existing.
2. Prepare flashing substrates as required for application of new waterproofing membrane flashings.
3. Inspect substrates, and correct defects before application of new waterproofing. Fill all surface voids greater than 1/8 inch wide with an acceptable fill material.
4. Remove all ponded water, snow, frost and/or ice from the work substrate prior to installing new waterproofing materials.
5. The final substrate for waterproofing shall be clean, dry, free of loose, spalled or weak material including coatings, mineral aggregate, and flood coat/gravel surfacing, oil, grease, contaminants, abrupt changes in level, waterproofing agents, curing compounds, and free of projections which could damage membrane materials.

C. Concrete:

1. New concrete shall have cured a minimum of 28 days in accordance with ACI-308, or as approved by Waterproofing Manufacturer's Technical Department.
2. New or existing concrete shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, bituminous products and previous waterproofing materials.
3. New or existing concrete shall be dry with a maximum moisture content of six (6) percent and ninety-six (96) percent relative humidity. Determinations of moisture content shall be performed by the Contractor. Contractor shall be responsible to perform periodic evaluations of moisture content during the work. Moisture evaluation results shall be submitted in writing to the Owner or his designated Representative and Waterproofing manufacturer for acceptance.
4. Where required, concrete shall be abrasively cleaned in accordance with ASTM D4259 to provide a sound substrate free from laitance. Achieve an open concrete surface in accordance with ICRI surface profiles CSP 3-5. When using mechanical methods to remove existing waterproofing products or surface deterioration, the surface profile is not to exceed ¼ inch (peak to valley).
5. The substrate shall be sound and all spalls, voids and blow holes on vertical or horizontal surfaces must be repaired prior to placement of the primer coat. Ensure all uneven areas are leveled using cementitious or other suitable materials. Repairs are to be done in accordance with the requirements of the Owner or his designated Representative and approved by the Membrane manufacturer.

6. Areas of minor surface deterioration of 0.25" (6 mm) or greater in depth shall be repaired to prevent possible ponding of the system, leading to excessive usage of primer and resin.
7. Extent and location of thin surface patching shall require approval of the Owner or his designated Representative and Waterproofing Manufacturer prior to the application of any system component.
8. For concrete materials with a compressive strength of less than 3,500 psi contact Waterproofing Manufacturer's Technical Department for substrate preparation requirements.

3.03 PRIMER APPLICATION

A. General:

1. Mix and apply two-component PMMA primer in strict accordance with written instructions of Membrane Manufacturer. Use only proprietary materials, as supplied by the membrane manufacturer.
2. The substrate surface must be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum, cloth wipe or a combination of methods.
3. Do not install primer on any substrate containing newly applied and/or active asphalt, coal-tar pitch, creosote or penta-based materials unless approved in writing by Membrane Manufacturer. Some substrates may require additional preparation before applying primer.

3.04 LIQUID MEMBRANE APPLICATION

A. General:

1. Mix and apply cold fluid-applied reinforced (PMMA) methyl-methacrylate waterproofing membrane in strict accordance with written instructions of Membrane Manufacturer. Use only proprietary membrane resins and materials, as supplied by the membrane manufacturer.
2. The primed substrate surface shall be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum, cloth-wipe or a combination.
3. Two-part (PMMA) methyl-methacrylate resins cure most quickly and completely when exposed to UV light. For concealed and/or interior applications where exposure to natural UV light cannot be obtained, exposure to a UV light source or a supplemental source of hot air blown over the membrane surface will improve membrane cure.
4. Protect all areas where membrane has been installed. Do not work off installed membrane during application of remaining work before three (3) hours of curing. Movement of materials and equipment across installed membrane is not acceptable. If movement is necessary, provide complete protection of affected areas.

5. Closely follow the Membrane Manufacturer's recommendation for hot and cold weather application. Monitor surface and ambient temperatures, including the effects of wind chill.

B. Mixing of Resin:

1. Mix resin with a spiral agitator for a minimum of 2 minutes until the liquid has a uniform color.
2. Add the pre-measured Catalyst Powder to resin and mix with the same agitator for 2 minutes or until the powder is completely mixed. The catalyst is completely dissolved when there are no white specs remaining.

C. Application of Resin/Fleece

1. Apply mixed resin to the prepared surface at the approximate rate of 0.19 kg/sf (2.0 kg/m²). The resin should be rolled or brushed liberally and evenly onto the surface using a broad, even stroke. Cover one working area at a time, between 15 - 20 ft.² (1.4 - 1.9 m²).
2. Roll out dry polyester fleece onto the liquid resin mix, making sure the SMOOTH SIDE IS FACING UP (natural unrolling procedure), avoiding any folds and wrinkles. The fleece will begin to rapidly saturate with the liquid resin mix. Use a medium nap roller or brush to work the resin into the fleece, saturating from the bottom up, and eliminating air bubbles, wrinkles, etc. The appearance of the saturated fleece should be light opaque amber with no white spots. White spots are indications of unsaturated fleece or lack of adhesion. It is important to correct these faults before the resin cures.
3. Apply additional liquid resin mix on top of fleece at the approximate rate of 0.12 kg/sf (1.3 kg/m²) to finish the saturation of the fleece. Roll this final coating into the fleece, which will result in a glossy appearance. The fleece can only hold so much resin and all excess should be rolled forward to the unsaturated fleece, eliminating ponding or excessive build-up of the resin. Any excess resin left on the top of the fleece will weather and peel off. The correct amount of resin will leave no whiteness in fleece and there will be a slightly fibrous surface texture. The final resin coating should be smooth and uniform.
4. Prevent contact between mixed/unmixed resin and new/existing membrane. If any unmixed resin contacts membrane surface remove immediately and clean thoroughly with a cloth rag.
5. At all fleece seams, allow a 2" (5 cm) overlap for all side joints and a 4" (10 cm) overlap for all end joints.
6. At membrane tie-offs, clean in-place membrane with Alsan RS Cleaner once resin has cured. Allow cleaner to fully evaporate before application of new resin.
7. Alsan RS 260 Field resin is alkalinity resistant. Additional bond/wearing layer consisting of one application of Alsan RS 230 Field on horizontal surfaces and one application of approved broadcast mineral aggregate surfacing shall be applied wherever stone, concrete, or masonry elements will be placed

directly over the flashing.

D. Disposal of Resin:

1. Cured resin may be disposed of in standard landfills. This is accomplished by thoroughly mixing resins with Catalyst Powder.
2. Uncured resin is considered a hazardous material and must be handled as such, in accordance with local, state and federal regulation. Do not throw uncured resin away.

3.06 SURFACING

A. Slip-Resistant Finish Surfacing

1. Directly on waterproofing mermbrane, provide and install Membrane Manufacturer's approved two-component (PMMA) methyl-methacrylate based colored textured finish surfacing coating over all clean fully cured membrane including the vertical flashings.
2. Premix all resins thoroughly for approximately 2 minutes with a clean spiral agitator on slow speed or stir stick without creating any bubbles or streaks until material is consistent in color.
3. Add the pre-measured Catalyst Powder to resin and mix with the same agitator for 2 minutes or until the powder is completely mixed. The catalyst is completely dissolved when there are no white specs remaining.
4. As required apply Textured Finish mixed with the selected Alsan RS Color Pack at a minimum rate of approximately 0.19 kg/sf (2.0 kg/m²). Product shall be applied with a smoothing trowel and/or lambswool roller to achieve a uniform surface. Avoid any traffic for a minimum of one (1) hour to allow for coating to cure.

3.07 TEMPORARY CLOSURES & WATERSTOPS

- A. Contractor shall be responsible to ensure that moisture does not damage any completed section of the new waterproofing system. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition. All temporary closures shall be made as recommended or required by the membrane manufacturer.

3.08 PROTECTION

- A. Upon completion of waterproofing and flashings (including all associated work), institute appropriate procedures for surveillance and protection of waterproofing during remainder of construction period. Protect all areas where membrane has been installed.

3.09 CLOSEOUT

A. Correction of Work:

1. Work that does not conform to specified requirements including tolerances, slopes, and finishes shall be corrected and/or replaced. Any deficiencies of membrane application, termination and/or protection as noted during the Membrane Manufacturer's inspections shall be corrected and/or replaced at Contractor's expense.

A. Clean-Up:

1. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to preconstruction condition.

END OF SECTION

SECTION 08 12 17

TRIM-APPLIED STEEL DOOR FRAMES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work under this section shall include the furnishing of all items shown on the drawings and as specified, including but not limited to, the following:

1. Knocked down, site assembled pre-finished steel door frames

1.02 RELATED SECTIONS

- A. Section 08 11 13 - Hollow Metal Doors and Frames
- B. Section 08 12 16 - Aluminum frames
- C. Section 08 14 33 - Stile and Rail MDF Doors
- D. Section 08 71 00 - Hardware
- E. Section 08 80 00 - Glazing

1.03 REFERENCES

- A. ASTM A1008M - Standard for cold rolled steel material
- B. UBC 7-2-97, UBC 7-4-97 Positive Pressure Fire Test Certification.
- C. UL 10B Fire test of Door Assemblies and UL10C Standard for Positive Pressure Fire Tests of Door Assemblies
- D. NFPA 80 - Fire Doors and Windows (Latest Edition)
- E. NFPA-101 - Life Safety Codes (Latest Edition)
- F. ASTM D2197 - Standard Test Method for Adhesion of Organic Coatings by Scrape Adhesion.
- G. ASTM D2247 - Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
- H. ASTM D2794 - Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- I. ASTM D3361 - Standard Practice for Unfiltered Open-Flame Carbon-Arc exposures of Paint and Related Coatings.
- J. ASTM B117 - Standard test for salt spray testing

1.04 SUBMITTALS

- A. Product Data: Indicate frame material, gage, configuration and finishes.
- B. Shop Drawings: Indicate frame elevations, details of frame anchorage, reinforcements required, rough opening requirements, location of hardware embosses and finishes. Detail each floor of the building separately.
- C. Samples: Submit 3 standard frame samples, illustrating factory finished frame colors.

- D. Manufacturer's Installation Instructions: Provide installation instructions for all products under this section.
- E. Manufacturer's Certificate of Warranty: (See Section 01 78 36) Provide manufacturer's standard warranty certificate stating material is warranted for a period of one year from date of building occupancy

1.05 QUALITY ASSURANCE

- A. Quality Standards
 - 1. Material free from defects in material and according to project specifications for pre-engineered opening systems
 - 2. Proven durability of factory finishes allowing for bending and shaping of material after finish is applied
- B. Fire Rated Frame Construction
 - 1. Conform to ASTM E152, NFPA 252, UL 10B and 10C.
- C. Installed Frame Assembly: Conform to NFPA 80
 - 1. Use only installers familiar with installation of pre-finished opening systems and applied casing frame installation

1.06 DELIVERY, STORAGE AND HANDLING

- A. Transport, handle, store, and protect products in a dry area off the ground.
- B. Accept frames on site in manufacturer's box packaging with identification labels intact. Inspect for damage.
- C. Do not open individual boxes until installation is to begin.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Basis of Design product, but not limited to, Timely Industries.
- B. Other manufacturer's products are acceptable if equal in performance to the basis of design products.
- C. Frames: Provide door frames as shown on drawings and door schedule.

2.02 FRAMES

- A. Frame Material: Cold rolled steel, for interior frames in normal atmospheric exposures.
- B. Frame Material: Electro galvanized steel for all frames used in the following locations:
 - 1. Public and Private Restrooms
 - 2. Areas subject to corrosive chemicals or high humidity
- C. Frame Throat Opening: As shown on plan details to suit finished wall thickness.
- D. Where shown, fire rated frames to have kerf formed into frame profile for installation of smoke gasket or weatherstrip material
- E. Frame Profile - Unequal Rabbet profile, standard with manufacturer

1. "C" Series, 1.2 mm (18 gage) thick
2. "CK" Series, 1.2 mm (18 gage) thick, with kerf for door seal/gasket for fire rated and room entry doors.

F. Casings

1. Wood or PVC veneer MDF (Provided by Others) - Refer to Section 06 40 00 - Architectural Woodwork. Provide frames with nail holes and oval slots only.

2.03 FRAME REINFORCEMENT AND ACCESSORIES

- A. Provide reinforcements shipped loose to project site for hardware application
 1. Regular arm closers, casing mounted door guards and coordinators
 2. Parallel arm closers, Rim Exit device strikes, other stop mounted surface applied hardware
 3. Provide hinge reinforcement of 14 gauge steel pierced to create depth of thread equal to or greater than 7 ga. steel
 4. Provide cut-outs and reinforcements for other mortised hardware as listed in section 08 71 00
- B. Weatherstrip/Smoke Gasket: 90 minute rated gasket for kerfed frames. Provide for all CK Series frames with factory installed gasket. Provide manufacturer's standard colors to closely match frame color. (Custom colors not available on TA-46). Provide TA-46I gasket with intumescent material when using category B doors.
- C. Silencers: vinyl, clear stick-on type. Silencers not required on Kerfed frames or frames schedule to receive stop mounted gasket or weatherstrip
- D. Glass Stops: removable rolled steel, shape, butted ends. Pre-punch and countersink for flat head tek screws. Provide stop with fastener location not more than 2" from end for all fire rated glazed openings.
- E. Adjustable strikes: Emboss frames for strike for cylindrical lock. Provide TA-1 strike in finish compatible with hardware finish. (Strike supplied with cylindrical lock cannot be used with standard frame because of unique strike location and screw piercing method)
- F. Prepare frames for ASA 4-7/8" strikes where required. Provide minimum ¼" depth of threads in factory tapped screw holes
- G. Installation fasteners (Provided by others)
 1. Interior Frames: #6 Drywall type length sufficient to penetrate studs or structure at least ½".

2.04 FABRICATION

- A. Openings for single swing, pair, borrowed light and sidelight frames to be pre-cut, notched and fabricated at the manufacturer's facility. For fire rated provide kerf at stop for installation of smoke gasket or weatherstrip

- B. Provide 14 gage hinge reinforcement plate. Hinge reinforcement plate to be mechanically attached to hinge emboss on frame
- C. Casing Clips: Fabricate frames with factory applied, heat treated clips to ensure no deflection in the clip upon application or removal of casing. Attachment clips may not be of same material as frame
- D. Provide notches, tabs and/or stops for positive alignment of frame parts at all corners
- E. Mullions to be notched as required to provide tight joints
- F. Provide manufacturer's standard mullion brackets for positive connection of frame and mullion parts
- G. Provide manufacturer's standard steel glass stop pre-cut to exact length. Fire rated glazed openings to have hole for installation screw within 2" of each end of stop piece
- H. Provide insert channel full width of borrowed lights installed on finish floor. Provide full width head channel for ceiling height units.
- I. Provide adequate structure or structural support for insert channel for ceiling height frames
- J. Transoms bars fixed type with same profiles as jamb and head
- K. Attach approved mylar label to each fire-rated frame indicating fire rating details
- L. Primed frames to have 90 minute fire label embossed into frame in lieu of mylar label
- M. Factory install gasket on all pre-finished frames. Install with factory mitered corners to ensure adequate seal and pleasing appearance

2.05 FINISHING

- A. Frame Units: Pre-finished with factory applied impact resistant, polyester baked enamel finish
- B. Frames for high humidity areas to be electro galvanized prior to pre-finish. See 2.02.B for specific locations
- C. Casing Finishes
 - 1. Steel: Prefinished with factory applied impact resistant, polyester baked enamel finish.
 - 2. Primer: Electro Galvanized with 2 coat off white prime paint
- D. Colors: (Select)
 - 1. Standard Colors: White.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify acceptability of existing conditions before starting work.
- B. Verify that opening sizes and wall thicknesses are within specified tolerances. Verify that all finished walls are in plane to ensure proper door alignment.

3.02 INSTALLATION

- A. Install frames in accordance with manufacturer's requirements.
- B. Anchor frames with screws located at every casing clip or every 11" as shown on manufacturer's instructions. Field verify quantity and location of fasteners prior to installing casing.
- C. Install Pre-finished frames near end of the project after wall painting and wall coverings.
- D. Install frames using qualified installers familiar with installation of pre-finished drywall frames.
- E. Coordinate installation of glass and glazing in glazed units.
- F. Coordinate installation of frames with installation of hardware specified in Section 08 71 00.
- G. Touch-up blemishes on finished frames with factory prepared touch up paint.

- - - E N D - - -

SECTION 08 41 10 - ALUMINUM AND GLASS FOLDING PANEL SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Sliding/folding aluminum and glass door system, including aluminum frame, threshold, panels, sliding/folding and locking hardware, weather stripping, glass and glazing; designed to provide an opening glass wall, with sizes and configurations as shown on drawings and specified herein, Monumental Thermally Broken Aluminum Framed Folding Panel System.

1.02 REFERENCES

- A. American Architectural Manufacturers Association (AAMA):
1. AAMA 520, Voluntary Specification for Rating the Severe Wind-Driven Rain Resistance of Windows, Doors and Unit Skylights
 2. AAMA 611, Voluntary Specification for Anodized Architectural Aluminum.
 3. AAMA 1304, Voluntary Specifications for Forced Entry Resistance of Side-Hinged Door Systems.
 4. AAMA 2604, Voluntary Specifications, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
 5. AAMA 2605, Voluntary Specifications, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- B. American Society for Testing and Materials (ASTM):
1. ASTM E 283, Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 2. ASTM E 330, Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 3. ASTM E 331, Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 4. ASTM E 547, Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.

5. ASTM E 2268, Standard Test Method for Water Penetration of Exterior Windows, Skylights, and Doors by Rapid Pulsed Air Pressure Difference
6. ASTM F 842, Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies.
- C. American National Standards Institute (ANSI):
 1. ANSI Z97.1, Safety Performance Specifications and Methods of Test for Safety Glazing Material Used In Buildings.
- D. Consumer Product Safety Commission (CPSC):
 1. CPSC 16CFR-1201, Safety Standard for Architectural Glazing Materials.
- E. National Fenestration Rating Council (NFRC):
 1. NFRC 100, Procedure for Determining Fenestration Product Thermal Materials.
 2. NFRC 200, Procedure for Determining Solar Heat Gain Coefficient.
 3. NFRC 400, Procedure for Determining Fenestration Product Air Leakage.

1.03 SUBMITTALS

- A. Detail Drawings: Indicate dimensioning, direction of swing, configuration, swing panels, typical head jamb, side jambs and sill details, type of glazing material and handle height.
- B. Product Data: Manufacturer's literature including independently tested data listing performance criteria and Owner's Manual with installation instructions.
- C. Contract Closeout Submittal: Submit Owner's Manual from manufacturer. Identify with project name, location and completion date, type and size of unit installed.

1.04 QUALITY ASSURANCE

- A. Manufacturer: Provide complete, precision built, engineered, pre-fitted unit by a single source manufacturer with at least 20 years experience in providing folding/sliding door systems for large openings in the North American market.
 1. The manufacturer must have a quality management system registration to the ISO 9001: 2008 standard.
- B. Performance Criteria: Provide from manufacturer that has independently tested typical units with the following minimum results.
 1. Air infiltration: Provide system with maximum air leakage of 0.30 cfm/sq ft when tested according to ASTM E 283 and NFRC 400 at a static air pressure difference of 1.57 psf and 6.24 psf.

2. Water Penetration under Static Pressure:
 - a. Provide system with a raised sill (inswing or outswing) that do not evidence water penetration when tested according to ASTM E 331 and ASTM E 547 at a static air pressure difference of 12 psf.
 - b. Provide system with a saddle sill with typical field installed weep holes and drainage by others (see drainage instructions from NanaWall) that do not evidence water penetration when tested according to ASTM E331 and ASTM E 547 at a static air pressure difference of 5.25 psf for an inswing unit and 6.00 psf for an outswing unit.
3. Water Penetration under Dynamic Pressure: Provide system with a raised sill that do not evidence more than allowable water entry when tested according to AAMA 520 and ASTM E 2268 at a dynamic rated air pressure difference of 6-18 psf for an inswing unit (Performance Level 2) and 5-15 psf for an outswing unit (Performance Level 1).
4. Structural Test Performance:
 - a. Provide system with optional reinforced posts that when tested according to ASTM E 330 at 150 % of positive and negative design pressures with panel sizes of 3' wide and 8' high achieved with an inswing unit with a raised sill DP rating of +70 psf / -100 psf and an outswing unit with a raised sill and inswing/outswing units with saddle sills DP ratings of +/- 70 psf.
 - b. Provide standard system that when tested according to ASTM E 330 at 150 % of positive and negative design pressures with panel sizes of 2'11" wide and 8'1" high achieved with an inswing unit with a raised sill DP rating of +55 psf / -90 psf, an outswing unit with a raised sill DP rating of -90 psf / +55 psf and inswing/outswing units with saddle sills DP ratings of +/- 50 psf.
5. Forced Entry Resistance: Provide system that when tested according to ASTM F 842 and AAMA 1304 there was no entry.
- C. Thermal Performance U value: Unit to be rated, certified and labeled in accordance with NFRC 100, shown in manufacturer's latest published data for the glazing, sill, and direction of opening specified.
- D. Solar Heat Gain Coefficient: Unit to be rated, certified and labeled in accordance with NFRC 200, shown in manufacturer's latest published data for the glazing, sill, and direction of opening specified.

- E. Installer Qualifications: Installer experienced in the installation of manufacturer's product or other similar products for large openings. Installer to provide reference list of at least 3 projects of similar scale and complexity successfully completed in the last 3 years.

1.05 WARRANTY

- A. Provide manufacturer's standard warranty against defects in materials and workmanship.
- B. Warranty Period: Ten years for rollers. For all other components, one year (two years if unit is installed by manufacturer's certified trained installer) from date of delivery by manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Frame and Panels: From manufacturer's standard profiles, provide head track, side jambs, and panels with dimensions shown on drawings.
1. Provide panels with Standard one lite
 2. Provide standard bottom rail.
 3. Aluminum Extrusion: Extrusions with nominal thickness of .078" (2.0 mm). Alloy specified as AIMgSi0.5 with strength rated as 6063-T5 or F-22 (European standard). Anodized conforming to AAMA 611.
 4. Thermally broken with 3/4"-15/16" (20-24 mm) polyamide plastic reinforced with glass fibers. Pour and de-bridge thermal break will not be accepted.
 5. Aluminum Finish: dark bronze anodized
- B. Glass:
1. All glass to comply with safety glazing requirements of ANSI Z97.1 and CPSC 16CFR 1201. Provide glass per 08800.
- C. Locking Hardware and Handles:
1. Main entry panel:
On the main entry panel for models with a swing panel, provide manufacturer's standard lever handles on the inside and outside, a lock set compatible with Owners standards, with lockable latch, multi-point locking with a dead bolt and rods at the top and bottom on primary panel only. Rods to be concealed and not edge mounted. Depression of handles withdraws latch. Lifting of handles engages rods and turn of key or thumb turn engages deadbolt and operates lock. If there is a secondary swing panel,

provide two point locking with U shaped handles on inside only for the secondary swing panel.

2. On all other secondary panels and pairs of folding panels, provide manufacturer's standard handles and concealed two point locking hardware operated by 180 degree turn of handle between each pair. Face applied flush bolt locking will not be allowed. Standard handle finish:

Stainless steel standard handles in a titanium black finish

3. Provide handle height centered at 54" AFF.
4. Aluminum locking rods with standard fiber glass reinforced polyamide end caps at top and bottom. Rods to have a stroke of 15/16" (24 mm).
5. If there are more than one unit, keyed alike.

D. Sliding/Folding Hardware: Provide manufacturer's standard combination sliding and folding hardware with top, bottom tracks and threshold. All running carriages to be with sealed, self-lubrication, ball bearing multi-rollers. Surface mounted hinges and running carriages will not be allowed. Weight of panels to be borne by the bottom of the guide channel in the sill will not be allowed.

1. Provide upper guide carriage and lower running carriage with four vertical stainless steel wheels and two horizontal polyamide wheels. The vertical wheels to ride on top of stainless steel guide track covers over the full length of the sill track and lie above the water run-off level. Carrying capacity of lower running carriage to be 220 lbs (100 kgs). Wheels riding below the water run-off level and/or wheels riding on aluminum surfaces will not be allowed.

2. Threshold:

Provide thermally broken with polyamide raised sill in the same finish as panel finish. A cover plate over the sill will not be allowed.

3. Hinges: Zinc die cast with finish closest match to finish of frame and panels [OR stainless steel hinges]. Provide stainless steel security hinge pins with set screws.
4. Adjustment: Provide folding/sliding hardware capable of specified amount of compensation and adjustments without needing to remove panels from tracks, in width, 1/16" (1.5 mm) per hinge and in height, 1/16" (2 mm) up and down.

E. Other Components:

1. Weather stripping: Provide manufacturer's standard double layer EPDM, Q-lon gasket or brush seals with a two layer fiber glass

reinforced polyamide fin at both the inner and outer edge of door panels or on frame for sealing between panels and between panel and frame. Single layer weather stripping will not be allowed.

2. Provide tapered pins or stainless steel screws for connecting frame components.

2.02 FABRICATION

- A. Use extruded aluminum frame and panel profiles, corner connectors and hinges, sliding and folding hardware, locking hardware and handles, glass and glazing and weather stripping as specified herein to make a folding glass wall. Factory pre-assemble as is standard for manufacturer and ship with all components and installation instructions.
- B. Sizes and Configurations: See drawings for selected custom dimensions within maximum frame sizes possible as indicated in manufacturer's literature. See drawings for selected number of panels and configuration. Inward [OR outward] opening unit. On configurations with a pair of swing panels, looking from inside, primary swing panel on the left [OR right]

2.03 ACCESSORIES

- A. Provide other side lites, transoms, corner posts, or single or double doors as per drawings provided.

PART 3 - EXECUTION

3.01 ERECTION

- A. Because of the large dimensions involved and the weight and movement of the panels, verify the structural integrity of the header such that the deflection with live and dead loads is limited to the lesser of $L/720$ of the span and $\frac{1}{4}$ " (6 mm). Structural support for lateral loads (both wind load and eccentric load when the panels are stacked open) must be provided.

It is recommended that all building dead loads be applied to the header prior to installing the operable wall. If so and if a reasonable amount of time has been allowed for the effect of this dead load on the header, then only the building's live load can be used to meet the above requirements of $L/720$ or $\frac{1}{4}$ " (6 mm). If not, both the dead and live loads need to be considered

- B. Examine surfaces of openings and verify dimensions; verify rough openings are level, plumb, and square, with no unevenness, bowing, or bumps on the floor.
- C. Installation of units constitutes acceptance of existing conditions.

3.02 INSTALLATION

- A. Install frame in accordance manufacturer's recommendations and installation instructions. Properly flash and waterproof around the perimeter of the opening.
- B. Installer to provide appropriate anchorage devices and to securely and rigidly fit frame in place, absolutely level, straight, plumb and square. Install frame in proper elevation, plane and location, and in proper alignment with other work.
- C. If necessary, provide drain connections from lower track.
- D. Install panels, handles and lock set in accordance with manufacturer's recommendations and installation instructions.
- E. If necessary, adjust hardware for proper operation.
- F. Accessories: Screens; install in accordance with screen manufacturer's recommendations and installation instructions.

- - - E N D - - -

SECTION 08 41 23
FIRE RATED GLASS AND FRAMING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Fire rated door and framing systems for installation as full vision fire rated doors and sidelights for interior openings.
- B. Related Sections include the following:
- C. Related Sections:
 - 1. Section 05 12 00 "Structural Steel Framing:" Steel attachment members
 - 2. Section 05 50 00 "Metal Fabrications:" Steel attachment members inserts and anchors
 - 3. Section 07 84 00 "Firestopping:" Firestops between work of this section and other fire resistive assemblies.
 - 4. Section 08 11 13 "Hollow Metal Doors and Frames." Hollow Metal doors prepped for the work of this section.
 - 5. Section 08 71 00 "Door Hardware:" Door hardware other than that provided by the work of this section
 - 6. Section 08 71 13 "Automatic Door Operators" opener for door to comply with ADA and Local Authority opening force requirements.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. Fire safety related:
 - a. ASTM E2074-00: Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies.
 - 2. Material related
 - a. ASTM A 1008/A 1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength, Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2007.
 - b. ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2006b.
- B. American Welding Society (AWS)
 - 1. AWS D1.3 - Structural Welding Code - Sheet Steel; 2007

- C. Builders Hardware Manufacturers Association, Inc.
 - 1. BHMA A156 - American National Standards for door hardware; 2006 (ANSI/BHMA A156).
- D. National Fire Protection Association (NFPA):
 - 1. NFPA 80: Standard for Fire Doors and Fire Windows.
 - 2. NFPA 251: Standard Methods of Tests of Fire Endurance of Building Construction and Materials.
 - 3. NFPA 252: Standard Methods of Fire Tests of Door Assemblies.
 - 4. NFPA 257: Standard on Fire Test for Window and Glass Block Assemblies.
- E. Underwriters Laboratories, Inc. (UL):
 - 1. UL 9: Fire Tests of Window Assemblies.
 - 2. UL 10B: Fire Tests of Door Assemblies.
 - 3. UL 10C: Positive Pressure Fire Tests of Door Assemblies.
- F. American National Standards Institute (ANSI):
 - 1. ANSI Z97.1: Standard for Safety Glazing Materials Used in Buildings.
- G. Consumer Product Safety Commission (CPSC):
 - 1. CPSC 16 CFR 1201 Categories I and II: Safety Standard for Architectural Glazing Materials.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Product Data:
 - 1. Technical Information: Submit latest edition of manufacturer's product data providing product descriptions, technical data, Underwriters Laboratories, Inc. listings and installation instructions.
- C. Shop Drawings:
 - 1. Include plans, elevations and details of product showing component dimensions; framed opening requirements, dimensions, tolerances, and attachment to structure
- D. Hardware schedule: list of manufacture supplied hardware and verification of cylinder size complying with Section 08 71 00
- E. Samples (optional): For following products:
 - 1. Two 8-inch by 10-inch samples for glass
 - 2. Sample of steel frame
 - 3. Verification of sample of selected finish
- F. Glazing Schedule: Use same designations indicated on drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.

- G. Warranties: Submit manufacturer's warranty.
- H. Certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials furnished for project comply with requirements.
 - 1. Separate certification will not be required for glazing materials bearing manufacturer's permanent label designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authority having jurisdiction.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to
 - 1. International Accreditation Service for a Type A Third-Party Inspection Body (Field Services ICC-ES Third-Party Inspections Standard Operating Procedures, 00-BL-S0400 and S0401)
 - 2. International Accreditation Service for Testing Body-Building Materials and Systems
 - a. Fire Testing
 - 1) ASTM Standards E 119
 - 2) CPSC Standards 16 CFR 1201
 - 3) NFPA Standards 251, 252, 257
 - 4) UL Standards 9, 10B, 10C, 1784, UL Subject 63
 - 5) BS 476; Part 22: 1987
 - 6) EN 1634-1
- B. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Source Limitations for Glazing Accessories: Obtain framing system, glazing and glazing accessories from one source for each product and installation method indicated.
- D. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are classified and labeled by UL, for fire ratings indicated, based on testing according to NFPA 252. Assemblies must be factory-welded or come complete with factory-installed mechanical joints and must not require job site fabrication.
- E. Fire-Rated Window Assemblies: Assemblies complying with NFPA 80 that are classified and labeled by UL, for fire ratings indicated, based on testing according to NFPA 257. Assemblies must be factory-welded or come complete with factory-installed mechanical joints and must not require job site fabrication.
- F. Listings and Labels - Fire Rated Assemblies: Under current follow-up service by Underwriters Laboratories® maintaining a current listing or certification. Label assemblies accordance with limits of manufacturer's listing.

- G. Regulatory Requirements: Comply with provisions of the following:
1. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1, FED-STD-795, "Uniform Federal Accessibility Standards," as follows:
 - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
 - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
 - 1) Accessible doors no more than 5 lbf (22.2 N) push or pull force
 - 2) Fire Doors: Minimum opening force allowable by authorities having jurisdiction
 2. Compliance with this standard requires auto openers to be added to the opening due to the weight of the doors. Coordinate the addition of auto-openers with the Division 8 section "Door Hardware" or other section containing these devices. Verify that the Authority Having Jurisdiction is using NFPA 101 and/or IBC and which edition dates of both as a requirement for the facility. NFPA 101: Comply with the following for means of egress doors:
 - a. Latches, Locks, and Exit Devices: Not more than 15 lbf (67 N) to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
 - b. Door Closers: Not more than 30 lbf (133 N) to set door in motion and not more than 15 lbf (67 N) to open door to minimum required width.
 3. IBC 2012 Chapter 10 Means of Egress: Comply with the following for means of egress doors:
 - a. Latches, Locks, and Exit Devices: Not more than 15 lbf (67 N) to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
 - b. Door Closers: Not more than 30 lbf (133 N) to set door in motion and not more than 15 lbf (67 N) to open door to minimum required width.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle under provisions specified by manufacturer.
1. At delivery inspect all containers for damage.
 2. Examine glass and frame units for damage.
 3. List all damage to containers on the shipping company's Bill of Lading
 4. Report damage to manufacturer immediately.
 5. Store glazing materials and frame units in original packing containers
 6. Do not expose glazing material of frame units to sunlight and weather.
 7. Do not store horizontally.
 8. Place glass and frames upright, no less than 6 degrees from vertical.
 9. Store all materials in dry conditions, off the ground.
 10. Protect from construction activities.

11. Fully support glass units along entire length
12. Glass and frame units must be separated by non-abrasive pads such as cloth or cork.
13. Do not stack containers

1.6 PROJECT CONDITIONS

- A. Obtain field measurements prior to fabrication of frame units. If field measurements will not be available in a timely manner coordinate planned measurements with the work of other sections.
 1. Note whether field or planned dimensions were used in the creation of the shop drawings.
- B. Coordinate the work of this section with others effected including but not limited to: other interior and/or exterior envelope components and door hardware beyond that provided by this section

1.7 WARRANTY

- A. Provide the standard five-year manufacturer warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS - FIRE RATED DOOR ASSEMBLY

- A. Glass and frame systems complying with performance criteria.

2.2 PERFORMANCE REQUIREMENTS

- A. Fire Rating Requirements
 1. Duration -- Doors: Capable of providing a fire rating for 60 minutes.
 2. Duration-- Window Assembly: Capable of providing a fire rating for 60 minutes.
 3. Duration--Opening Applications in fire partitions or area separation walls and corridors where opening protection is specified: Capable of providing 60 minute rating.
- B. Design Requirements:
 1. Dimensions - Door and Framing: As recommended and tested by manufacturer.
 2. Dimensions -- Window Assembly: As recommended and tested by manufacturer.
 3. Construction: Narrow-profile, roll-formed steel architectural grade specialty fire doors. Conventional break-shape type hollow metal steel fire-rated doors will not be considered an acceptable substitute for the Fireframes Designer Series doors specified in this section as they do not conform to the project design intent and/or aesthetic and quality standards.
 - a. Knock down frames are not permitted.

2.3 MATERIALS - GLASS

- A. Fire Rated Glazing: ASTM C 1036 and ASTM C 1048; composed of ceramic with surface applied fire-rated film or laminated ceramic glazing material.
- B. Approximate Visible Transmission: Varies with thickness (approximate range 88 percent).
- C. Logo: Each piece of fire-rated glazing shall be labeled with a permanent logo including name of product, manufacturer, testing laboratory (UL® only), fire rating period, safety glazing standards, and date of manufacture.
- D. Performance: Glass must be rated to stop fire from either direction and must meet all testing requirements including the required hose-stream test.

2.4 MATERIALS - STEEL FRAMES AND DOORS

- A. Steel Framing System including 60-minute rated doors, 60-minute rated windows.
 - 1. Frame: Steel profiled formed tubing.
 - 2. Fasteners: As recommended by manufacturer
 - 3. Glazing Accessories: calcium silicate setting blocks.
 - 4. Glazing Compounds:
 - a. As recommended and tested by manufacturer.

2.5 FABRICATION

- A. Furnish frame assemblies pre-welded.
 - 1. When necessary, splice frames too large for shop fabrication or shipping or to fit in available building openings.
 - 2. Fit with suitable fasteners.
 - 3. Knock-down frames are not permitted
- B. Furnish interior frame assemblies "K-D" (or welded upon request).
 - 1. When necessary, splice frames too large for shop fabrication or shipping or to fit in available building openings.
 - 2. Fit with suitable fasteners.
 - 3. Knock-down door perimeter frames are not permitted
- C. Field glaze door and frame assemblies.
- D. Factory prepare steel door assemblies and install all hardware.
- E. Fabrication Dimensions: Fabricate to fire-rated field dimensions.
- F. Obtain approved shop drawings prior to fabrication.

2.6 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish frames after assembly.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable. Noticeable variations in the same piece are not acceptable.

2.7 FACTORY FINISHES

- A. Color-Coated Finish: Apply manufacturer's standard powder coating finish system complying with AAMA 2603 applied to factory-assembled frames before shipping, complying with manufacturer's written instructions for surface preparation including pretreatment, application, and minimum dry film thickness.
 - 1. Color and Gloss: White - Semi-Gloss.

2.8 DOOR HARDWARE

- A. Furnish hardware with 60 minute fire door by the manufacturer.
- B. Select hardware from door manufacturer's standard recommended and approved hardware groups as specified in Division 8 Section - Door Hardware.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and members to which the work of this section attaches or adjoins prior to frame installation.

- B. Provide openings plumb, square and within allowable tolerances.
 - 1. Provide 3/8 inch shim space at all walls
- C. Notify Architect of any conditions which jeopardize the integrity of the proposed fire wall / door system.
- D. Do not proceed until such conditions are corrected.

3.2 INSTALLATION

- A. Follow manufacturer's written instructions and approved shop drawings.
- B. Install fully welded fire door in strict accordance with the approved shop drawings.
- C. Install fire safing / fire stopping at edges of system
- D. Install glazing in strict accordance with fire rated glazing material manufacturer's specifications.
 - 1. Field cutting or tampering is not permissible.
- E. Do not install damaged frames or chipped glazing units.
- F. Install plumb and true. Limit out of plumb or true to 1/8 inch in 10'-0" in any dimension.

3.3 REPAIR AND TOUCH UP

- A. Limited to minor repair of small scratches. Use only manufacturer's recommended products.
 - 1. Such repairs shall match original finish for quality or material and view.
- B. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged.

3.4 ADJUSTING

- A. Adjust door function and hardware for smooth operation. Coordinate with other hardware suppliers for function and use of any other attached hardware.

3.5 PROTECTION AND CLEANING

- A. Protect glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
 - 1. Do not clean with astringent cleaners. Use a clean "grit free" cloth and a small amount of mild soap and water or mild detergent.
 - 2. Do not use any of the following:

- a. Steam jets
 - b. Abrasives
 - c. Strong acidic or alkaline detergents, or surface-reactive agents
 - d. Detergents not recommended in writing by the manufacturer
 - e. Do not use any detergent above 77 degrees F
 - f. Organic solvents including but not limited to those containing ester, ketones, alcohols, aromatic compounds, glycol ether, or halogenated hydrocarbons.
 - g. Metal or hard parts of cleaning equipment must not touch the glass surface
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.
- C. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

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SECTION 10 31 00
MANUFACTURED ELECTRIC FIREPLACES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Manufactured electric fireplaces.

1.2 RELATED SECTIONS

- A. Section 06 10 00 - Rough Carpentry.

1.3 REFERENCES

- A. CAN/ULC S610 - Factory-Built Fireplaces.
- B. UL 127 - Standard for Factory-Built Fireplaces.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES..
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Provide drawing of required clearances, rough-in of enclosure and utilities.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and finishes.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Handling: Handle materials to avoid damage.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.9 WARRANTY

- A. Warranty: Provide manufacturer's standard warranty against defects in materials and workmanship.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer meeting requirements

2.2 MANUFACTURED ELECTRIC FIREPLACES

- A. General:
 - 1. Comply with applicable building codes.
 - 2. UL listed.
- B. Built-In Series:
 - 1. Remote Control: Multi-function remote comes standard.
 - 2. Model 36-Inch Built-In
 - a. Front Width: 37 inches (940 mm).
 - b. Rear Width: 29-7/8 inches (759 mm).
 - c. Height: 31-1/4 inches (794 mm).
 - d. Depth: 11-13/16 inches (300 mm).
 - e. BTU/Hour Input: 4,800 (1.4 kW).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions, ANSI Z21.44 and the requirements of authorities having jurisdiction.
- B. Use manufacturer's guidelines for minimum clearances to combustibles, walls, and finishes.
- C. Anchor all components firmly in position for long life under hard use.

3.4 FIELD QUALITY CONTROL

- A. Upon completion of installation, visually inspect all exposed surfaces. Touch up scratches and abrasions with touch-up paint recommended by the manufacturer, make imperfections invisible to the unaided eye from a distance of 5 feet (1.5m).
- B. Test for proper operation, control and safety devices.
- C. Complete Installer's Warranty Validation Card.

3.5 PROTECTION

- A. Protect installed products until completion of project.

END OF SECTION

FASTENERS PER LIFT
MANUFACTURER'S
RECOMMENDATIONS

CONCRETE
STRUCTURE

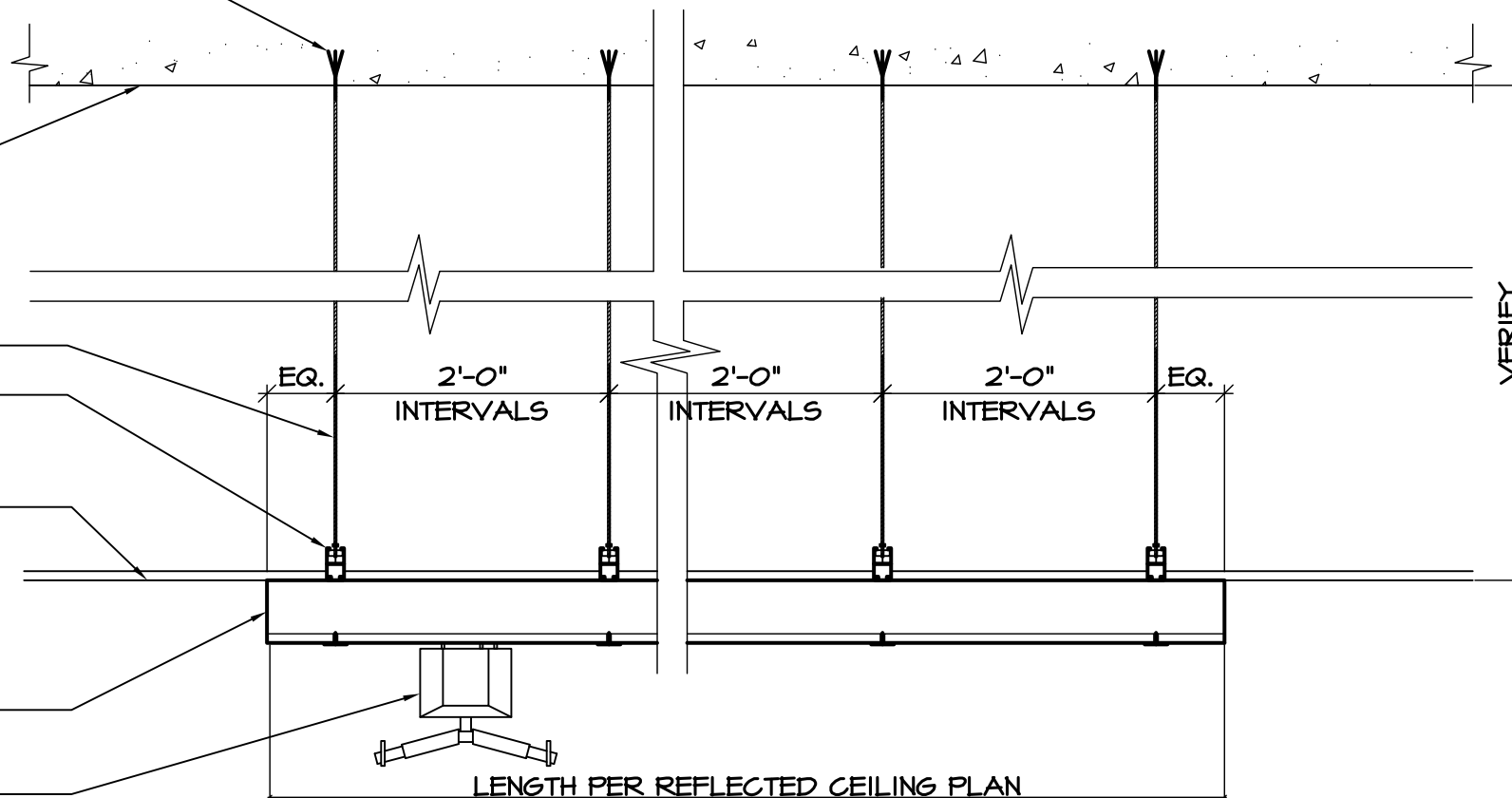
1/2" THREADED ROD

30" UNISTRUT. PROVIDE
DIAGONAL BRACING

FINISHED CEILING

STRAIGHT LIFT CEILING
TRACK - OFOI

LIFT UNIT (OFOI)

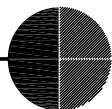


1

PATIEND LIFT SUPPORT
CEILING DETAIL

3/4"

**GARDNER
PLUS**
ARCHITECTS, PLLC
40 Wildbriar Road, Rochester NY 14623
585-321-1210 www.gardnerplus.com



RENOVATION OF CLC 2 AT
BATH VA MEDICAL CENTER

PROJECT

JOB #528-A6-15-602

CEILING DETAILS
- PATIENT LIFT TRACK

TITLE

DRAWN BY JH

SCALE 3/4" = 1'-0"

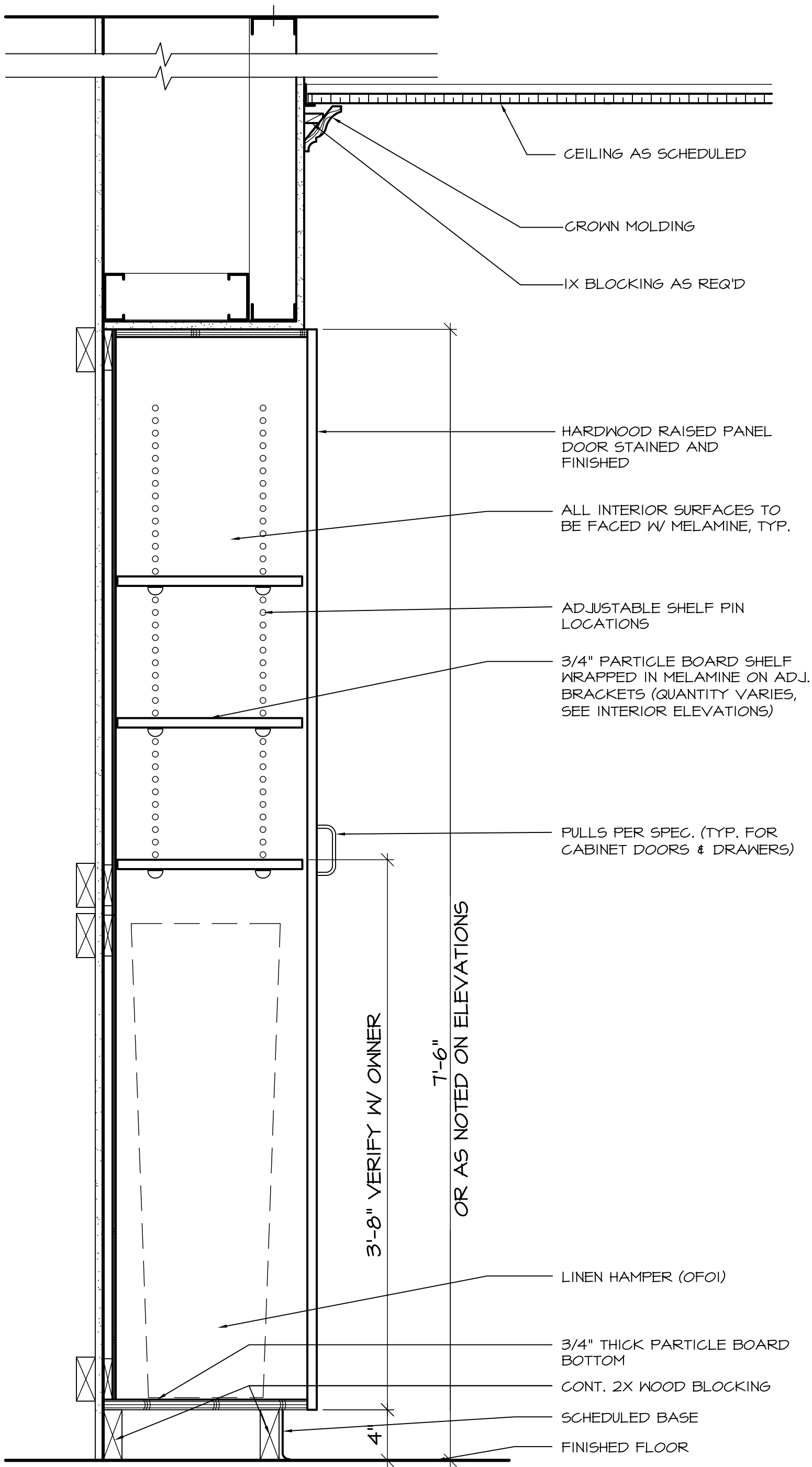
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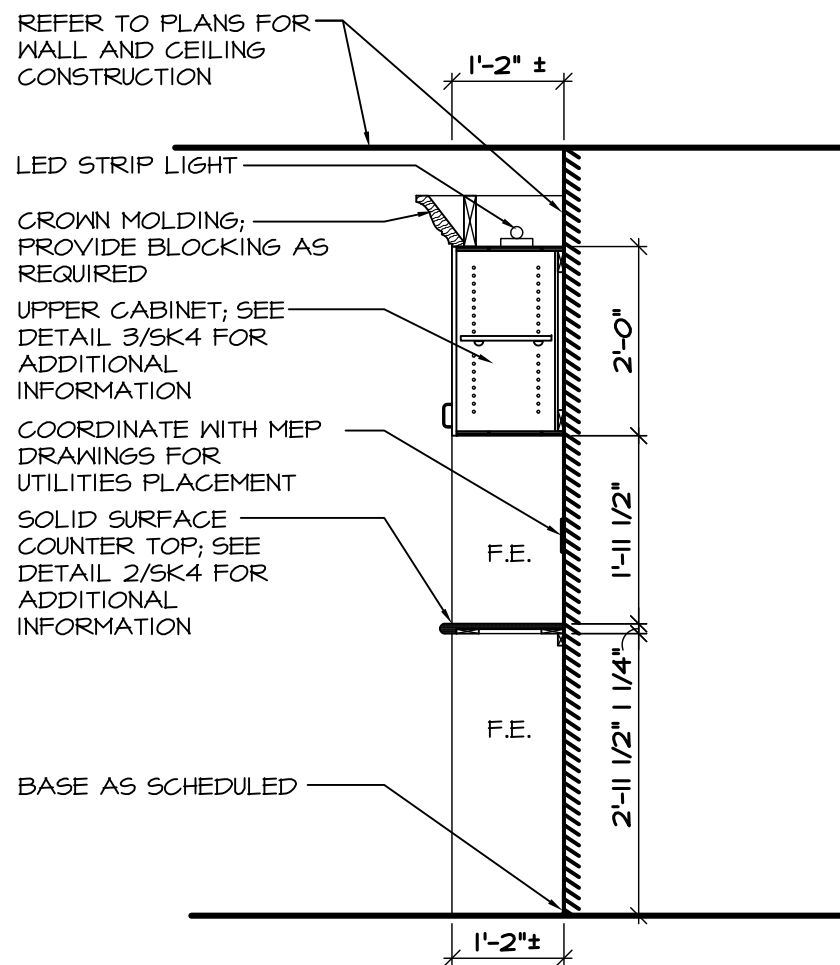
REVISIONS

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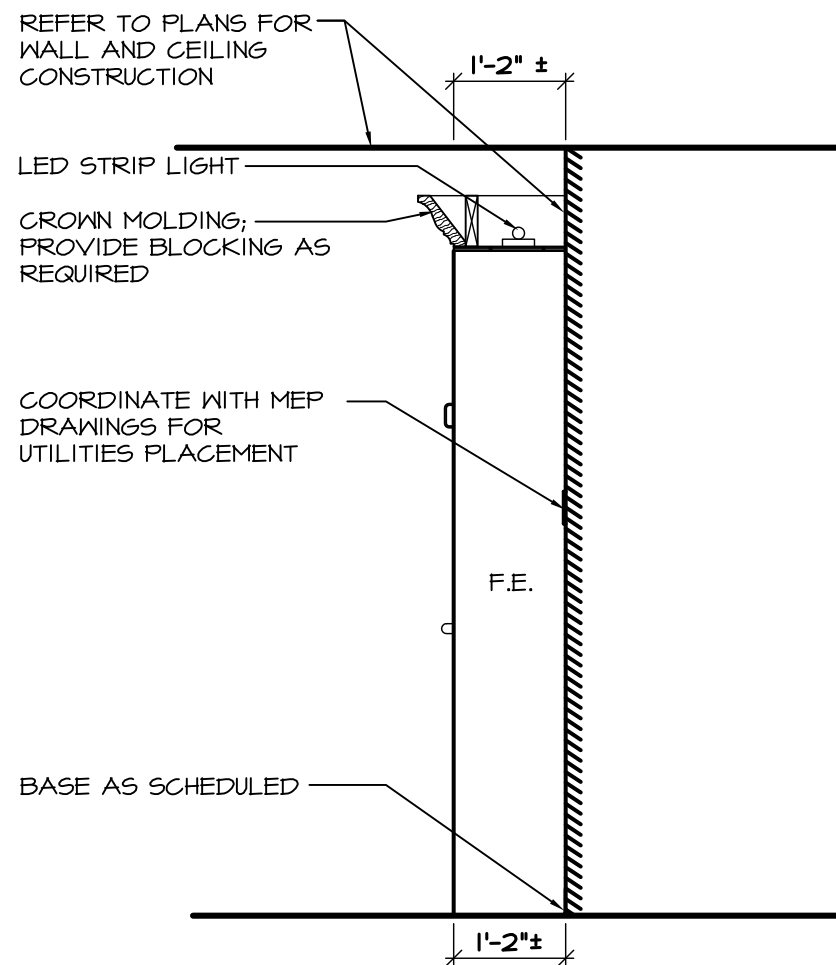
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DRAWING NO.

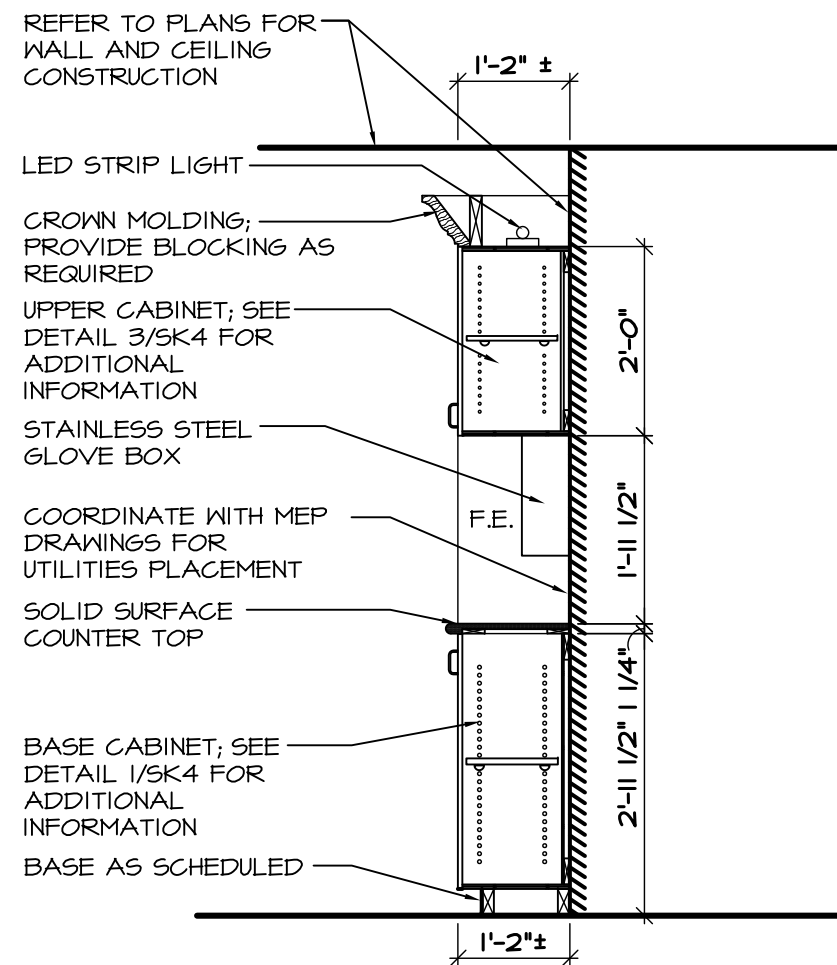




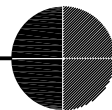
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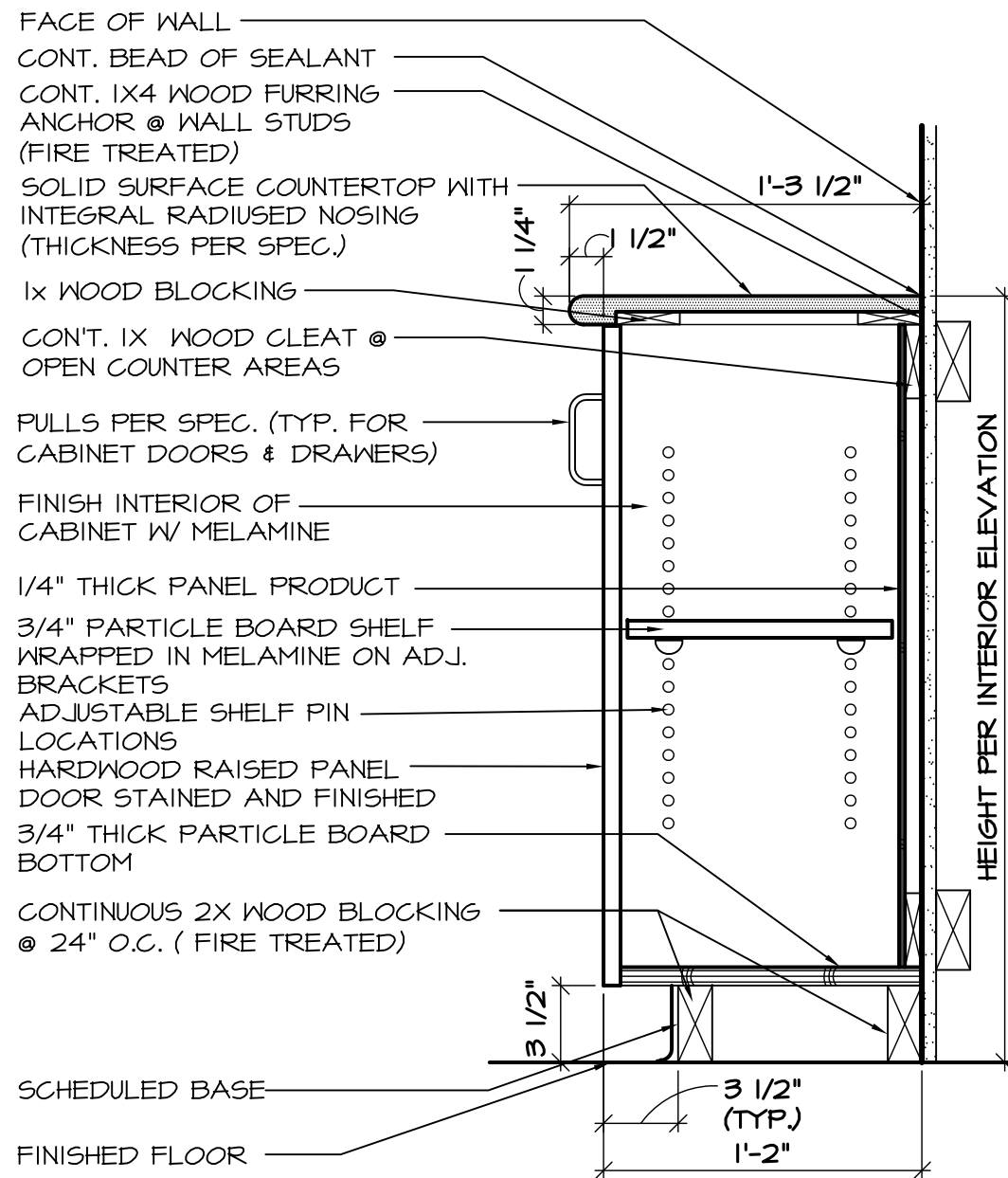


2 HEADWALL SECTION 1/2"



3 HEADWALL SECTION 1/2"

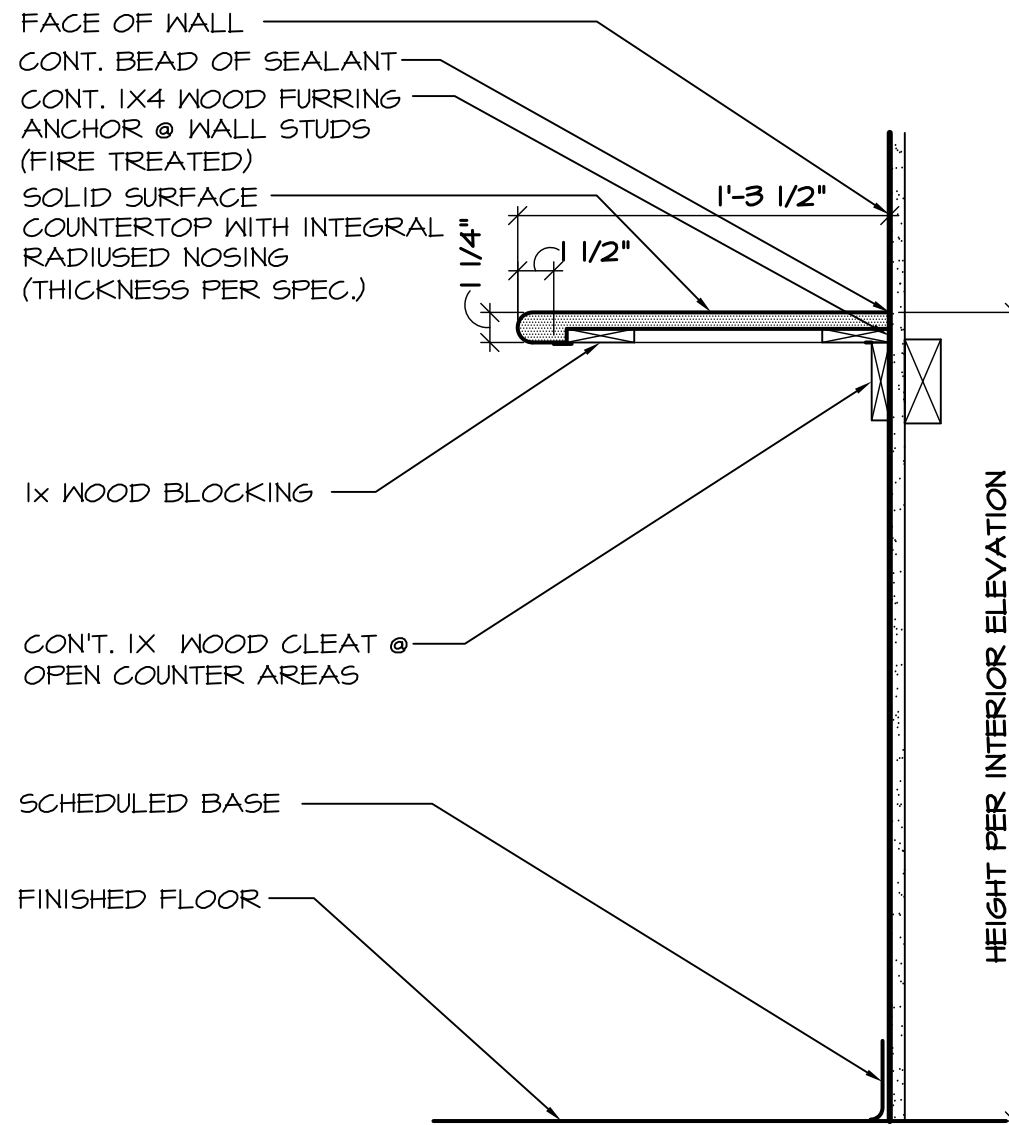




1

BASE CABINET DETAIL

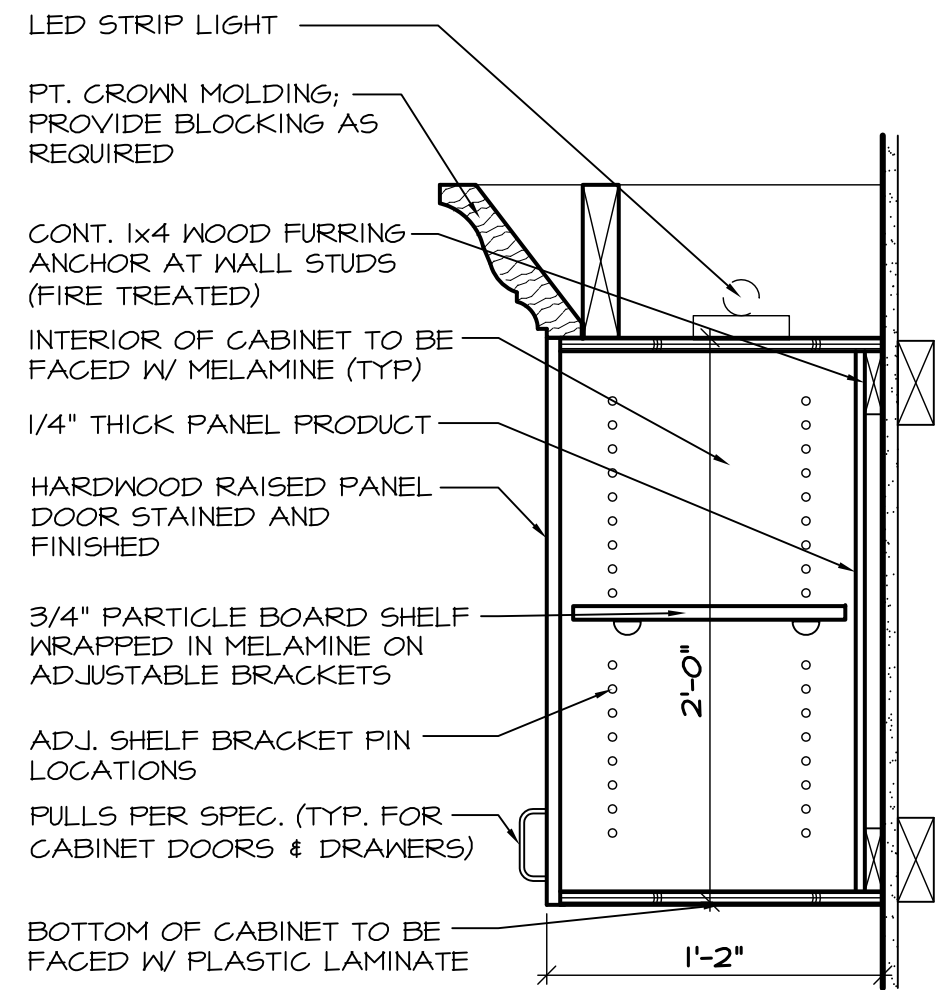
1 1/2"



2

COUNTERTOP DETAIL

1 1/2"



3

UPPER CABINET DETAIL

1 1/2"