

ADDENDUM NO. 1

TO THE PLANS AND SPECIFICATIONS FOR:

SNELL Building Renovation

Prepared by

Brigham Young University
Planning & Construction Dept.
240 Brewster Physical Plant
Provo, Utah 84602
22 March 2024

This Addendum issued 22 March 2024 is for all persons preparing bids and as such shall be made a part of the contract documents. This Addendum consists of this cover sheet and 33 pages. In case of any conflict between the drawings, specifications, and this Addendum, this Addendum shall govern. All changes, corrections, deletions and/or additions to the initial bidding documents shall be included in the Bidder's proposal. Receipt of this Addendum shall be acknowledged on the Bid proposal forms.

Approved by:



Anthony R. Burdette, Director of Construction

22 March 2024

Date

ADDENDUM NO. 1

TO

Snell Building (SNLB) Deans Office Remodel

**Brigham Young University
Provo, Utah 84602**

Prepared by:

WPA ARCHITECTURE

1535 NORTH FREEDOM BLVD. SUITE 360

PROVO, UTAH 84604

March 22, 2024

This addendum is for all persons preparing bids and as such shall be made a part of the contract documents. This addendum consists of:

- Cover Sheet - 1 page
- Addendum - 2 page
- Specifications - 28 pages
- Drawings - 1 sheet (Architectural)

In the event of a conflict between drawings, specifications and the Addendum, this Addendum shall govern. All changes, corrections, deletions, and/or addition to the initial bidding documents shall be included in the Bidder's proposal. Receipt of the Addendum shall be acknowledged on each Bid proposal.

Bidders on the above captioned project will be governed by the following corrections and/or clarifications to the original issue of specifications and drawings. This addendum becomes part of the Contract Documents.

All changes included herein shall not be limited to the sheet, page, detail, or paragraph indicated, but shall apply to all references to that item in any part of the contract documents.

ADDENDUM NO. 1
March 22, 2024

01. DRAWINGS:

Item 01-01: Sheet A3.2 – Updated the Glazing schedule to match the Specifications.

02. SPECIFICATIONS:

Item 02-01: Section 210500 Common work Results for Fire Suppression
Section 210523 General Duty Valves for Water Based Fire Suppression
Piping
Section 210548 Vibration and Seismic Controls for Fire Suppression
Piping and Equipment
Section 211300 Fire Suppression Sprinkler Systems

Item 02-02: Electrical Bid Breakdown Form

03. APPROVED MANUFACTURERS / SUPPLIERS:

None

04. GENERAL ITEMS:

Item 04-01: The bid date has been changed to April 4th. Still the same room (BRWB 113) and time (2 PM).

Item 04-02: See attached revised 'Notice to Bidders' noting this change. Note: room 113 was stated correctly on your letter of invitation to the pre-bid but was not correct on the original 'Notice to Bidders'. Bids are to be opened in room 113.

NOTICE TO BIDDERS

SECTION 1--PROJECT: SNELL Building Renovation

WORK ORDER NUMBER: M9847

SECTION 2--LOCATION: Brigham Young University

SECTION 3--OWNER: Brigham Young University

SECTION 4--DESIGNER: Brigham Young University

SECTION 5--STANDARD CONTRACT REQUIREMENTS:

The Bidder is directed to the Brigham Young University Standard Contract Requirements (revised October 2017). This volume is an integral part of the contract documents and is hereby made a part of the contract.

SECTION 6--DATES:

- A. Start Date: 29th April 2024
- B. Completion Date: 16 August 2024

SECTION 7--PREBID CONFERENCE

- A. Prebid Conference will be:
Date: 19 March 2024
Time: 9:30 AM
Place: Room 111, Brewster Building

SECTION 8--RECEIPT AND OPENING OF BIDS:

- A. Bids will be received:
Date: **4 April 2024**
Time: 2PM
Place: **Room 113**, Brewster Building
By: Ole M. Smith
- B. The Owner reserves the exclusive right to release all publicity relating to the proposals and the project.

SECTION 9--DEPOSIT FOR CONTRACT DOCUMENTS:

- A. A deposit of \$0.00 will be required for each set of contract documents (plans and specifications) taken.

SECTION 10--GENERAL CONTRACTORS

- A. Bidding by General Contractors will be by invitation only.



SECTION 210500
COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Above ground piping.
- B. Escutcheons.
- C. Pipe, fittings, sleeves, escutcheons, seals, and connections for sprinkler systems.
- D. Expansion joints.
- E. Expansion loops.
- F. Pipe hangers and supports.
- G. Pipe sleeves.

1.02 RELATED REQUIREMENTS

- A. Section 099123 - Interior Painting: Preparation and painting of interior fire protection piping systems.
- B. Section 210523 - General-Duty Valves for Water-Based Fire-Suppression Piping.
- C. Section 210553 - Identification for Fire Suppression Piping and Equipment: Piping identification.
- D. Section 211300 - Fire-Suppression Sprinkler Systems: Sprinkler systems design.
- E. Section 220553 - Identification for Plumbing Piping and Equipment: Piping identification.

1.03 REFERENCE STANDARDS

- A. ASME A112.18.1 - Plumbing Supply Fittings; 2012.
- B. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Welding, Brazing, and Fusing Procedures; Welders; Braziers; and Welding, Brazing and Fusing Operators; 2017.
- C. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250; 2015.
- D. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2016.
- E. ASME B16.4 - Gray Iron Threaded Fittings: Classes 125 and 250; 2016.
- F. ASME B16.5 - Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24 Metric/Inch Standard; 2017.
- G. ASME B16.9 - Factory-Made Wrought Buttwelding Fittings; 2012.
- H. ASME B16.11 - Forged Fittings, Socket-welding and Threaded; 2016 (Errata 2017).
- I. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2012.
- J. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2013.
- K. ASME B16.25 - Buttwelding Ends; 2012.
- L. ASME B36.10M - Welded and Seamless Wrought Steel Pipe; 2015.
- M. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings; 1999 (Reapproved 2014).
- N. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.

I, Bruce T. Fallon, AIA the Principal in Charge on this project have reviewed this section and it is in accordance with the Instructions to Architects & Engineers.

Signature & Date:

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- O. ASTM A135/A135M - Standard Specification for Electric-Resistance-Welded Steel Pipe; 2009 (Reapproved 2014).
- P. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service; 2017.
- Q. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2015a.
- R. ASTM A536 - Standard Specification for Ductile Iron Castings; 1984 (Reapproved 2014).
- S. ASTM A795/A795M - Standard Specification for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Fire Protection Use; 2013.
- T. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).
- U. ASTM B75/B75M - Standard Specification for Seamless Copper Tube; 2011.
- V. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2016.
- W. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2016.
- X. ASTM C592 - Standard Specification for Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type); 2016.
- Y. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2016.
- Z. ASTM D2239 - Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter; 2012a.
- AA. ASTM D2609 - Standard Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe; 2015.
- AB. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a.
- AC. ASTM F438 - Standard Specification for Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40; 2015.
- AD. ASTM F439 - Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80; 2013.
- AE. ASTM F442/F442M - Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR); 2013.
- AF. ASTM F493 - Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings; 2014.
- AG. AWS A5.8M/A5.8 - Specification for Filler Metals for Brazing and Braze Welding; 2011-AMD 1.
- AH. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015 (with March 2016 Errata).
- AI. AWWA C105/A21.5 - Polyethylene Encasement for Ductile-Iron Pipe Systems; 2010.
- AJ. AWWA C110/A21.10 - Ductile-Iron and Gray-Iron Fittings; 2012.
- AK. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; 2017.
- AL. AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast; 2009.
- AM. AWWA C606 - Grooved and Shouldered Joints; 2015.
- AN. ITS (DIR) - Directory of Listed Products; current edition.
- AO. NFPA 13 - Standard for the Installation of Sprinkler Systems; 2016.
- AP. NFPA 14 - Standard for the Installation of Standpipe and Hose Systems; 2016.
- AQ. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

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AR. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUMMARY TABLE

Item	Spec Section	Summary
Design	211300 1.06.B	Design with a margin of safety of 10%.
Submittal	211300 1.05.C	Submit shop drawings, product data, and hydraulic calculations to AHJ and BYU Fire Marshal for approval.
Pipe Thickness	210500 2.02.A	Minimum Pipe Thickness Schedule Mains: Sch 10 Grooved Branch: Sch 10 Threaded Branch: Sch 30
Design	Division 210000	Design does not need to be FM approved.
Drain Discharge	210500 3.03.I	All drain valves shall be discharged to the exterior of the building.
Flex Hose Drops	211300 2.02.F	Minimum capability of 5 bends is required.
Control Valves	210500 3.03.H	To be installed 7'-0" maximum above finish floor.
Flow Switches	211300 2.03.E	To be key operated/activated for testing purposes.
Dry/Pre-action Valves	211300 2.03.A	Victaulic is the only approved manufacturer.
Exposed Pipe Fittings	210500 3.03.F	Shall have a minimum 1" outlet with a bushing to accommodate future remodels.
Exposed Areas	210500 3.03.E	Piping shall be installed as high as possible.
Dry Systems	210500 2.02.A	Black pipe shall be used. Galvanized is not acceptable.

1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturers catalogue information. Indicate valve data and ratings.
- C. Shop Drawings: Indicate pipe materials used, jointing methods, supports, floor and wall penetration seals. Indicate installation, layout, weights, mounting and support details, and piping connections. Include flow calculations.
- D. Manufacturer's Qualification Statement.
- E. Installer's Qualification Statement.
- F. Project Record Documents: Record actual locations of components and tag numbering.
- G. Operation and Maintenance Data: Include installation instructions and spare parts lists.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 - Product Requirements, for additional provisions.
 - 2. Extra Valve Stem Packings: One for each type and size of valve.
- I. Warranty Materials: Include all warranty certificates and schedule list of start and end dates for manufacturer equipment.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.

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- B. Installer Qualifications: Company specializing in performing work of the type specified in this section.
 - 1. Minimum three years' experience for lead installers.
 - 2. Approved by manufacturer.
- C. Conform to UL (DIR) requirements.
- D. U.S. made domestic equipment, pipes, valves, and fittings.
- E. Valves: Bear UL (DIR) and ITS (DIR) or Warnock Hersey product listing label or marking. Provide manufacturer's name and pressure rating marked on valve body.
- F. Products Requiring Electrical Connection: Listed and classified as suitable for the purpose specified and indicated.
- G. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store valves in shipping containers, with labeling in place.
- B. Provide temporary protective coating on cast iron and steel valves.
- C. Provide temporary end caps and closures on piping and fittings. Maintain in protected place until installation.

1.08 WARRANTY

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a one year period after Date of Substantial Completion.
- C. 11 months after substantial completion, contractor shall meet with BYU personnel to ensure integrity of system and to address any warranty issues identified during meeting.

PART 2 PRODUCTS

2.01 FIRE PROTECTION SYSTEMS

- A. Sprinkler Systems: Conform to NFPA 13 (or NFPA 13R as applicable).
- B. Standpipe and Hose Systems: Conform to NFPA 14.
- C. Welding Materials and Procedures: Conform to ASME BPVC-IX.

2.02 ABOVE GROUND PIPING

- A. Steel Pipe: ASTM A795 Schedule 10, ASTM A53 Schedule 40, ASTM A135/A135M Schedule 10, or ASTM A795 Schedule 40 _____.
 - 1. Minimum Pipe Thickness Schedule
 - a. Mains: Sch 10
 - b. Grooved Branch: Sch 10
 - c. Threaded Branch: Sch 30
 - 2. Use Schedule
 - a. Conditioned Space: black pipe
 - b. Unconditioned Space: galvanized pipe
 - c. Dry System: black pipe
 - 3. Steel Fittings: ASME B16.9, wrought steel, buttwelded, ASME B16.25, buttweld ends, ASTM A234/A234M, wrought carbon steel or alloy steel, ASME B16.5, steel flanges and fittings, or ASME B16.11, forged steel socket welded and threaded.

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4. Cast Iron Fittings: ASME B16.1, flanges and flanged fittings and ASME B16.4, threaded fittings.
 5. Malleable Iron Fittings: ASME B16.3, threaded fittings and ASTM A47/A47M.
 6. Mechanical Grooved Couplings: Malleable iron housing clamps to engage and lock, "C" shaped elastomeric sealing gasket, steel bolts, nuts, and washers; galvanized for galvanized pipe.
 7. Mechanical Formed Fittings: Carbon steel housing with integral pipe stop and O-ring pocked and O-ring, uniformly compressed into permanent mechanical engagement onto pipe.
 8. Mechanical Saddle Tee: Victaulic 920, 920N, or 920 CROSS
- B. Copper Tube: ASTM B75/B75M or ASTM B88 (ASTM B88M), H58 drawn temper.
1. Type: Type L (B).
 2. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze solder joint, pressure type.
 3. Joints: AWS A5.8M/A5.8 Classification BCuP-3 or BCuP-4 copper/silver braze or ASTM B32, alloy Sn95 solder.
- C. Copper Tube: ASTM B88 (ASTM B88M), Type K (A), H58 drawn.
1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze, grooved.
 2. Mechanical Grooved Couplings: Ductile iron housing with alkyd enamel paint coating clamps to engage and lock, "C" shaped elastomeric sealing gasket, steel bolts, nuts, and washers.

2.03 PIPE SLEEVES

- A. Vertical Piping:
1. Sleeve Length: 1 inch above finished floor.
 2. Provide sealant for watertight joint.
 3. Blocked Out Floor Openings: Provide 1-1/2 inch angle set in silicon adhesive around opening.
 4. Drilled Penetrations: Provide 1-1/2 inch angle ring or square set in silicone adhesive around penetration.
- B. Plastic, Sheet Metal, or Moisture-Resistant Fiber: Pipe passing through interior walls, partitions, and floors, unless steel or brass sleeves are specified below.
- C. Pipe Passing Through Below Grade Exterior Walls:
1. Provide watertight space with link rubber or modular seal between sleeve and pipe on both pipe ends.
- D. Pipe Passing Through Quarry Tile, Terrazzo, or Ceramic Tile Floors:
1. Connect sleeve with floor plate.
- E. Pipe Passing Through Concrete Beam Flanges, except where Brass Pipe Sleeves are Specified:
1. Galvanized steel pipe or black iron pipe with asphalt coating.
 2. Connect sleeve with floor plate except in mechanical rooms.
- F. Pipe Passing Through Mechanical, Laundry, and Animal Room Floors above Basement:
1. Galvanized steel pipe or black iron pipe with asphalt coating.
 2. Connect sleeve with floor plate except in mechanical rooms.
- G. Not required for wall hydrants for fire department connections or in drywall construction.
- H. Penetrations in concrete beam flanges are permitted but are prohibited through ribs or beams without prior approval from the Architect.
- I. Clearances:
1. Wall, Floor, Floor, Partitions, and Beam Flanges: 2 inch greater than external; pipe diameter.
 2. All Rated Openings: Caulked tight with fire stopping material conforming to ASTM E814 in accordance with Section 078400 to prevent the spread of fire, smoke, and gases.

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2.04 MANUFACTURED SLEEVE-SEAL SYSTEMS

- A. Manufacturers:
 - 1. Advance Products & Systems, Inc; _____: www.apsonline.com
 - 2. The Metraflex Company; _____: www.metraflex.com
 - 3. Trumbull Industries.
 - 4. Garlock
 - 5. Substitutions: See Section 016000 - Product Requirements.
- B. Modular/Mechanical Seal:
 - 1. Synthetic rubber interlocking links continuously fill annular space between pipe and wall/casing opening.
 - 2. Provide watertight seal between pipe and wall/casing opening.
 - 3. Elastomer element size and material in accordance with manufacturer's recommendations.
 - 4. Glass reinforced plastic pressure end plates.

2.05 ESCUTCHEONS

- A. Manufacturers:
 - 1. Victaulic.
 - 2. Globe
 - 3. Reliable
 - 4. Substitutions: See Section 016000 - Product Requirements.
- B. Material:
 - 1. Fabricate from nonferrous metal.
 - 2. Chrome-plated.
 - 3. Grade TP304, seamless tube, ASTM A269/A269M stainless steel.
 - 4. Metals and Finish: Comply with ASME A112.18.1.
- C. Construction:
 - 1. One-piece for mounting on chrome-plated tubing or pipe and one-piece or split-pattern type elsewhere.
 - 2. Internal spring tension devices or setscrews to maintain a fixed position against a surface.

2.06 PIPE HANGERS AND SUPPORTS

- A. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
- B. Hangers for Pipe Sizes 2 inches and Over: Carbon steel, adjustable, clevis.
- C. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
- D. Wall Support for Pipe Sizes to 3 inches: Unistrut with clamp
- E. Wall Support for Pipe Sizes 4 inches and Over: Welded steel bracket and wrought steel clamp.
- F. Vertical Support: Steel riser clamp.
- G. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
- H. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- I. Seismic Hangers and Couplings:
 - 1. Provide coupling with a factory set disengagement rating of 140 percent to 160 percent of the static weight.
 - 2. Provide resettable and reusable, break away couplings.
 - 3. Provide tether cables to avoid excessive seismic joint movement.
 - 4. Coupling to be manufactured from non-corrosive materials.

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- 5. Manufacturers:
 - a. The Metraflex Company; Seismic Breakaway Hanger: www.metrafire.com
 - b. Substitutions: See Section 016000 - Product Requirements.

2.07 EXPANSION LOOPS - HOSE AND BRAID

- A. Manufacturers:
 - 1. The Metraflex Company; FireLoop: www.metrafire.com
 - 2. Substitutions: See Section 016000 - Product Requirements.
- B. Provide flexible loops with two flexible sections of hose and braid, two 90 degree elbows, and 180 degree return with support bracket and air release or drain plug.
- C. Provide flexible loops capable of movement in the x, y, and z planes. Flexible loops to impart no thrust loads to the building structure.
- D. Flexible Connectors: Flanged, braided type with wetted components of stainless steel, sized to match piping.
 - 1. Maximum Allowable Working Pressure: 150 psig at 120 degrees F.
 - 2. End Connections: Same as specified for pipe jointing.
 - 3. End Connections: Flanged ductile iron; complying with ASME B16.5 Class 125.
 - 4. End Connections: Threaded; complying with ASME B16.11.
 - 5. Provide necessary accessories including, but not limited to, swivel joints.

2.08 MECHANICAL COUPLINGS

- A. Manufacturers:
 - 1. Victaulic Company; FireLock Style 009H: www.victaulic.com
 - 2. Grinnell.
 - 3. Gruvlok.
 - 4. Substitutions: See Section 016000 - Product Requirements.
- B. Rigid Mechanical Couplings for Grooved Joints:
 - 1. Dimensions and Testing: Comply with AWWA C606.
 - 2. Minimum Working Pressure: 300 psig.
 - 3. Housing Material: Fabricate of ductile iron conforming to ASTM A536.
 - 4. Housing Coating: Factory applied orange enamel.
 - 5. Gasket Material: EPDM suitable for operating temperature range from minus 30 degrees F to 230 degrees F.
 - 6. Bolts and Nuts: Hot dipped galvanized or zinc electroplated steel.
 - 7. Provide stops for direct stab installation without field assembly.

PART 3 EXECUTION

3.01 INSTALLERS

- A. Western Automatic Sprinkler.
- B. Frontier Fire
- C. Delta Fire
- D. Kimco
- E. The Safety Team / Triple A Fire
- F. Preferred Fire

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G. Substitutions: See Section 016000 - Product Requirements.

3.02 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and foreign material, from inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

- A. Install sprinkler system and service main piping, hangers, and supports in accordance with NFPA 13.
- B. Install standpipe piping, hangers, and supports in accordance with NFPA 14.
- C. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.
- D. Install piping to conserve building space, to not interfere with use of space and other work.
- E. In areas with no ceiling, piping shall be installed as high as possible.
- F. In exposed piping situations, head fittings shall have a 1" minimum outlet with a bushing to accommodate future remodel work.
- G. Group piping, whenever practical, at common elevations.
- H. Floor control valves shall be installed 7'-0" maximum above finish floor, unless prior approval is received from BYU.
- I. All drain valves shall be discharged to the exterior of the building. In a below grade application, drain lines shall tie to an auxiliary drain, not a mop sink. Do not tie into any drain line without BYU approval.
- J. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- K. Inserts:
 - 1. Provide inserts for placement in concrete formwork.
 - 2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
 - 3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
 - 4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
 - 5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.
- L. Pipe Hangers and Supports:
 - 1. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
 - 2. Place hangers within 12 inches of each horizontal elbow.
 - 3. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
 - 4. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
 - 5. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
 - 6. Provide copper hangers and supports for copper piping.
 - 7. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
 - a. Painting of interior fire suppression systems is specified in Section 099123.
 - b. Painting of exterior fire suppression systems is specified in Section 099113.

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- M. Slope piping for dry systems and arrange all systems to drain at low points. Use eccentric reducers to maintain top of pipe level.
- N. Prepare pipe, fittings, supports, and accessories for finish painting. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
 - 1. Painting of interior fire suppression systems is specified in Section 099123.
 - 2. Painting of exterior fire suppression systems is specified in Section 099113.
- O. Structural Considerations:
 - 1. Do not penetrate building structural members unless indicated.
 - 2. Locate flexible expansion loops at or near the building seismic joint.
- P. Provide sleeves when penetrating footings, floors, walls, and partitions. Seal pipe including sleeve penetrations to achieve fire resistance equivalent to fire separation required.
 - 1. Aboveground Piping:
 - a. Pack solid using mineral fiber conforming to ASTM C592.
 - b. Fill space with an elastomer caulk to a depth of 0.50 inch where penetrations occur between conditioned and unconditioned spaces.
 - 2. All Rated Openings: Caulk tight with fire stopping material conforming to ASTM E814 in accordance with Section 078400 to prevent the spread of fire, smoke, and gases.
 - 3. Caulk exterior wall sleeves watertight with lead and oakum or mechanically expandable chloroprene inserts with mastic-sealed components.
- Q. Manufactured Sleeve-Seal Systems:
 - 1. Install manufactured sleeve-seal systems in sleeves located in grade slabs and exterior concrete walls at piping entrances into building.
 - 2. Provide sealing elements of the size, quantity, and type required for the piping and sleeve inner diameter or penetration diameter.
 - 3. Locate piping in center of sleeve or penetration.
 - 4. Install field assembled sleeve-seal system components in annular space between sleeve and piping.
 - 5. Tighten bolting for a water-tight seal.
 - 6. Install in accordance with manufacturer's recommendations.
- R. Escutcheons:
 - 1. Install and firmly attach escutcheons at piping penetrations into finished spaces.
 - 2. Provide escutcheons on both sides of partitions separating finished areas through which piping passes.
 - 3. Attach plates at the underside only of suspended ceilings.
 - 4. Use chrome plated escutcheons in occupied spaces and to conceal openings in construction.
- S. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.
- T. Die cut threaded joints with full cut standard taper pipe threads with Teflon tape and non-toxic joint compound applied to male threads only.

3.04 CLEANING

- A. Upon completion of work, clean all parts of the installation.
- B. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.

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C. See Section 017419 - Construction Waste Management and Disposal, for additional requirements.

END OF SECTION

I, Bruce T. Fallon, AIA the Principal in Charge on this project have reviewed this section and it is in accordance with the Instructions to Architects & Engineers.

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Snell Building Renovation (SNLB) 210500 - 10

COMMON WORK RESULTS
FOR FIRE SUPPRESSION



SECTION 210523
GENERAL-DUTY VALVES FOR WATER-BASED FIRE-SUPPRESSION PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Bronze butterfly valves with indicators.
- B. Iron butterfly valves with indicators.
- C. Check valves.
- D. Iron OS&Y gate valves (only for fire pumps).
- E. Indicator posts.
- F. Trim and drain valves.

1.02 RELATED REQUIREMENTS

- A. Section 078400 - Firestopping.
- B. Section 210500 - Common Work Results for Fire Suppression: Pipe and fittings.
- C. Section 210548 - Vibration and Seismic Controls for Fire Suppression Piping and Equipment.
- D. Section 210553 - Identification for Fire Suppression Piping and Equipment.
- E. Section 210719 - Fire Suppression Piping Insulation.
- F. Section 211200 - Fire-Suppression Standpipes.
- G. Section 211300 - Fire-Suppression Sprinkler Systems.
- H. Section 260583 - Wiring Connections: Electrical characteristics and wiring connections.
- I. Section 284600 - Fire Detection and Alarm.
- J. Section 331416 - Site Water Utility Distribution Piping.

1.03 ABBREVIATIONS AND ACRONYMS

- A. EPDM: Ethylene-propylene diene monomer.
- B. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.
- C. NRS: Non-rising stem.
- D. OS&Y: Outside screw and yoke.
- E. PTFE: Polytetrafluoroethylene.
- F. SBR: Styrene-butadiene rubber.

1.04 REFERENCE STANDARDS

- A. ASME B1.20.1 - Pipe Threads, General Purpose (Inch); 2013.
- B. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250; 2015.
- C. ASME B31.9 - Building Services Piping; 2014.
- D. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Welding, Brazing, and Fusing Procedures; Welders; Braziers; and Welding, Brazing and Fusing Operators; 2017.
- E. AWWA C606 - Grooved and Shouldered Joints; 2015.

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- F. NFPA 13 - Standard for the Installation of Sprinkler Systems; 2016.
- G. NFPA 13R - Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies; 2016.
- H. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.
- I. UL 262 - Gate Valves for Fire-Protection Service; Current Edition, Including All Revisions.
- J. UL 312 - Check Valves for Fire-Protection Service; Current Edition, Including All Revisions.
- K. UL 789 - Indicator Posts for Fire-Protection Service; Current Edition, Including All Revisions.
- L. UL 1091 - Standard for Butterfly Valves for Fire-Protection Service; Current Edition, Including All Revisions.

1.05 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct a preinstallation meeting at least one week prior to the start of the work of this section; require attendance by all affected installers.

1.06 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on valves including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.
- C. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- D. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts listings.

1.07 QUALITY ASSURANCE

- A. U.S. made domestic equipment, pipes, valves, and fittings.
- B. Manufacturer Qualifications:
 - 1. Company must specialize in manufacturing products specified in this section, with not less than five years of documented experience.
- C. Where listed products are specified, provide products listed, classified, and labeled by UL (DIR) or testing firm acceptable to authorities having jurisdiction as suitable for the purpose indicated.
- D. Welding Materials and Procedures: Conform to ASME BPVC-IX.
- E. Installer Qualifications:
 - 1. Company specializing in performing the work of this section with minimum three years documented experience.
 - 2. Trained and approved by manufacturer to design, install, test and maintain the equipment specified herein.
 - 3. Complies with manufacturer's certification requirements.
 - 4. Complies with manufacturer's insurance requirements.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Prepare valves for shipping as follows:
 - 1. Protect internal parts against rust and corrosion.
 - 2. Protect threads, flange faces, and weld ends.
 - 3. Set valves open to minimize exposure of functional surfaces.
- B. Use the following precautions during storage:
 - 1. Maintain valve end protection and protect flanges and specialties from dirt.

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- a. Provide temporary inlet and outlet caps.
- b. Maintain caps in place until installation.
- 2. Store valves in shipping containers and maintain in place until installation.
 - a. Store valves indoors and maintain at higher than ambient dew point temperature.
 - b. If outdoor storage is unavoidable, store valves off the ground in watertight enclosures.
- C. Use the following precautions for handling:
 - 1. Use sling to handle large valves, rigged to avoid damage to exposed parts.
 - 2. Do not use operating handles or stems as lifting or rigging points.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. UL Listed: Provide valves listed in UL (DIR) under following headings and bearing UL mark:
 - 1. Main Level: HAMV - Fire Main Equipment.
 - a. Level 1: HCBZ - Indicator Posts, Gate Valve.
 - b. Level 1: HLOT - Valves.
 - c. Level 3: HLUG - Ball Valves, System Control.
 - d. Level 3: HLXS - Butterfly Valves.
 - e. Level 3: HMER - Check Valves.
 - f. Level 3: HMRZ - Gate Valves.
 - 2. Main Level: VDGT - Sprinkler System & Water Spray System Devices.
 - a. Level 1: VQGU - Valves, Trim, and Drain.
- B. ASME Compliance:
 - 1. ASME B16.1 for flanges on iron valves.
 - 2. ASME B1.20.1 for threads on threaded-end valves.
 - 3. ASME B31.9 for building services piping valves.
- C. Comply with AWWA C606 for grooved-end connections.
- D. Comply with NFPA 13 and NFPA 13R for valves.
- E. Valve Pressure Ratings: Not less than minimum 200 psi pressure rating or higher as required.
- F. Valve Sizes: Same as upstream piping unless otherwise indicated.
- G. Valve Actuator Types:
 - 1. Worm-gear actuator with handwheel for quarter-turn valves, except trim and drain valves.
 - 2. Handwheel: For other than quarter-turn trim and drain valves.
 - 3. Hand-lever: For quarter-turn trim and drain valves 2 NPS and smaller.

2.02 TWO-PIECE BALL VALVES WITH INDICATORS

- A. Manufacturers:
 - 1. Victaulic.
 - 2. Nibco.
 - 3. Apollo.
 - 4. Watts.
- B. Description:
 - 1. Minimum Pressure Rating: 175 psig.
 - 2. Body Design: Two piece.
 - 3. Body Material: Forged brass or bronze.

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4. Port Size: Full or standard.
5. Seat: PTFE.
6. Stem: Stainless steel.
7. Ball: Stainless steel.
8. Actuator: Hand-lever, quarter-turn.
9. Supervisory Switch: Internal or external.
10. End Connections for Valves 1 NPS through 2 NPS: Threaded ends.
11. End Connections for Valves 2-1/2 NPS: Grooved ends.

2.03 BRONZE BUTTERFLY VALVES WITH INDICATORS

- A. Manufacturers:
 1. Nibco.
 2. Apollo.
 3. Watts.
 4. Substitutions: See Section 016000 - Product Requirements.
- B. UL 1091 standard listing for indicating valves, (butterfly or ball type), Class Number 1112.
- C. Minimum Pressure Rating: 200 psig
- D. Body Material: Bronze.
- E. Seat: EPDM.
- F. Stem: Bronze or stainless steel.
- G. Disc: Bronze with EPDM coating.
- H. Actuator: Worm gear or traveling nut.
- I. Supervisory Switch: Internal or external.
- J. End Connections for Valves 1 NPS through 2 NPS: Threaded or Grooved ends.
- K. End Connections for Valves 2-1/2 NPS and above: Grooved ends.

2.04 IRON BUTTERFLY VALVES WITH INDICATORS

- A. Manufacturers:
 1. Victaulic
 2. Nibco
 3. Apollo
 4. Watts
 5. Substitutions: See Section 016000 - Product Requirements.
- B. UL 1091 standard listing for indicating valves, (butterfly or ball type), Class Number 1112.
- C. Minimum Pressure Rating: 200 psi
- D. Body Material: Cast or ductile iron with epoxy coating.
- E. Seat: EPDM.
- F. Stem: Stainless steel.
- G. Disc: Ductile iron, EPDM or SBR coated.
- H. Actuator: Worm gear or traveling nut.
- I. Supervisory Switch: Internal only
- J. End Connections for Valves 1 NPS through 2 NPS: Threaded or Grooved ends.
- K. End Connections for Valves 2-1/2 NPS and above: Grooved ends.

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2.05 CHECK VALVES

- A. Manufacturers:
 - 1. Victaulic
 - 2. Nibco
 - 3. Apollo
 - 4. Watts
 - 5. Substitutions: See Section 016000 - Product Requirements.
- B. UL 1091 standard listing for indicating valves, (butterfly or ball type), Class Number 1112.
- C. Minimum Pressure Rating: []00psig
- D. Type: Center guided check valve.
- E. Body Material: Cast iron, ductile iron.
- F. Center guided check with elastomeric seal.
- G. Hinge Spring: Stainless steel.
- H. End Connections: Flanged, grooved, or threaded.

2.06 NRS GATE VALVES

- A. Manufacturers:
 - 1. Mueller.
 - 2. American.
 - 3. Kennedy Valve; www.kennedyvalve.com
 - 4. Substitutions: See Section 016000 - Product Requirements.
- B. Minimum Pressure Rating: 175 psig.
- C. Body and Bonnet Material: Cast or ductile iron with epoxy coating.
- D. Wedge: Cast or ductile iron with elastomeric coating.
- E. Stem: Brass or bronze.
- F. Packing: Non-asbestos PTFE.
- G. Supervisory Switch: External.
- H. End Connections: Flanged.

2.07 INDICATOR POSTS

- A. Manufacturers:
 - 1. Kennedy Valve; _____: www.kennedyvalve.com
 - 2. Mueller.
 - 3. American.
 - 4. Substitutions: See Section 016000 - Product Requirements.
- B. UL 789 standard listing for indicator posts.
- C. Type: Underground.
- D. Base Barrel Material: Cast or ductile iron.
- E. Extension Barrel for Adjustable Length Indicator Posts: Cast or ductile iron.
- F. Cap: Cast or ductile iron.
- G. Operation: Wrench.

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2.08 TRIM AND DRAIN VALVES

- A. Ball Valves:
 - 1. Description:
 - a. Pressure Rating: 250 psig.
 - b. Body Design: Two piece.
 - c. Body Material: Forged brass or bronze.
 - d. Port Size: Full port.
 - e. Seat: PTFE.
 - f. Stem: Stainless Steel.
 - g. Ball: Stainless Steel.
 - h. Actuator: Hand-lever.
 - i. End Connections for Valves 1 NPS through 2-1/2 NPS: Threaded ends.
 - j. End Connections for Valves 1-1/4 NPS and 2-1/2 NPS: Grooved ends.
- B. Angle Valves:
 - 1. Description:
 - a. Pressure Rating: 250 psig.
 - b. Body Material: Brass or bronze.
 - c. Ends: Threaded.
 - d. Stem: Brase.
 - e. Disc: Bronze.
 - f. Packing: Asbestos free.
 - g. Handwheel: Malleable iron, bronze, or aluminum.
- C. Globe Valves:
 - 1. Description:
 - a. Pressure Rating: 250 psig.
 - b. Body Material: Bronze with integral seat and screw-in bonnet.
 - c. Ends: Threaded.
 - d. Stem: Bronze.
 - e. Disc Holder and Nut: Bronze.
 - f. Disc Seat: Nitrile.
 - g. Packing: Asbestos free.
 - h. Handwheel: Malleable iron, bronze, or aluminum.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Confirm valve interior to be free of foreign matter and corrosion.
- B. Remove packing materials.
- C. Examine guides and seats by operating valves from the fully open position to the fully closed position.
- D. Examine valve threads and mating pipe for form and cleanliness.
- E. Examine mating flange faces for conditions that might cause leakage.
 - 1. Check bolting for proper size, length, and material.
 - 2. Verify gasket for size, defects, damage, and suitable material composition for service.
 - 3. Replace all defective valves with new valves.

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3.02 INSTALLATION

- A. Comply with specific valve installation requirements and application in the following Sections:
 - 1. Section 211200 for application of valves in fire-suppression standpipes.
 - 2. Section 211300 for application of valves in wet and dry pipe, fire-suppression sprinkler systems.
 - 3. Section 331416 for application of valves in fire-suppression water-service piping outside the building.
- B. Install listed fire protection shutoff valves supervised-open, located to control sources of water supply except from fire department connections.
 - 1. Install permanent identification signs indicating portion of system controlled by each valve.
 - 2. Provide 11"x17" laminated fire sprinkler zone plan at each control valve indicating portion of system controlled by each valve. Hang plans from valve.
- C. Install testable double check backflow preventer at potable water supply connection to fire protection system.
 - 1. Test backflow preventer within ten days of system being in service and provide test documentation to BYU project manager.
- D. Valves in horizontal piping installed with stem at or above the pipe center.
- E. Position valves to allow full stem movement.
- F. Install valve tags. Comply with Section 210553 requirements for valve tags, schedules, and signs on surfaces concealing valves; and the appropriate NFPA standard applying to the piping system in which valves are installed.
- G. Floor control valves shall be installed 7'-0" maximum above finish floor, unless prior approval is received from BYU.

END OF SECTION

I, Bruce T. Fallon, AIA the Principal in Charge on this project have reviewed this section and it is in accordance with the Instructions to Architects & Engineers.

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Snell Building Renovation (SNLB)

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GENERAL-DUTY VALVES FOR
WATER-BASED FIRE-
SUPPRESSION PIPING



I, Bruce T. Fallon, AIA the Principal in Charge on this project have reviewed this section and it is in accordance with the Instructions to Architects & Engineers.

Signature & Date:

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Snell Building Renovation (SNLB)

210523 - 8

GENERAL-DUTY VALVES FOR
WATER-BASED FIRE-
SUPPRESSION PIPING



SECTION 210548

VIBRATION AND SEISMIC CONTROLS FOR FIRE SUPPRESSION PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Seismic control requirements.
- B. Seismic restraints for suspended components and equipment.

1.02 RELATED REQUIREMENTS

- A. Section 033000 - Cast-in-Place Concrete.
- B. Section 055000 - Metal Fabrications: Materials and requirements for fabricated metal supports.
- C. Section 220548 - Vibration and Seismic Controls for Plumbing Piping and Equipment
- D. Section 230548 - Vibration and Seismic Controls for HVAC Piping and Equipment

1.03 DEFINITIONS

- A. Fire Suppression Component: Where referenced in this section in regards to seismic controls, applies to any portion of the fire suppression system subject to seismic evaluation in accordance with applicable codes, including distributed systems (e.g., piping).
- B. Seismic Restraint: Structural members or assemblies of members or manufactured elements specifically designed and applied for transmitting seismic forces between components and the seismic force-resisting system of the structure.

1.04 REFERENCE STANDARDS

- A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.
- B. FEMA E-74 - Reducing the Risks of Nonstructural Earthquake Damage; 2011.
- C. ICC (IBC) - International Building Code; 2015.
- D. NFPA 13 - Standard for the Installation of Sprinkler Systems; 2016.
- E. UL 203A - Standard for Sway Brace Devices for Sprinkler System Piping; Current Edition, Including All Revisions.

1.05 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate selection and arrangement of vibration isolation and/or seismic control components with the actual equipment to be installed.
 - 2. Coordinate the work with other trades to provide additional framing and materials required for installation.
 - 3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
 - 4. Seismic Controls:
 - a. Coordinate the arrangement of seismic restraints with piping, conduit, equipment, and other potential conflicts installed under other sections or by others.
 - b. Coordinate the work with other trades to accommodate relative positioning of essential and nonessential components in consideration of seismic interaction.

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Snell Building Renovation (SNLB)

210548 - 1

VIBRATION AND SEISMIC
CONTROLS FOR FIRE
SUPPRESSION PIPING AND
EQUIPMENT



5. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:

1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured in accordance with Section 033000.

1.06 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Design Documents: Prepare and submit all information required for plan review and permitting by authorities having jurisdiction, including but not limited to floor plans, details, and calculations.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets for products, including materials, fabrication details, dimensions, and finishes.

1. Vibration Isolators: Include rated load capacities and deflections; include information on color coding or other identification methods for spring element load capacities.

2. Seismic Controls: Include seismic load capacities.

D. Shop Drawings - Seismic Controls:

1. Include dimensioned plan views and sections indicating proposed fire suppression component locations and distributed system routing, with locations and details of gravity supports and seismic restraints and associated attachments.

E. Field quality control test reports.

1.07 QUALITY ASSURANCE

A. Comply with applicable building code.

B. Seismic Controls Designer Qualifications: Registered professional engineer licensed in Utah and with minimum five years' experience designing seismic restraints for nonstructural components.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 SEISMIC CONTROL REQUIREMENTS

A. Design and provide fire suppression component restraints, supports, and attachments suitable for seismic loads determined in accordance with applicable codes, as well as gravity and operating loads and other structural design considerations of the installed location. Consider wind loads for outdoor fire suppression components.

B. Seismic Design Criteria: ICC (IBC)/ASCE 7/NFPA 13.

C. Component Importance Factor (Ip): Fire suppression components to be assigned a component importance factor (Ip) of 1.5 unless otherwise indicated.

D. Seismic Restraints:

1. Provide seismic restraints for fire suppression components except where exempt according to applicable codes and specified seismic design criteria, as approved by authorities having jurisdiction.

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Snell Building Renovation (SNLB)

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VIBRATION AND SEISMIC
CONTROLS FOR FIRE
SUPPRESSION PIPING AND
EQUIPMENT



2. Seismic restraint capacities to be verified by a Nationally Recognized Testing Laboratory (NRTL) or certified by an independent third-party registered professional engineer acceptable to authorities having jurisdiction.
- E. Seismic Attachments:
1. Comply with support and attachment requirements of NFPA 13.
- F. Seismic Interactions:
1. Include provisions to prevent seismic impact between fire suppression components and other structural or nonstructural components.
 2. Include provisions such that failure of a component, either essential or nonessential, does not cause the failure of an essential component.
 3. Comply with minimum clearance requirements between other equipment, distribution systems, and associated supports and fire protection sprinkler system drops and sprigs.
- G. Seismic Relative Displacement Provisions:
1. Use suitable fittings or flexible connections, in accordance with NFPA 13.
 2. Provide clearance around fire suppression system piping extending through walls, floors, platforms, and foundations in accordance with NFPA 13.

2.02 MANUFACTURERS

- A. Substitutions: See Section 016000 - Product Requirements.

2.03 PERFORMANCE REQUIREMENTS

- A. General:
1. All vibration isolators, base frames and inertia bases to conform to all uniform deflection and stability requirements under all operating loads.
 2. Steel springs to function without undue stress or overloading.
 3. Steel springs to operate in the linear portion of the load versus deflection curve over deflection range of not less than 50 percent above specified deflection.
 4. Lateral to vertical stiffness ratio to not exceed 0.08 with spring deflection at minimum 75 percent of specified deflection.
 5. All equipment mounted on vibration isolated bases to have minimum operating clearance of 2 inches between the base and floor or support beneath unless noted otherwise.

2.04 SEISMIC RESTRAINTS FOR SUSPENDED COMPONENTS AND EQUIPMENT

- A. Products to be listed in accordance with the requirements of NFPA 13.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as shown on the drawings.
- B. Verify that mounting surfaces are ready to receive vibration isolation and/or seismic control components and associated attachments.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Comply with the requirements of NFPA 13.

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Snell Building Renovation (SNLB)

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VIBRATION AND SEISMIC
CONTROLS FOR FIRE
SUPPRESSION PIPING AND
EQUIPMENT



- C. Install anchors and fasteners in accordance with ICC Evaluation Services, LLC (ICC-ES) evaluation report conditions of use where applicable.
- D. Secure fasteners according to manufacturer's recommended torque settings.
- E. Field-Welding (where approved by Architect): Comply with Section 055000.
- F. Install flexible piping connections to provide sufficient slack for vibration isolation and/or seismic relative displacements as indicated or as required.

3.03 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements, for additional requirements.
- B. Inspect vibration isolation and/or seismic control components for damage and defects.
- C. Correct deficiencies and replace damaged or defective vibration isolation and/or seismic control components.
- D. Submit detailed reports indicating inspection and testing results and corrective actions taken.
- E. Inspect isolated equipment after installation and submit report. Include static deflections.
- F. Seismic inspection in the presence of Authority Having Jurisdiction, at time of hydrostatic test.

END OF SECTION

I, Bruce T. Fallon, AIA the Principal in Charge on this project have reviewed this section and it is in accordance with the Instructions to Architects & Engineers.

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Snell Building Renovation (SNLB)

210548 - 4

VIBRATION AND SEISMIC
CONTROLS FOR FIRE
SUPPRESSION PIPING AND
EQUIPMENT



SECTION 211300
FIRE-SUPPRESSION SPRINKLER SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wet-pipe sprinkler system.
- B. Dry-pipe sprinkler system.
- C. Pre-action sprinkler system.
- D. System design, installation, and certification.
- E. Fire department connections.

1.02 RELATED REQUIREMENTS

- A. Section 078400 - Firestopping.
- B. Section 083477 - Smoke and Fire Protective Curtain Assemblies: Smoke and fire curtains to be released by activation of sprinkler system.
- C. Section 210500 - Common Work Results for Fire Suppression: Pipe and fittings.
- D. Section 210523 - General-Duty Valves for Water-Based Fire-Suppression Piping.
- E. Section 210548 - Vibration and Seismic Controls for Fire Suppression Piping and Equipment.
- F. Section 210553 - Identification for Fire Suppression Piping and Equipment.
- G. Section 211200 - Fire-Suppression Standpipes.
- H. Section 260583 - Wiring Connections: Electrical characteristics and wiring connections.
- I. Section 284600 - Fire Detection and Alarm.

1.03 REFERENCE STANDARDS

- A. ICC-ES AC01 - Acceptance Criteria for Expansion Anchors in Masonry Elements; 2015.
- B. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements; 2015.
- C. ICC-ES AC193 - Acceptance Criteria for Mechanical Anchors in Concrete Elements; 2015.
- D. ITS (DIR) - Directory of Listed Products; current edition.
- E. NFPA 13 - Standard for the Installation of Sprinkler Systems; 2016.
- F. NFPA 13R - Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies; 2016.
- G. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct a preinstallation meeting prior to the start of the work of this section; require attendance by all affected installers. First install scope shall be determined at this meeting.

1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.

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- B. Product Data: Provide data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.
- C. Shop Drawings:
 - 1. Submit preliminary layout of finished ceiling areas indicating only sprinkler locations coordinated with ceiling installation.
 - 2. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, seismic bracing, sprinklers, components and accessories. Indicate system controls.
 - 3. Submit shop drawings, product data, and hydraulic calculations to AHJ and BYU Fire Marshal for approval. Submit proof of approval to Architect.
- D. Manufacturer's Certificate: Certify that system has been tested and meets or exceeds specified requirements and code requirements.
- E. Designer's Qualification Statement.
- F. Manufacturer's Qualification Statement.
- G. Installer's Qualification Statement.
- H. Operation and Maintenance Data: Include components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service depot.
- I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 - Product Requirements, for additional provisions.
 - 2. Extra Sprinklers: Type and size matching those installed, in quantity required by referenced NFPA design and installation standard.
 - 3. Sprinkler Wrenches: For each sprinkler type.
- J. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.

1.06 QUALITY ASSURANCE

- A. Designer Qualifications: Professional Fire Protection Engineer Utah or NICET Level III Technician.
- B. Margin of Safety for Available Water Flow and Pressure: 10 percent, including losses through water-service piping, valves, and backflow preventers.
- C. Water Velocity: the maximum water velocity shall not exceed 32 fps.
- D. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.
- E. Installer Qualifications: Company specializing in performing the work of this section with minimum three years' experience and approved by manufacturer.
- F. Equipment and Components: Provide products that bear UL (DIR) label or marking. All products shall be domestic only.
- G. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified and indicated.

1.07 FIRST INSTALL

- A. Provide components for installation in first install.
- B. First install may remain as part of the Work.
- C. Owner shall be invited to participate.

I, Bruce T. Fallon, AIA the Principal in Charge on this project have reviewed this section and it is in accordance with the Instructions to Architects & Engineers.

Signature & Date:  03.22.2024



1.08 DELIVERY, STORAGE, AND HANDLING

- A. Store products in shipping containers and maintain in place until installation. Provide temporary inlet and outlet caps. Maintain caps in place until installation.
- B. Schedule inspection of material with Owner prior to first install.

PART 2 PRODUCTS

2.01 SPRINKLER SYSTEM

- A. Sprinkler System: Provide coverage for entire building.
- B. Occupancy: comply with NFPA 13.
- C. Water Supply: Determine volume and pressure from water flow test data.
 - 1. Contractor shall perform flow test.
- D. Interface system with building control system.
- E. Provide fire department connections where indicated.
- F. Storage Cabinet for Spare Sprinklers and Tools: Steel, in location designated.
- G. Pipe Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
 - 1. Concrete Wedge Expansion Anchors: Complying with ICC-ES AC193.
 - 2. Masonry Wedge Expansion Anchors: Complying with ICC-ES AC01.
 - 3. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
 - 4. Masonry Screw Type Anchors: Complying with ICC-ES AC106.

2.02 SPRINKLERS

- A. Suspended Ceiling Type: Concealed pendant type with matching screw on escutcheon plate.
 - 1. Response Type: Quick.
 - 2. Coverage Type: Standard.
 - 3. Finish: Brass.
 - 4. Escutcheon Plate Finish: Enamel, color as selected.
 - 5. Fusible Link: Glass bulb type temperature rated for specific area hazard.
 - 6. Manufacturers:
 - a. Victaulic _____.
 - b. Globe _____.
 - c. Reliable _____.
- B. Exposed Area Type: Pendant or Upright type with guard in minimum 1" fitting with bushing.
 - 1. Response Type: Quick.
 - 2. Coverage Type: Standard.
 - 3. Finish: Brass.
 - 4. Fusible Link: Glass bulb type temperature rated for specific area hazard.
 - 5. Manufacturers:
 - a. Victaulic _____.
 - b. Globe _____.
 - c. Reliable _____.
- C. Sidewall Type: Semi-recessed horizontal sidewall type with matching push on escutcheon plate.
 - 1. Response Type: Quick.
 - 2. Coverage Type: Standard.
 - 3. Finish: Brass.

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Signature & Date:  03.22.2024



- 4. Escutcheon Plate Finish: Enamel, color as selected.
- 5. Fusible Link: Glass bulb type temperature rated for specific area hazard.
- 6. Manufacturers:
 - a. Victaulic _____.
 - b. Globe _____.
 - c. Reliable _____.
- D. Flexible Drop System: Stainless steel, minimum of 5 bends.
 - 1. Application: Use to properly locate sprinkler heads.
 - 2. Include all supports and bracing.
 - 3. Provide braided type tube as required for the application.
 - 4. Manufacturers:
 - a. Victaulic Company; AH2 or AH2CC: www.victaulic.com.
 - b. Viking; Superflex _____.
 - c. Substitutions: See Section 016000 - Product Requirements.

2.03 PIPING SPECIALTIES

- A. Backflow Preventer: Double check valve assembly backflow preventer with drain and butterfly valve with tamper switch on each end.
 - 1. Manufacturers:
 - a. Ames; Colt 200 _____.
 - b. Wilkins; Model 957 _____.
 - c. Apollo; Model DCLF4A _____.
- D. Test Connections:
 - 1. Inspector's Test Connection:
 - a. Provide test connections approximately 6 ft above floor for each or portion of each sprinkler system equipped with an alarm device, located at the most remote part of each system.
 - b. Route test connection to an open-site drain location on exterior of the building.
 - 1) In basement locations, route to auxiliary drain.
 - 2) Drain location shall accept full flow without negative consequences.
 - 3) Draining to mop sinks is not allowed.
 - c. Supply discharge orifice with same size as corresponding sprinkler orifice.
 - d. Limit vertical height of exterior wall penetration to 2 ft above finished grade.
- E. Water Flow Switch: Key activated. Vane type switch for mounting horizontal or vertical _____.
 - 1. Manufacturers:
 - a. Potter; Model VSR-AT _____.
- F. Fire Department Connections:
 - 1. 5" Storz Connection as per AHJ
 - a. Signage: Raised or engraved lettering 1 inch minimum indicating system type.
 - 2. Requires 24V power. Coordinate with electrician.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with referenced NFPA design and installation standard.
- B. Install equipment in accordance with manufacturer's instructions.

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- C. Provide complete set of 11"x17" laminated fire protection plans at the main control valve of sprinkler system.
- D. Install testable double check backflow preventer at potable water supply connection to fire protection system.
 - 1. Test backflow preventer within ten days of system being in service and provide test documentation to BYU project manager.
- E. Locate 5" Storz fire department connection with sufficient clearance from walls and obstructions to allow full swing of fire department wrench handle.
- F. Locate outside alarm horn and strobe at FDC on building wall as indicated.
 - 1. Blue lens as per AHJ.
- G. Place pipe runs to minimize obstruction to other work.
- H. Place piping in concealed spaces above finished ceilings.
- I. Place piping in exposed spaces as high as possible.
- J. Center sprinklers in two directions in ceiling tile and provide piping offsets as required.
 - 1. Exceptions as approved by Owner.
- K. Install guards on sprinklers where indicated.
- L. Hydrostatically test entire system.
- M. All tests will be the responsibility of this contractor. If tests are not run or do not have the proper witness, then they will be run later and all damage caused by the system, or caused in uncovering the system for such test, will be borne by this contractor.
- N. Require test be witnessed by BYU Fire Marshal and Authority Having Jurisdiction.
- O. Whether the underground serving the sprinkler system is done by this contractor or another, this contractor shall be responsible to verify with the AHJ and BYU Fire Marshal that the underground has been flushed and tested by the contractor who installed it in accordance with NFPA-24 prior to connection of the underground piping to the overhead sprinkler system.

3.02 INTERFACE WITH OTHER PRODUCTS

- A. Ensure required devices are installed and connected as required to fire alarm system.

END OF SECTION

I, Bruce T. Fallon, AIA the Principal in Charge on this project have reviewed this section and it is in accordance with the Instructions to Architects & Engineers.

Signature & Date:  03.22.2024

Snell Building Renovation (SNLB)

211300 - 5

FIRE-SUPPRESSION
SPRINKLER SYSTEMS

BYU ELECTRICAL BID BREAKDOWN FORM

Instructions to Engineers:

1. The project engineer shall modify the each row, as needed, to include all pertinent specifications sections, with their associated manufacturers.
2. Review final document with owner engineer prior to including in the final specification.
3. Light Fixtures. Comply with the following guidelines:
 - a. Provide a separate line for each type of light fixture.
 - b. Engineer-of-Record may change the local manufacturer representative’s name location in each row. Locate the manufacturer of the preferred or recommended fixture in the base bid column.
 - c. If there is only one available manufacturer, identify “BYU” in Column ‘A’. A number from BYU is not required when submitting the form for bidding. St t Lighting Fixture Type T-4, as an example to follow.
 - d. Only identify local manufacturer representative’s name, if they have an Owner approved light fixture. Manufacturer’s not approved, shall not be included in the bid breakdown form.
4. Current Date of Document: 03/19/2024.

The General Contract bid will be tabulated using the Column "Base Bid" total along with all other electrical work. (All other electrical items, not specifically listed on this form, are to be bid as specified, as listed on the Drawings, or as approved in the Addendum to the contract documents.) Prices shall be as quoted to the Contractor by the vendor, exclude sales tax.

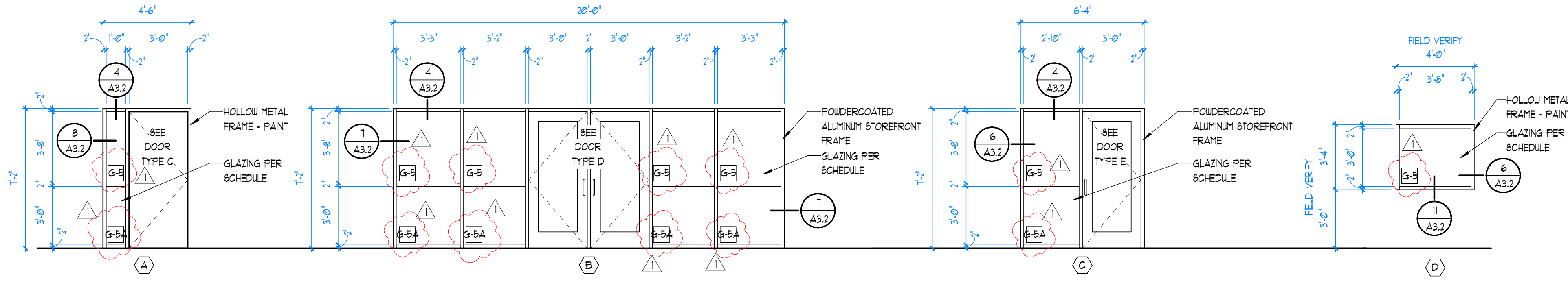
The selected General Contractor, will provide this form complete, to the Owner within twenty-four (24) hours after the General Contractor selection. At that time, the Electrical Contractor's bid must include all items in all columns listed on this form. Prices shall be verified by a copy of the quotation on request.

Vendors not specifically pre-listed under alternate Columns “A”, "B", "C", "D" or "E" on this form may be submitted as a substitute by the Contractor for consideration by the Owner following procedures noted in the specification. If a column does not have a vendor pre-listed and a substitute has been pre-approved, the Electrical Contractor may indicate the vendor providing the price in the "other" column. Electrical items not specifically listed on this form, in the Specification, on the Drawings or as approved in the Addendum to the contract documents, cannot be listed on the Electrical Bid Breakdown.

The Owner is not obligated to use items in Column "Base Bid". The Owner reserves the right to pick and choose from among alternative offerings in Columns “A”, "B", "C", "D" and "E". The contract shall be adjusted without markup for any price differential between the price listed in Column "Base Bid" and that listed in any selected alternative column. The Owner reserves the right to accept or reject any of the Equipment or System items anytime within ninety (90) days after signing a contract.

In the event that the supplier in Column “Base Bid” does not provide a price at bid time, the contractor shall include the most expensive option listed (A, B, C, etc), in their bid.

Item	Specification Section	Base Bid	A	B	C	D	E
	265100 Interior Lighting Fixture Type - A	JRC \$72.00	Quantum \$71.75	Build 26 \$47.72	Steven's Sales \$60.00	Layton Sales \$53.44	DMA \$
	265100 Interior Lighting Fixture Type - B	JRC \$72.00	Quantum \$71.75	Build 26 \$47.72	Steven's Sales \$60.00	Layton Sales \$53.44	DMA \$
	265100 Interior Lighting Fixture Type - C	JRC \$72.00	Quantum \$71.75	Build 26 \$47.72	Steven's Sales \$60.00	Layton Sales \$53.44	DMA \$

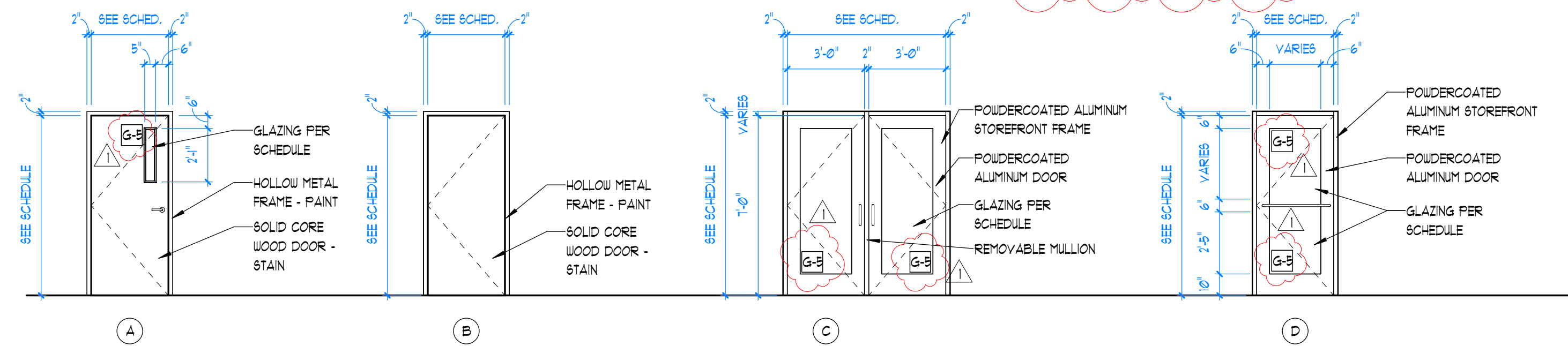


1 WINDOW TYPES
1/4" = 1'-0"

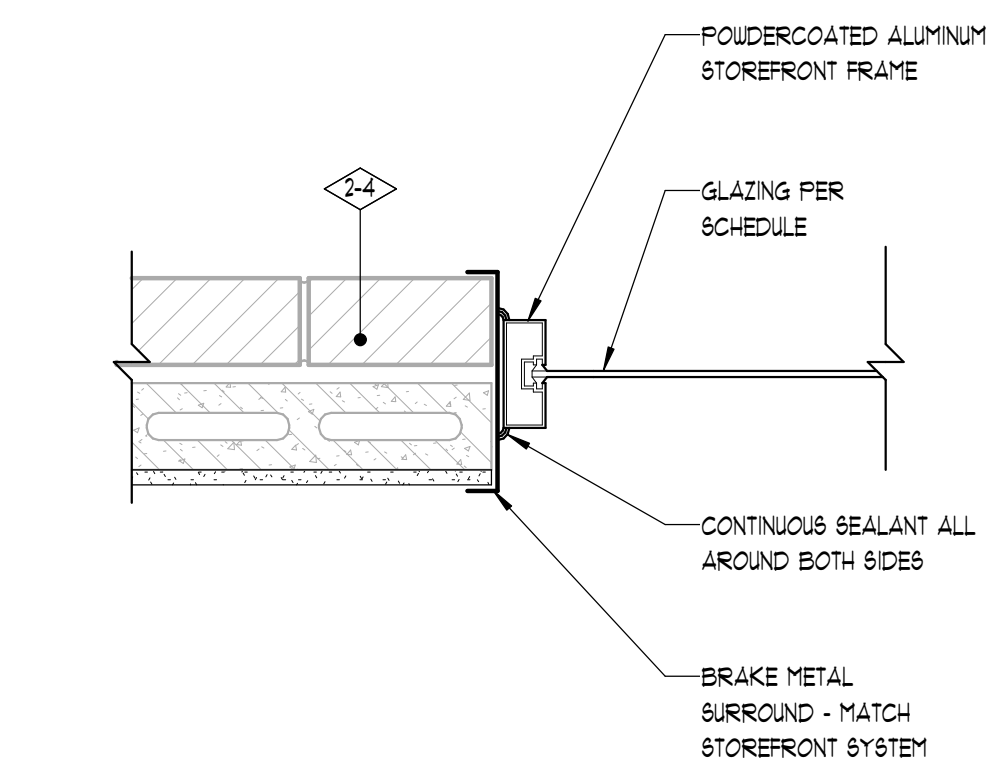
DR. NUMBER	DOOR TYPE	DOOR			DETAILS		HU SET	FRAME TYPE	FIRE RATING	COMMENTS
		WIDTH	HEIGHT	THICK	HEAD	JAMB				
220	D	3'-0"	T'-0"	1 3/4"	10/A3.2	9/A3.2	2.0	FRM-1	NONE	
222	D	3'-0"	T'-0"	1 3/4"	10/A3.2	9/A3.2	2.0	FRM-2	NONE	
224	A	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	3.0	FRM-1	NONE	
224A	A	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	3.0	FRM-1	NONE	
230	C	3'-0"	T'-0"	1 3/4"	10/A3.2	9/A3.2	1.0	FRM-2	NONE	
230A	C	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	3.0	FRM-1	NONE	
230D	A	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	1.0	FRM-1	NONE	
230F	A	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	1.0	FRM-1	NONE	
230H	A	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	1.0	FRM-1	NONE	
230J	A	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	1.0	FRM-1	NONE	
230L	A	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	1.0	FRM-1	NONE	
230N	A	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	1.0	FRM-1	NONE	
230P	A	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	1.0	FRM-1	NONE	
230R	A	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	3.0	FRM-1	NONE	
232	B	3'-0"	T'-0"	1 3/4"	6/A3.2	6/A3.2	3.0	FRM-3	NONE	
234	B	3'-0"	T'-0"	1 3/4"	3/A3.2	6/A3.2	4.0	FRM-3	NONE	
236	B	3'-0"	T'-0"	1 3/4"	5/A3.1	4/A3.1	4.0	FRM-3	NONE	
250A	C	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	10.0	FRM-1	NONE	
250B	B	3'-0"	T'-0"	1 3/4"	3/A3.2	3/A3.2 6M	6.0	FRM-3	NONE	

GLAZING SCHEDULE

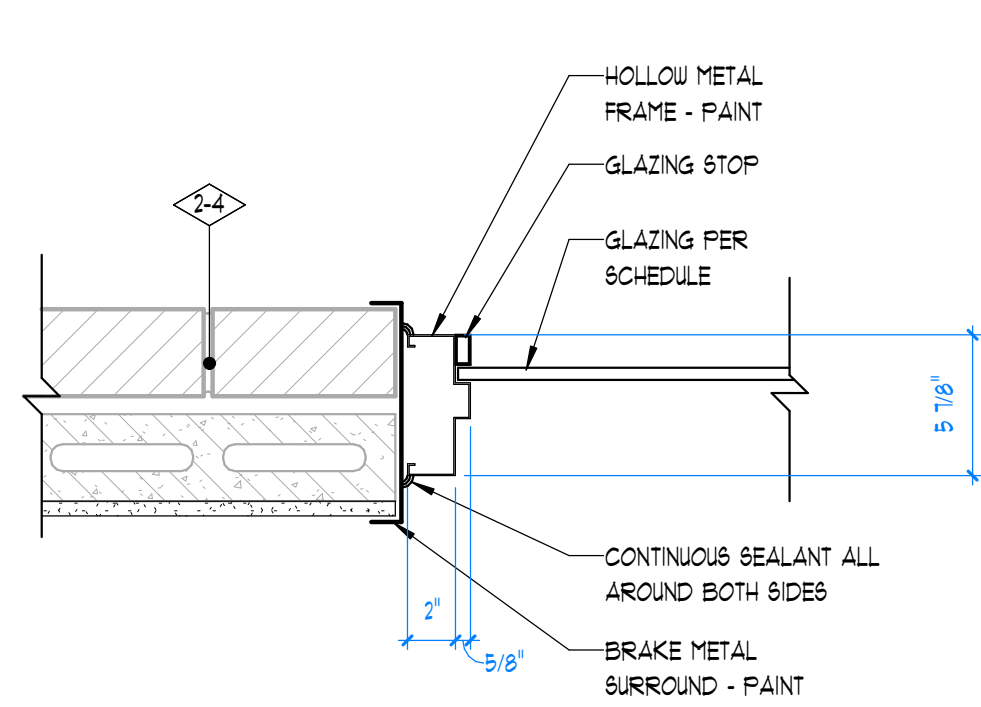
- G-4 1/4" FULLY TEMPERED CLEAR FLOAT GLASS
- E-5 1/4" FULLY TEMPERED FROSTED FLOAT GLASS



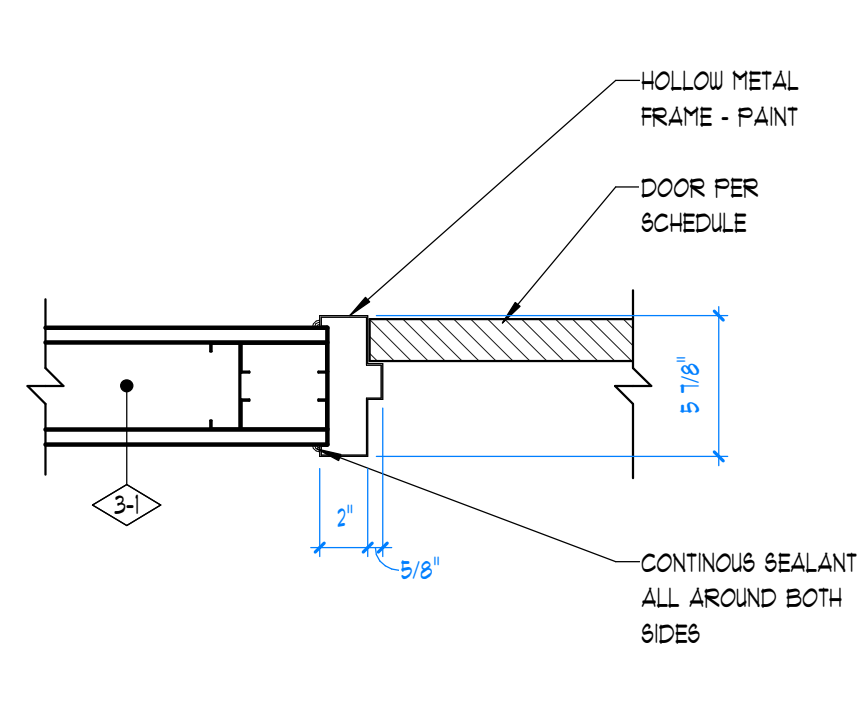
2 DOOR TYPES
1/4" = 1'-0"



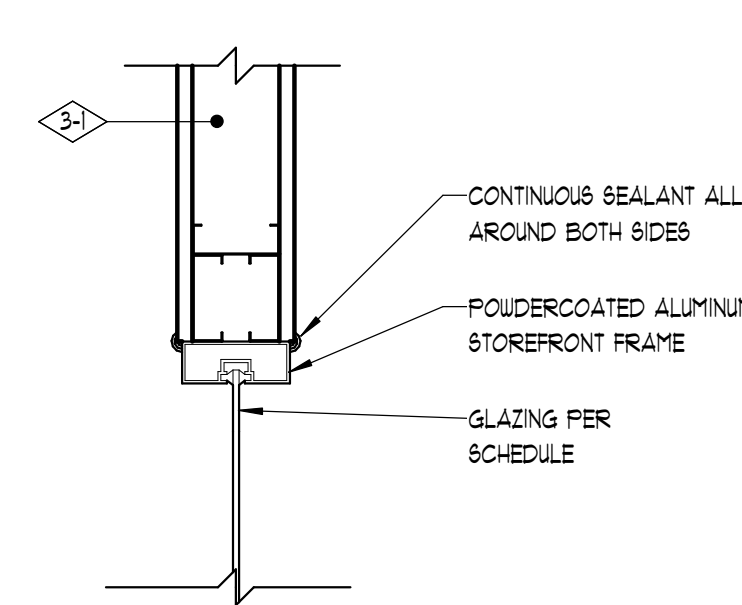
7 JAMB DETAIL
1 1/2" = 1'-0"



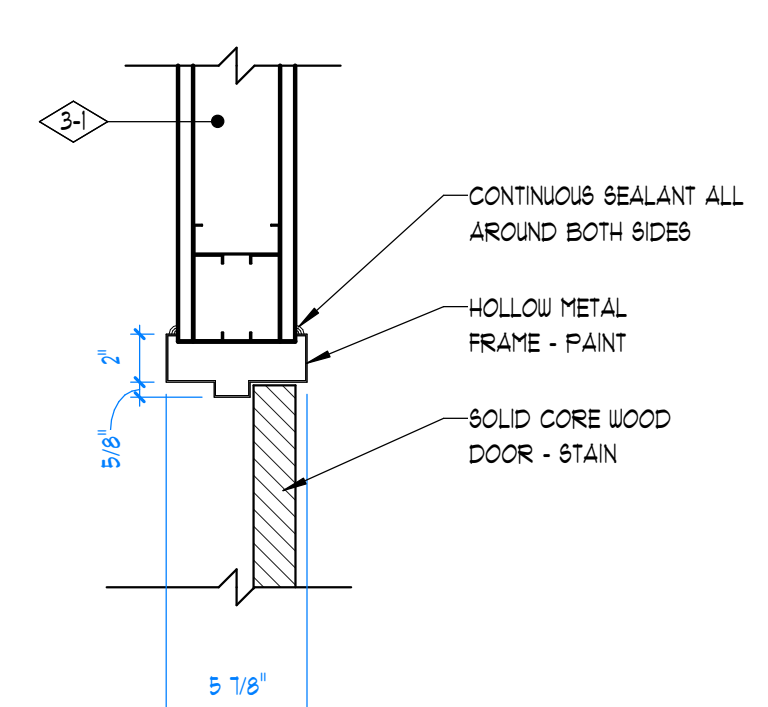
6 JAMB DETAIL
1 1/2" = 1'-0"



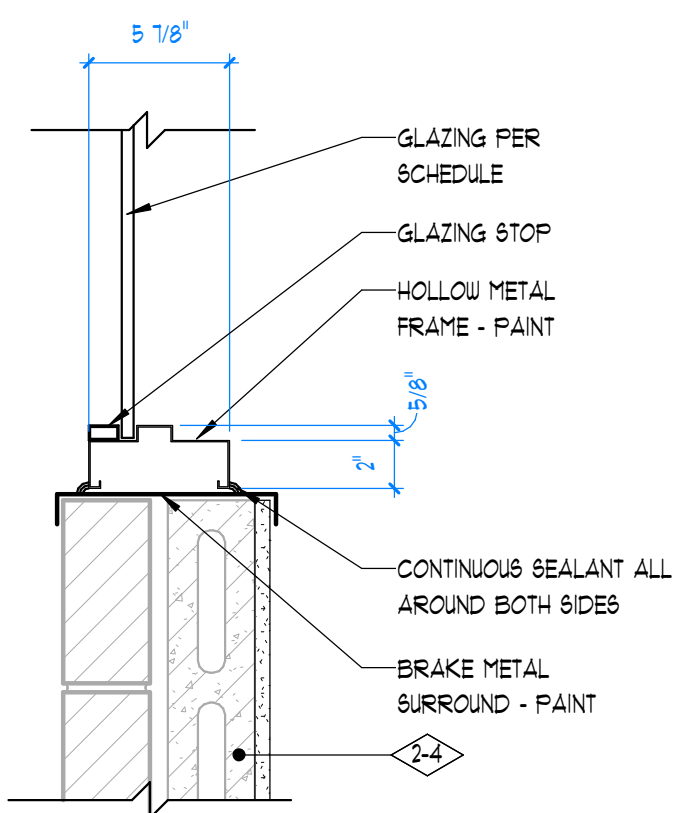
5 JAMB DETAIL
1 1/2" = 1'-0"



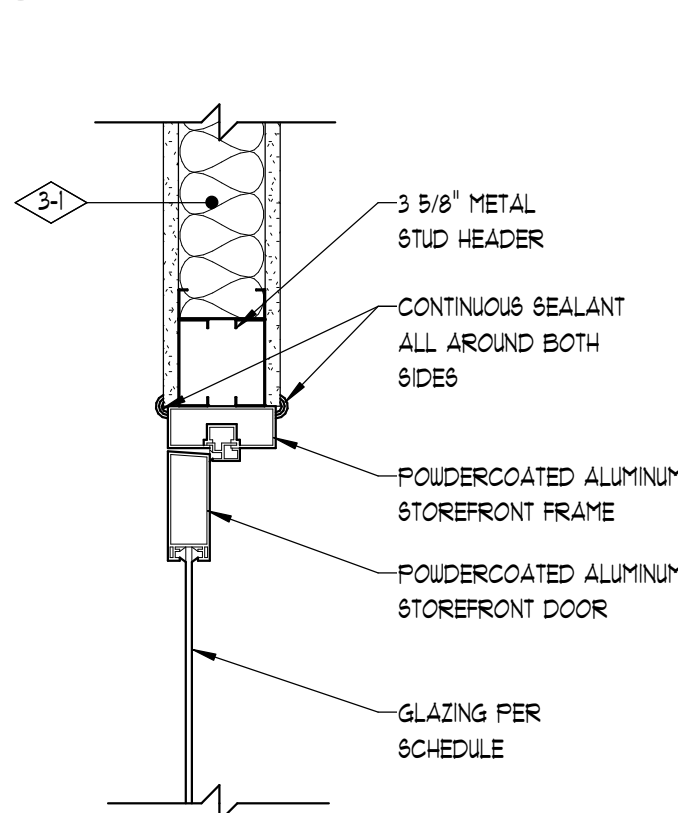
4 HEAD DETAIL
1 1/2" = 1'-0"



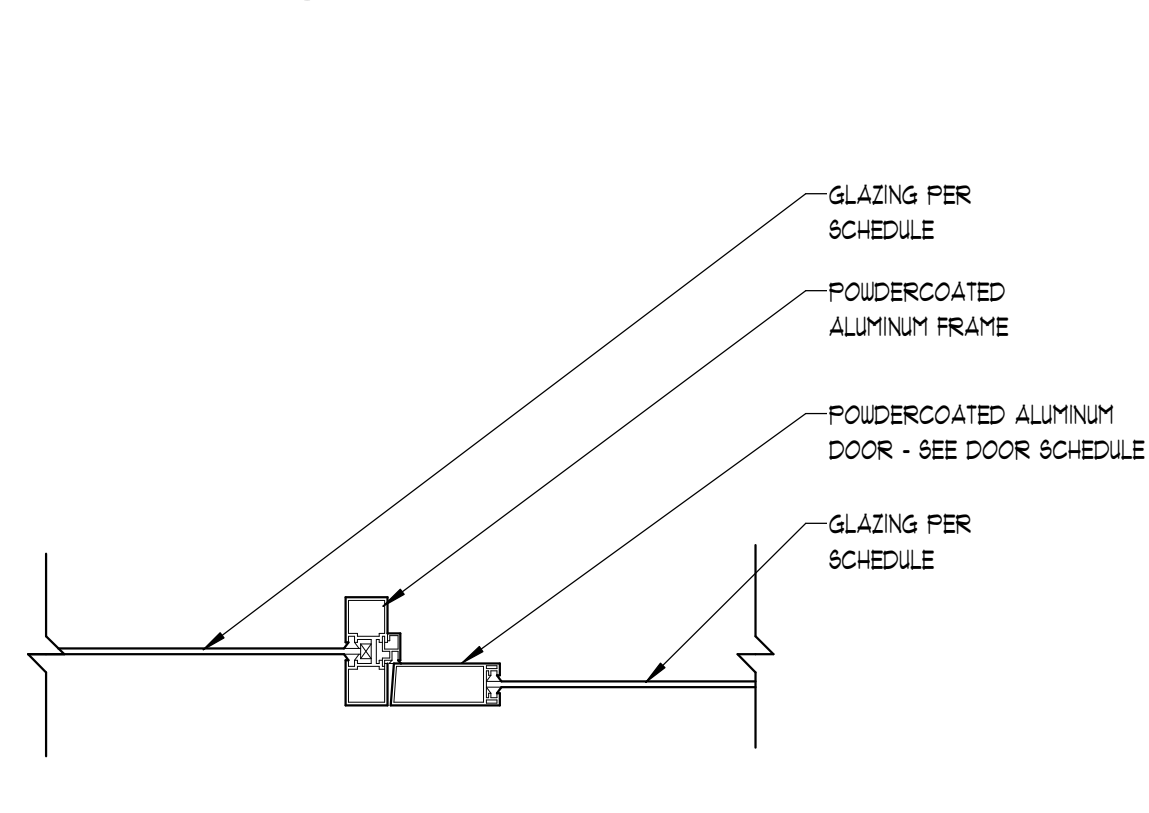
3 HEAD DETAIL
1 1/2" = 1'-0"



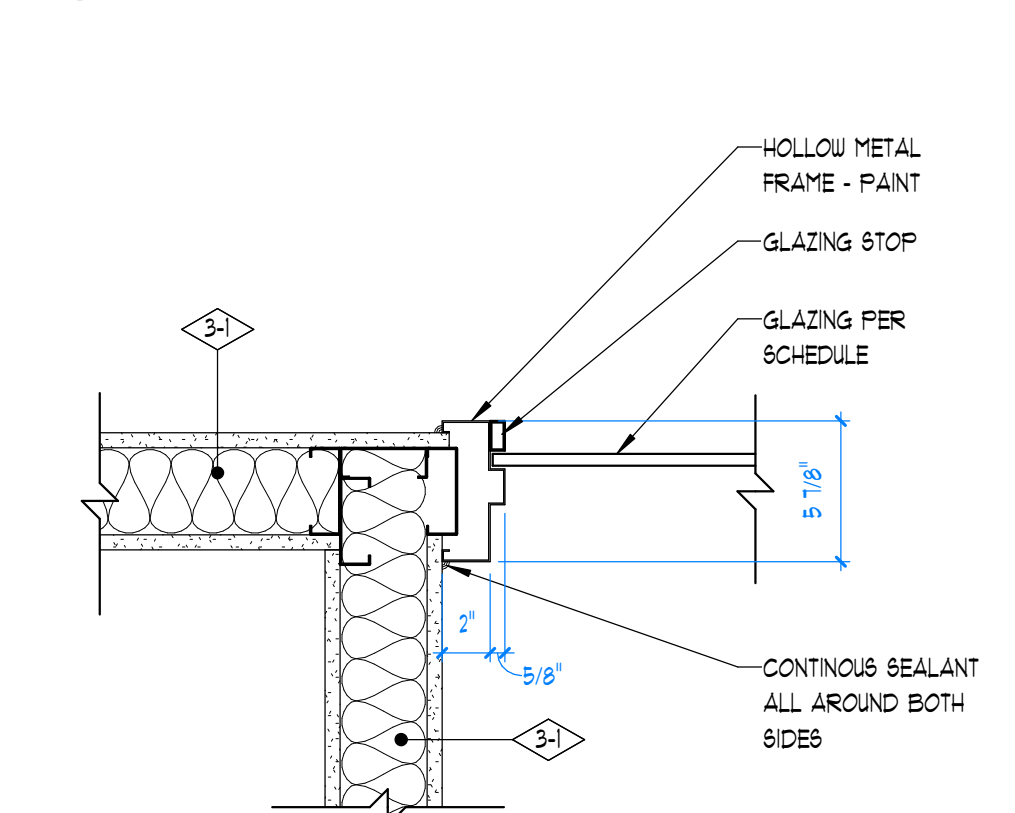
11 SILL DETAIL
1 1/2" = 1'-0" HEAD SIMILAR



10 HEAD DETAIL
1 1/2" = 1'-0"



9 JAMB DETAIL
1 1/2" = 1'-0"



8 JAMB DETAIL
1 1/2" = 1'-0"

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BRIGHAM YOUNG UNIVERSITY

ADDENDUM RECEIPT

DATE: March 22, 2024

PROJECT: SNELL Building Renovation

PROJ. #: WO# M9847

We acknowledge receipt of Addendum Number 1.

COMPANY: _____

BY: _____

TITLE: _____

PLEASE EMAIL SIGNED RECEIPT TO construction@byu.edu