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GLAZING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Insulating glass units.
- B. Glazing units.
- C. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 07 92 00 - Joint Sealants: Sealants for other than glazing purposes.
- B. Section 08 11 13 - Hollow Metal Doors and Frames: Glazed lites in doors and borrowed lites.
- C. Section 08 14 16 - Flush Wood Doors: Glazed lites in doors.
- D. Section 08 41 13 - Aluminum-Framed Entrances and Storefronts: Glazing furnished as part of storefront assembly.

1.03 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
- B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test.
- C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
- D. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
- E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
- F. ASTM C1036 - Standard Specification for Flat Glass.
- G. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
- H. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass.
- I. ASTM C1193 - Standard Guide for Use of Joint Sealants.
- J. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass.
- K. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings.
- L. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.
- M. GANA (GM) - GANA Glazing Manual.
- N. GANA (SM) - GANA Sealant Manual.
- O. GANA (LGRM) - Laminated Glazing Reference Manual.
- P. IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use.
- Q. NFRC 100 - Procedure for Determining Fenestration Product U-factors.
- R. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.
- S. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems.

1.04 SUBMITTALS

- A. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
- B. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.
- C. Samples: Submit two samples 12 by 12 inch (305 by 305 mm) in size of glass units.
- D. Samples: Submit 6 inch (152 mm) long bead of glazing sealant, color as selected.
- E. Certificates: Certify that products meet or exceed performance specified.
- F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA (GM), GANA (SM), GANA (LGRM), and IGMA TM-3000 for glazing installation methods.

1.06 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 40 degrees F (4 degrees C).
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.07 WARRANTY

- A. Insulating Glass Units: Provide a ten (10) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Float Glass Manufacturers:
 - 1. AGC Glass Company North America, Inc: www.us.agc.com.
 - 2. Cardinal Glass Industries: www.cardinalcorp.com.
 - 3. Guardian Industries Corp: www.sunguardglass.com.
 - 4. Pilkington North America Inc: www.pilkington.com/na.
 - 5. PPG Industries, Inc: www.ppgideascape.com. (Basis of Design)
 - 6. Substitutions: Refer to Section 01 60 00 - Product Requirements.
- B. Laminated Glass Manufacturers:
 - 1. Cardinal Glass Industries: www.cardinalcorp.com/#sle.
 - 2. Viracon, Architectural Glass segment of Apogee Enterprises, Inc: www.viracon.com/#sle.
 - 3. Substitutions: Refer to Section 01 60 00 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

- A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
 - 1. Design Pressure: Calculated in accordance with ASCE 7.
 - 2. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
 - 3. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
 - 4. Glass thicknesses listed are minimum.

- B. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
 2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
 3. Solar Optical Properties: Comply with NFRC 300 test method.

2.03 GLASS MATERIALS

- A. Float Glass: Provide float glass based glazing unless noted otherwise.
1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality-Q3.
 2. Heat-Strengthened and Fully Tempered Types: ASTM C1048, Kind HS and FT.
 3. Fully Tempered Safety Glass: Complies with ANSI Z97.1 and 16 CFR 1201 criteria.
 4. Safety Wired Glass Type: ASTM C1036, Type II - Wired Flat Glass, Quality-Q5, ANSI Z97.1 and 16 CFR 1201 impact criteria for Class B/Category I, and color and performance characteristics as indicated.
- B. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
1. Laminated Safety Glass: Complies with ANSI Z97.1 and 16 CFR 1201 test requirements for Category II.
 2. Polyvinyl Butyral (PVB) Interlayer: 0.030 inch (0.762 mm) thick, minimum.

2.04 INSULATING GLASS UNITS

- A. Manufacturers:
1. Any of the manufacturers specified for float glass.
- B. Insulating Glass Units: Types as indicated.
1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
 2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
 3. Metal Edge Spacers: Aluminum, bent and soldered corners.
 4. Spacer Color: Aluminum.
 5. Edge Seal:
 - a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
 6. Color: Grey.
 7. Purge interpane space with dry air, hermetically sealed.
- C. Type G1 - Insulating Tinted Tempered Glass Units: Vision glass, double glazed.
1. Applications: Exterior tempered glazing as scheduled or required.
 2. Space between lites filled with air.
 3. Outboard Lite: Fully tempered float glass, 1/4 inch (6.4 mm) thick, minimum.
 - a. Tint: Gray.
 - b. Coating: Low-E (passive type), on #2 surface.
 4. Inboard Lite: Fully tempered float glass, 1/4 inch (6.4 mm) thick, minimum.
 - a. Tint: Clear.
 5. Total Thickness: 1 inch (25.4 mm).

- D. Type G2 - Insulating Tinted Laminated Glass Units: Vision glass, double glazed.
 - 1. Applications: Exterior laminated glazing as scheduled or required.
 - 2. Space between lites filled with air.
 - 3. Outboard Lite: Laminated, 1/4 inch (6.4 mm) thick, minimum.
 - a. Tint: Gray.
 - b. Coating: Low-E (passive type), on #2 surface.
 - 4. Inboard Lite: Laminated float glass, 1/4 inch (6.4 mm) thick, minimum.
 - a. Tint: Clear.
 - 5. Total Thickness: 1 inch (25.4 mm).
- E. Type G6 - Insulating Glass Units: Spandrel glazing.
 - 1. Applications: Exterior spandrel glazing unless otherwise indicated.
 - 2. Space between lites filled with air.
 - 3. Outboard Lite: Fully tempered float glass, 1/4 inch (6.4 mm) thick, minimum.
 - a. Tint: Clear.
 - b. Coating: Same as on vision units, on #2 surface.
 - 4. Inboard Lite: Fully tempered float glass, 1/4 inch (6.4 mm) thick.
 - a. Tint: Clear.
 - b. Opacifier: Ceramic frit, on #4 surface.
 - c. Opacifier Color: As scheduled.
 - 5. Total Thickness: 1 inch (25.4 mm).

2.05 BASIS OF DESIGN - INSULATING GLASS UNITS

- A. Insulating Glass Units: Vision glazing, with Low-E coating.
 - 1. Applications: Exterior insulating glass glazing unless otherwise indicated.
 - 2. Space between lites filled with air.
 - 3. Total Thickness: 1 inch (25.4 mm).
 - 4. Thermal Transmittance (U-Value), Winter - Center of Glass: 0.28, nominal.
 - 5. Visible Light Transmittance (VLT): 64 percent, nominal.
 - 6. Solar Heat Gain Coefficient (SHGC): 0.27, nominal.
 - 7. Visible Light Reflectance, Outside: 12 percent, nominal.
 - 8. Basis of Design - Vitro Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
 - 9. Outboard Lite: Fully Tempered as scheduled float glass, 1/4 inch (6.4 mm) thick, minimum.
 - a. Low-E Coating: Vitro Glass (formerly PPG Glass) Solarban 70XL on #2 surface.
 - b. Glass: Clear.
 - 10. Inboard Lite: Fully tempered as scheduled float glass, 1/4 inch (6.4 mm) thick.
 - a. Coating: No coating on inboard lite.

2.06 BASIS OF DESIGN - INSULATING LAMINATED GLASS UNITS

- A. Insulating Glass Units: Vision glazing, with Low-E coating.
 - 1. Applications: Exterior insulating glass glazing unless otherwise indicated.
 - 2. Space between lites filled with air.
 - 3. Total Thickness: 1 inch (25.4 mm).
 - 4. Thermal Transmittance (U-Value), Winter - Center of Glass: 0.28, nominal.
 - 5. Visible Light Transmittance (VLT): 64 percent, nominal.
 - 6. Solar Heat Gain Coefficient (SHGC): 0.27, nominal.
 - 7. Visible Light Reflectance, Outside: 12 percent, nominal.
 - 8. Outboard Lite: Laminated as scheduled float glass, 1/4 inch (6.4 mm) thick, minimum.
 - a. Low-E Coating: On #2 surface.
 - 9. Inboard Lite: Laminated as scheduled float glass, 1/4 inch (6.4 mm) thick.
 - a. Coating: No coating on inboard lite.

2.07 GLAZING UNITS

- A. Type G3 - Monolithic Interior Vision Glazing:
 - 1. Applications: Interior glazing unless otherwise indicated.
 - 2. Glass Type: Annealed float glass.
 - 3. Tint: Clear.
 - 4. Thickness: 1/4 inch (6.4 mm), nominal.
- B. Type G4 - Monolithic Interior Vision Glazing:
 - 1. Applications: Interior glazing unless otherwise indicated.
 - 2. Glass Type: Fully tempered float glass.
 - 3. Tint: Clear.
 - 4. Thickness: 1/4 inch (6.4 mm), nominal.
- C. Type G5 - Safety Wired Glazing: Flat glass with embedded wire mesh.
 - 1. Applications: Locations as indicated on drawings.
 - 2. Form: Form 1 - Wired glass, polished both sides; ASTM C1036.
 - 3. Mesh: M2 - Square; ASTM C1036.
 - 4. Tint: Clear, Class 1.
 - 5. Glass Type: Annealed.
 - 6. Thickness: 1/4 inch (6.4 mm), nominal.

2.08 GLAZING COMPOUNDS

- A. Butyl Sealant: Single component; ASTM C920, Grade NS, Class 12-1/2, Uses M and A, Shore A hardness of 10 to 20; black color.
- B. Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C920, Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; selected color.

2.09 ACCESSORIES

- A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot (25 mm for each square meter) of glazing or minimum 4 inch (100 mm) x width of glazing rabbet space minus 1/16 inch (1.5 mm) x height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch (75 mm) long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.
- C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
- D. Glazing Clips: Manufacturer's standard type.

PART 3 - EXECUTION

3.01 VERIFICATION OF CONDITIONS

- A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.02 PREPARATION

- A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

- A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.
- B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.
- C. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.
- D. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.
- E. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, etc.

3.04 INSTALLATION - WET GLAZING METHOD (COMPOUND AND COMPOUND)

- A. Application - Interior Glazed: Set glazing infills from the interior of the building.
- B. Install glazing resting on setting blocks. Install applied stop and center pane by use of spacer shims at 24 inch (610 mm) centers, kept 1/4 inch (6 mm) below sight line.
- C. Locate and secure glazing pane using glazers' clips.
- D. Fill gaps between glazing and stops with glazing compound until flush with sight line. Tool surface to straight line.

3.05 INSTALLATION - WET/DRY GLAZING METHOD (PREFORMED TAPE AND SEALANT)

- A. Application - Exterior Glazed: Set glazing infills from the exterior of the building.
- B. Cut glazing tape to length and set against permanent stops, 3/16 inch (5 mm) below sight line. Seal corners by butting tape and dabbing with butyl sealant.
- C. Apply heel bead of butyl sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete the continuity of the air and vapor seal.
- D. Place setting blocks at 1/4 points with edge block no more than 6 inch (152 mm) from corners.
- E. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to attain full contact at perimeter of pane or glass unit.
- F. Install removable stops, with spacer strips inserted between glazing and applied stops 1/4 inch (6.4 mm) below sight lines.
 - 1. Place glazing tape on glazing pane of unit with tape flush with sight line.
- G. Fill gap between glazing and stop with required type sealant to depth equal to bite of frame on glazing, but not more than 3/8 inch (9 mm) below sight line.
- H. Apply cap bead of required type sealant along void between the stop and the glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.06 INSTALLATION - FIRE RATED GLAZING

- A. Comply with referenced FGMA standards and instructions of manufacturers of glass, glazing sealants, and glazing compounds.
- B. Protect glass from edge damage during handling and installation. Inspect glass during installation and discard pieces with edge damage that could affect glass performance.
- C. Install removable stop and secure without displacement of tape.
- D. Install so that appropriate UL markings remain permanently visible.

3.07 FIELD QUALITY CONTROL

- A. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.
- B. Monitor and report installation procedures and unacceptable conditions.

3.08 CLEANING

- A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.
- B. Remove non-permanent labels immediately after glazing installation is complete.
- C. Clean glass and adjacent surfaces after sealants are fully cured.
- D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

END OF SECTION

SECTION 10 51 00

LOCKERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Metal lockers.
- B. Locker benches.

1.02 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.03 SUBMITTALS

- A. Product Data: Manufacturer's published data on locker construction, sizes and accessories.
- B. Shop Drawings: Indicate locker plan layout, numbering plan and combination lock code.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Protect locker finish and adjacent surfaces from damage.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Metal Lockers:
 - 1. Art Metal Products: www.artmetalproducts.com/#sle.
 - 2. Lyon Workspace Products: www.lyonworkspace.com/#sle.
 - 3. Penco Products, Inc: www.pencoproducts.com/#sle.
 - 4. Republic Storage Systems Co: www.republicstorage.com/#sle.
 - 5. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 LOCKER APPLICATIONS

- A. Student Lockers: Six tier metal lockers, wall mounted with matching closed base.
 - 1. Width: 18 inches (450 mm).
 - 2. Depth: 18 inches (450 mm).
 - 3. Height: 72 inches (1,830 m).
 - 4. Locking: Padlock hasps, for padlocks provided by Owner.
 - 5. Provide sloped top.
- B. Locker Benches:
 - 1. Free-Standing Locker Room Bench: Maple top bench with aluminum trapezoid legs. Bench length shall be as indicated on the Drawings.

2.03 METAL LOCKERS

- A. Lockers: Factory assembled, made of formed sheet steel, ASTM A653/A653M SS Grade 33/230, with G60/Z180 coating, stretcher leveled; metal edges finished smooth without burrs; baked enamel finished inside and out.
 - 1. Where ends or sides are exposed, provide flush panel closures.
 - 2. Provide filler strips where indicated, securely attached to lockers.
 - 3. Color: To be selected by Architect.
- B. Locker Body: Formed and flanged; with steel stiffener ribs; electric spot welded.
 - 1. Body: 24 gage, 0.0239 inch (0.61 mm).
 - 2. Base: 20 gage, 0.036 inch (0.9 mm).
 - 3. Metal Base Height: 4 inch (100 mm) unless otherwise indicated.

- C. Frames: Formed channel shape, welded and ground flush, welded to body, resilient gaskets and latching for quiet operation.
 - 1. Door Frame: 16 gage, 0.0598 inch (1.52 mm), minimum.
- D. Doors: Hollow channel edge construction, 1-3/16 inch (30 mm) thick; welded construction, channel reinforced top and bottom with intermediate stiffener ribs, grind and finish edges smooth.
 - 1. Door Outer Face: 18 gage, 0.0478 inch (1.21 mm), minimum.
 - 2. Form recess for operating handle and locking device.
 - 3. Provide louvers in door face, top and bottom, for ventilation.
- E. Hinges: Two for doors under 42 inches (1 050 mm) high; weld securely to locker body and door.
 - 1. Hinge Thickness: 14 gage, 0.0747 inch (1.90 mm).
- F. Sloped Top: 20 gage, 0.0359 inch (0.91 mm), with closed ends.
- G. Trim: 20 gage, 0.0359 inch (0.91 mm).
- H. Number Plates: Provide oval shaped brass plates. Form numbers 1 inch (25 mm) high of block font style with ADA designation, in contrasting color.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install lockers plumb and square.
- C. Place and secure on prepared base.
- D. Secure lockers with anchor devices to suit substrate materials. Minimum Pullout Force: 100 lb. (445 N).
- E. Bolt adjoining locker units together to provide rigid installation.
- F. Install end panels, filler panels, and sloped tops.
- G. Replace components that do not operate smoothly.

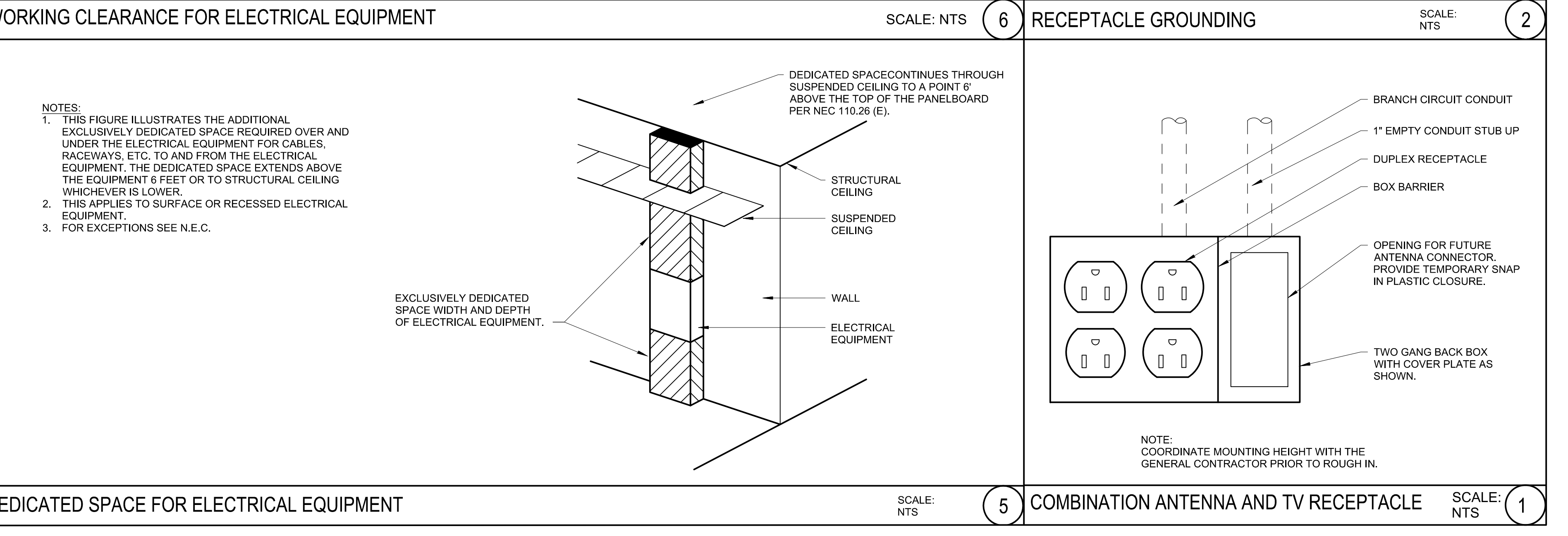
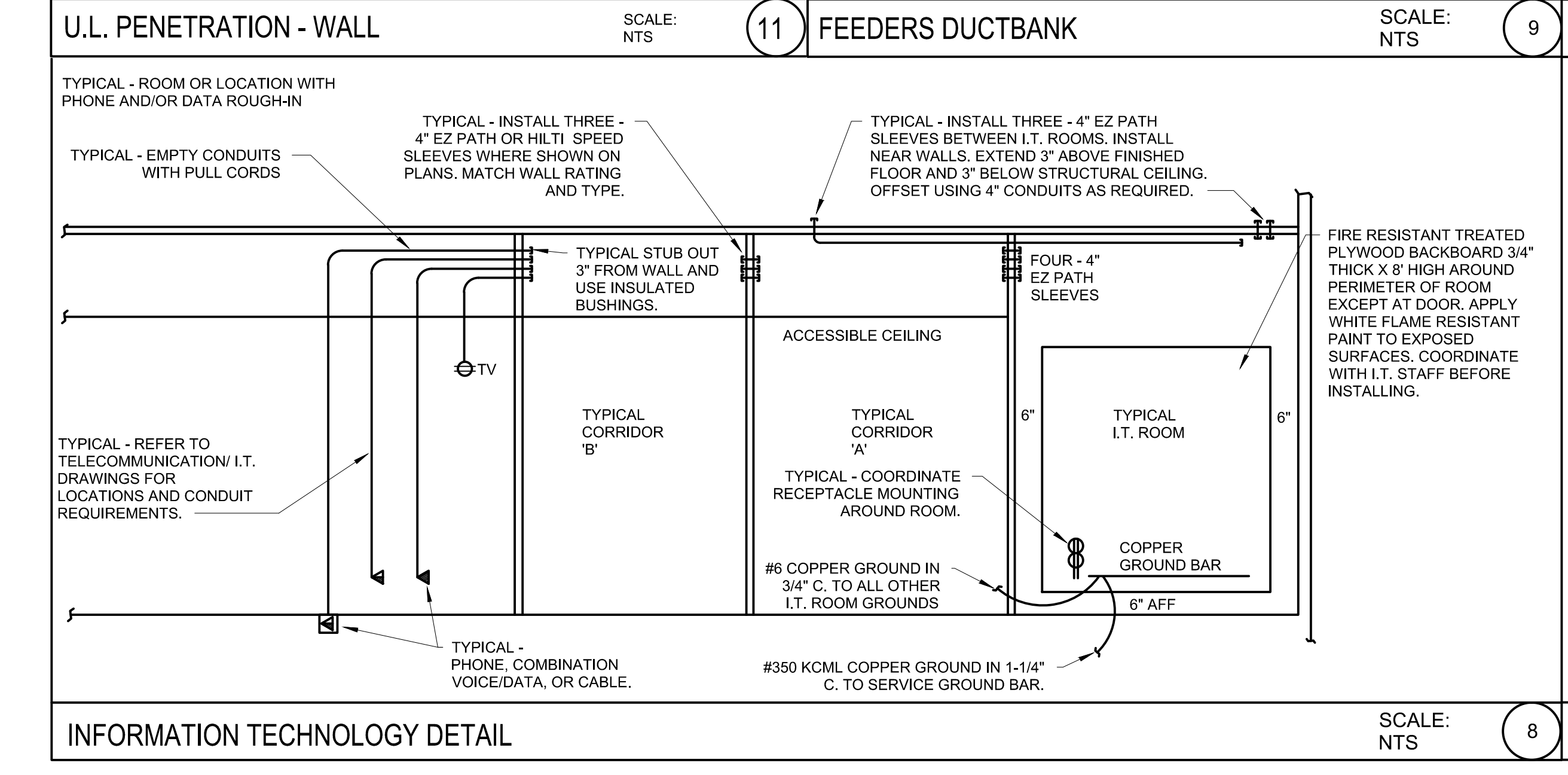
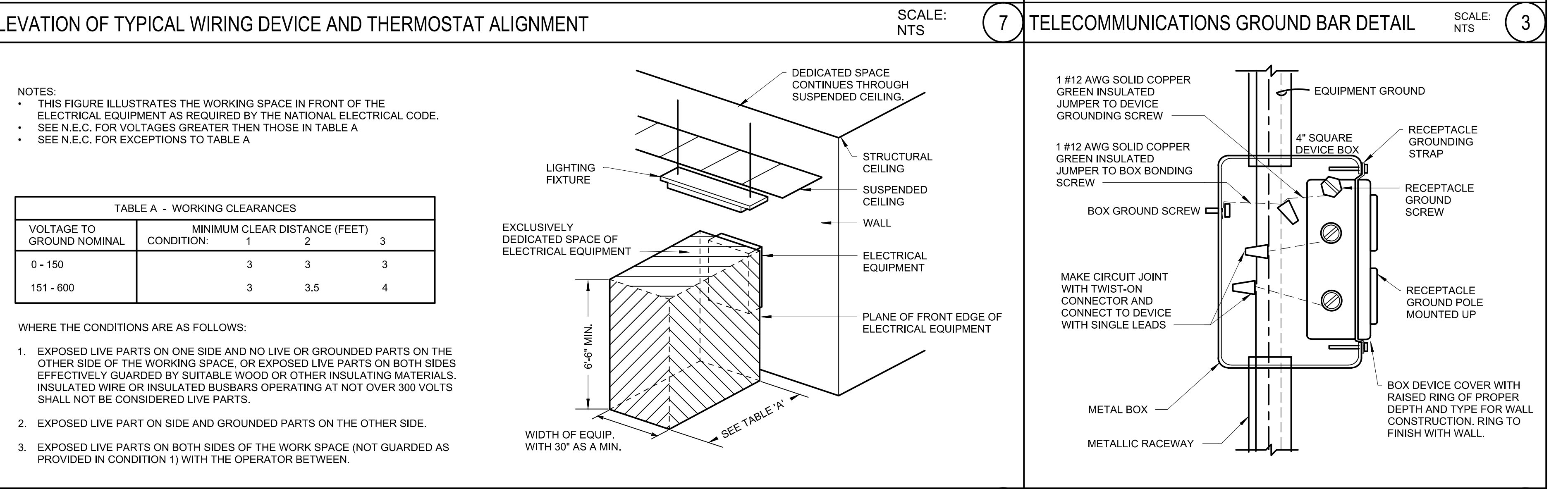
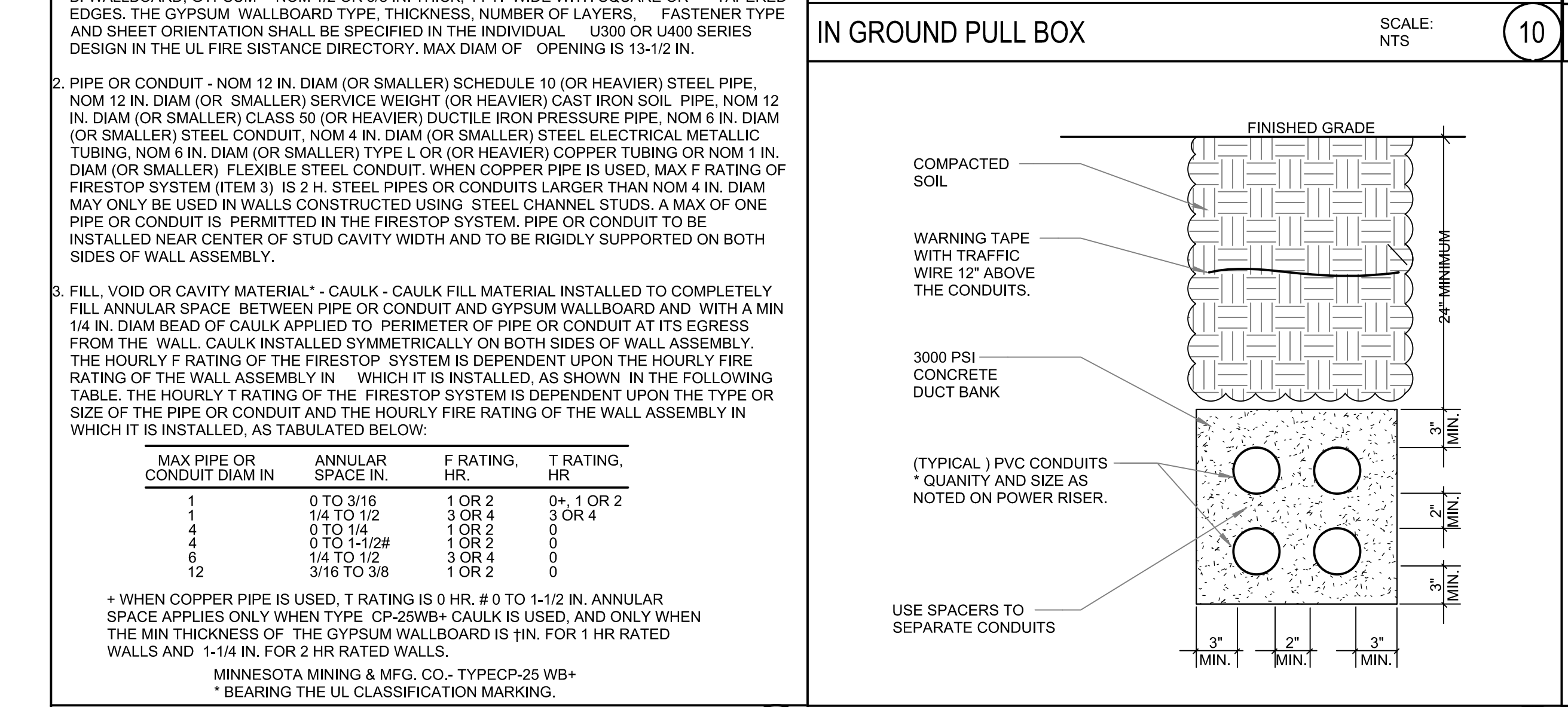
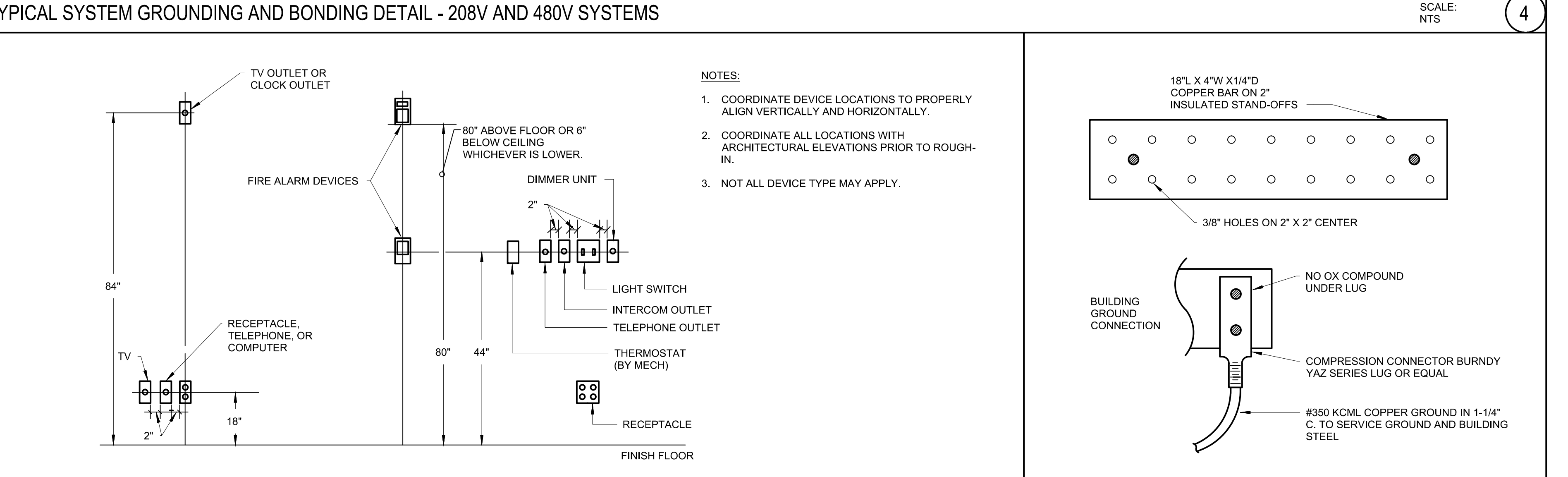
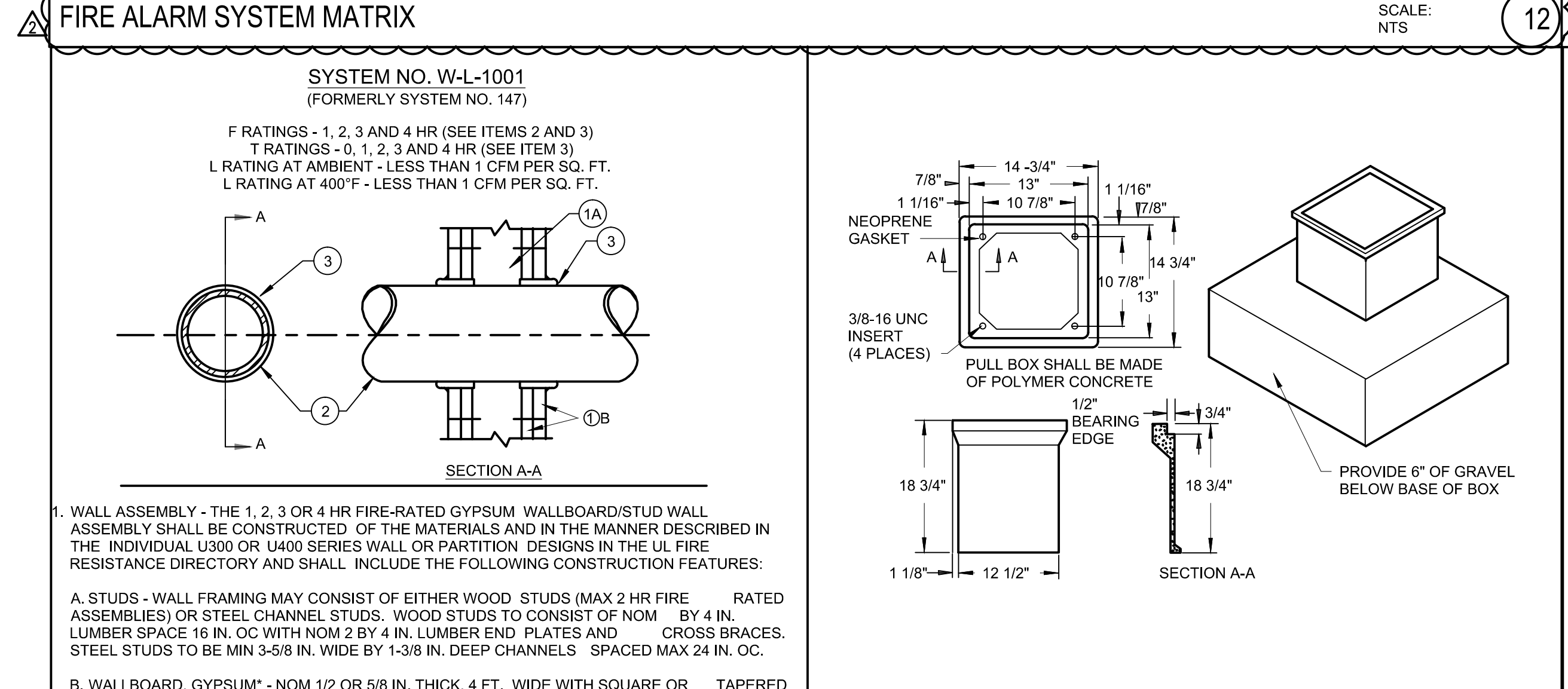
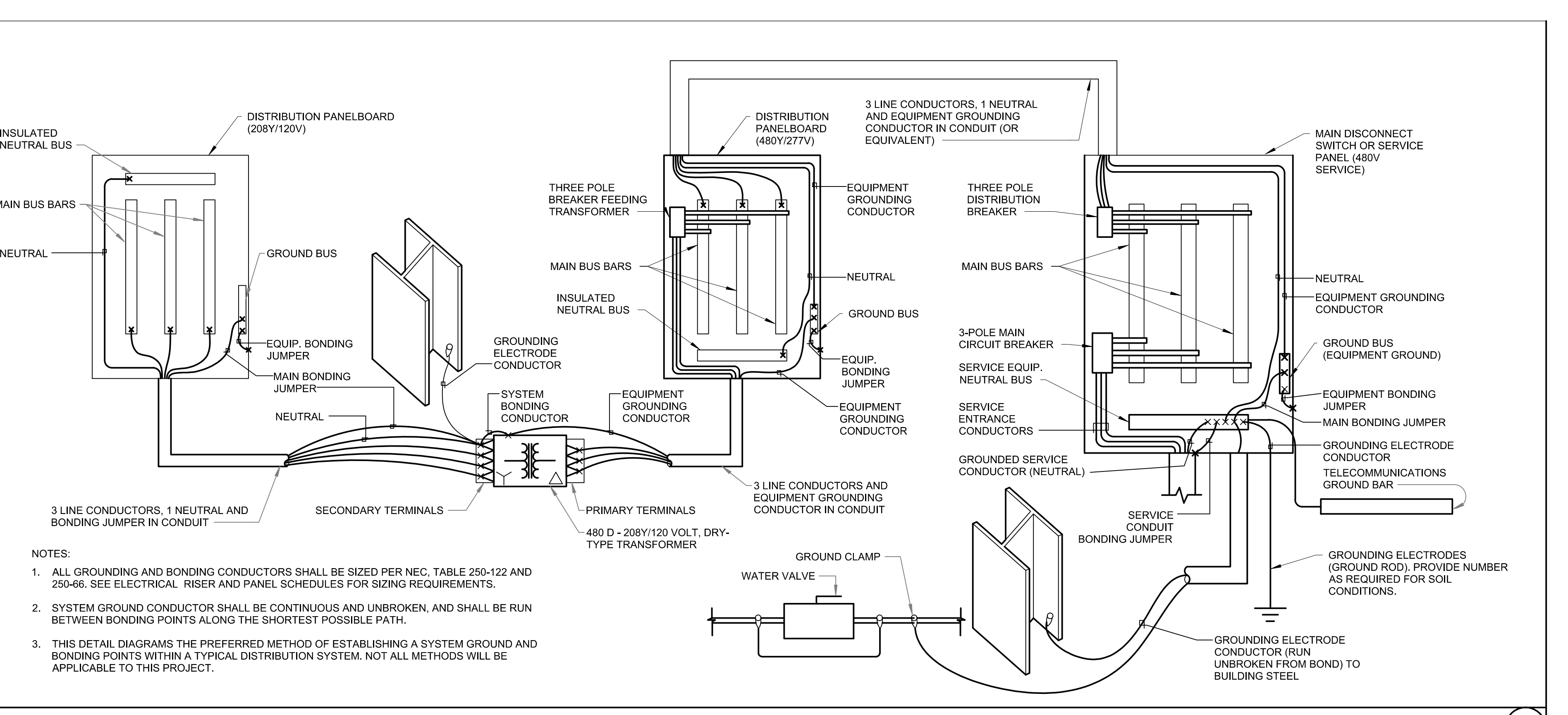
3.02 CLEANING

- A. Clean locker interiors and exterior surfaces.

END OF SECTION

FA SYSTEM MATRIX		BUILDING SYSTEM OUTPUTS										CENTRAL FIRE STATION	
		ACTUAL COMMON MAIN SIGNAL INDICATOR	ACTUAL COMMON MAIN SIGNAL INDICATOR	ACTUAL COMMON MAIN SIGNAL INDICATOR	ACTUAL COMMON MAIN SIGNAL INDICATOR	ACTUAL COMMON MAIN SIGNAL INDICATOR	ACTUAL COMMON MAIN SIGNAL INDICATOR	ACTUAL COMMON MAIN SIGNAL INDICATOR	ACTUAL COMMON MAIN SIGNAL INDICATOR	ACTUAL COMMON MAIN SIGNAL INDICATOR	ACTUAL COMMON MAIN SIGNAL INDICATOR	ACTUAL COMMON MAIN SIGNAL INDICATOR	
BUILDING SYSTEM INPUTS													
MANUAL PULL STATION		X	X			X	X	X	X	X	X	X	X
BUILDING SMOKE DETECTOR		X	X			X	X	X	X	X	X	X	X
DUCT SMOKE DETECTOR (*)		X	X			X	X	X	X	X	X	X	X
SPRINKLER WATERFLOW OR PRESSURE SWITCHES		X	X			X	X	X	X	X	X	X	X
SPRINKLER TAMPER SWITCHES		X	X			X	X	X	X	X	X	X	X
FIRE PUMP RUNNING		X	X			X	X	X	X	X	X	X	X
FIRE PUMP AC FAILURE		X	X			X	X	X	X	X	X	X	X
FIRE PUMP PHASE REVERSAL		X	X			X	X	X	X	X	X	X	X
AC POWER FAILURE		X	X			X	X	X	X	X	X	X	X
SYSTEM LOW BATTERY		X	X			X	X	X	X	X	X	X	X
OPEN CIRCUIT		X	X			X	X	X	X	X	X	X	X
GROUND FAULT		X	X			X	X	X	X	X	X	X	X
NOTIFICATION APPLIANCE CIRCUIT SHORT		X	X			X	X	X	X	X	X	X	X

* - PROGRAM AS SUPERVISORY UNLESS OTHERWISE REQUIRED BY LOCAL AHJ TO BE A GENERAL ALARM



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SEAL 028708
 ENGINEER
 WALTER A. JOHNSON
 Date: June 18, 2018

TOWN CREEK MIDDLE SCHOOL
 6330 LAKE PARK DRIVE SE
 WINNABOW, NC 28479

REVISIONS

No.	Description	Date
ADDENDUM #1		06/07/2018
ADDENDUM #2		06/18/2018

ISSUED: CONSTRUCTION DOCUMENTS
 DATE: 05/24/2018
 SCALE: AS SHOWN
 SHEET NAME: DETAILS
 SHEET NUMBER: E-501

PROGRESS SET FOR REVIEW ONLY - NOT FOR CONSTRUCTION



2115 Rexford Road, Suite 500
Charlotte, North Carolina 28211

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ksq.design

ADDENDUM NUMBER: 2

BRUNSWICK COUNTY SCHOOLS

WINNABOW, NC

TOWN CREEK MIDDLE SCHOOL

PROJECT NUMBER 1720601.00

June 19, 2018

NOTICE TO CONTRACTORS

This Addendum issued prior to receipt of Bid shall and does hereby become a part of the Construction Documents for the above project.

All principal Contractors shall be responsible for seeing that their Subcontractors are properly apprised of the contents of this Addendum.

All information contained in this Addendum shall supersede and shall take precedence over any conflicting information in the original Bidding Documents dated 03/29/18 and all previous addenda.

All Contractors shall acknowledge receipt of this Addendum in the space provided in the Proposal Form. Failure to do so may subject Bidder to disqualification.

A. CHANGES TO PRIOR ADDENDA

None.

B. CHANGES TO BIDDING REQUIREMENT

None.

C. CHANGES TO CONDITIONS OF THE CONTRACT

None.

D. CHANGES TO SPECIFICATIONS

SECTION 00 01 10 – TABLE OF CONTENTS

“DIVISION 10 SPECIALTIES”

Added:

Section 10 51 00–Lockers “

Removed:

Section 10 51 26 Plastic Lockers

SECTION 08 80 00 GLAZING

Revised in full

June 19, 2018

Page 2

SECTION 10 51 00–LOCKERS
Added in full

SECTION 10 51 26– PLASTIC LOCKERS
Remove in full

SECTION 10 73 00 ALUMINUM WALKWAY COVERS **(Narrative only)**
Include manufactures:
Mitchel Metals

SECTION 11 66 23 GYMNASIUM EQUIPMENT **(Narrative only)**
Include manufactures:
IPI/Bison Basketball, Wall Pads and Volleyball EquipmentIPI by Bison
Nevco Scoreboards
Sheridan Bleachers

SECTION 23 09 93 SEQUENCE OF OPERATION
Revised in full. Revisions include changes to sequences at RTU-11 and the energy recovery ventilators.

SECTION 23 72 00 ENERGY RECOVERY VENTILATOR SYSTEMS
Added in full

SECTION 27 10 00 COMMUNICATION SYSTEMS
Revised in full

SECTION 28 05 00 ELECTRONIC SAFETY AND SECURITY
PART 1 - GENERAL
Removed from item 1.02 Project Description 1.a, 3 and 4.

PART 2 - PRODUCTS
"Replaced item 2.07.a Security Equipment Wire Handling Devices and Cat 6 Patch Cables with the following:
Furnished and installed by Network / Data Contractor."

PART 3 - EXECUTION
"Replaced item 3.04.Installation - Cable with the following:
Installed by Network / Data Contractor."

E. CHANGES TO DRAWINGS

GENERAL:

SHEET – G-001a SHEET INDEX

- a. Sheet reissued dated 6/19/18. Updated for Addendum items.

SHEET – G-001b SHEET INDEX

- a. Sheet reissued dated 6/19/18. Updated for Addendum items.

SHEET – G-021 BUILDING CODE ANALYSIS

- a. Sheet reissued dated 6/19/18. Live load calculations revised and exterior wall assembly clarified.

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SHEET – G-031 GENERAL NOTES / ABBREVIATIONS / LEGENDS AND SYMBOLS

- a. Sheet reissued dated 6/19/18. General Arch Notes revised and exterior bench clarified.

STRUCTURAL:**SHEET – S-003 DECK ATTACHMENT**

- a. Sheet reissued dated 6/19/18. Clarified deck attachments.

SHEET – S-004 COMPONENTS AND CLADDING WIND

- a. Sheet reissued dated 6/19/18. Finalized C&C schedules.

SHEET – S-101A FOUNDATION PLAN – AREA A

- a. Sheet reissued dated 6/19/18. Drawing clarified to add step footing location for plumbing exiting the building at Kitchen Area A.
- b. Clarified dumpster screen wall per RFI #0043. General revisions to footing schedule and footing clarifications
- c. Clarified column grids.

SHEET – S-101Bn FOUNDATION PLAN – GYM – AREA B NORTH

- d. Sheet reissued dated 6/19/18. General revisions to footing schedule and footing clarifications; clarified stepped footings for utilities.

SHEET – S-101Bs FOUNDATION PLAN – AREA B SOUTH

- a. Sheet reissued dated 6/19/18. General revisions to footing schedule and footing clarifications; added firewall framing; clarified column grids.

SHEET – S-101C FOUNDATION PLAN – AREA C

- a. Sheet reissued dated 6/19/18. General revisions to footing schedule and footing clarifications; clarified column grids.

SHEET – S-111C SECOND FLOOR FRAMING PLAN – AREA C

- a. Sheet reissued dated 6/19/18. Clarified plan notes (RFI #0079); clarified column grids.

SHEET – S-121A ROOF FRAMING PLAN – AREA A

- a. Sheet reissued dated 6/19/18. Added firewall framing; clarified column grids

SHEET – S-121Bn ROOF FRAMING PLAN – GYM – AREA B NORTH

- a. Sheet reissued dated 6/19/18. Clarified joist bearing; clarified column grids.

SHEET – S-121Bs ROOF FRAMING PLAN – AREA B SOUTH

- a. Sheet reissued dated 6/19/18. General Revisions for HVAC unit locations; clarified column grids.

SHEET – S-121C ROOF FRAMING PLAN – AREA C

- a. Sheet reissued dated 6/19/18. General Revisions for HVAC unit locations, added roof section cut marks; clarified column grids.

SHEET – S-502 FOUNDATION DETAILS AND SECTIONS

- a. Sheet reissued dated 6/19/18. Added base plate detail for firewall columns.

SHEET – S-503 BRACE DETAILS AND BRACING ELEVATIONS

- a. Sheet reissued dated 6/19/18. General clarifications.

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SHEET – S-505 MASONRY SECTIONS

- a. Sheet reissued dated 6/19/18. Added CMU wall brace details.

SHEET – S-509 ROOF FRAMING SECTIONS

- a. Sheet reissued dated 6/19/18. General clarifications of edge angles.

SHEET – S-510 ROOF FRAMING SECTIONS

- a. Sheet reissued dated 6/19/18. General clarifications.

SHEET – S-511 ROOF FRAMING SECTIONS

- a. Sheet reissued dated 6/19/18. General clarifications.

SHEET – S-512 ROOF FRAMING SECTIONS

- a. Sheet reissued dated 6/19/18. Added Area C roof joist framing perp to exterior beam.

SHEET – S-513 R ROOF FRAMING SECTIONS

- a. Sheet reissued dated 6/19/18. General clarifications and additions for firewall framing sections.

ARCHITECTURAL:**SHEET - A-100 OVERALL FLOOR PLANS**

- a. Sheet reissued dated 6/19/18. Gridlines added.

SHEET - A-101A FLOOR PLAN LEVEL 1 – AREA A

- a. Sheet reissued dated 6/19/18. Grid lines and measurements adjusted.
- b. Window Tag updated.
- c. RFI # 0074.

SHEET - A-101Bn FLOOR PLAN LEVEL 1 – AREA Bn GYM

- a. Sheet reissued dated 6/19/18. Grid lines and measurements adjusted.
- b. Furring condition at column updated.

SHEET - A-101Bs FLOOR PLAN LEVEL 1 – AREA Bs MEDIA

- a. Sheet reissued dated 6/19/18. Grid lines and measurements adjusted.
- b. RFI # 0076, 0087.

SHEET - A-101C FLOOR PLAN LEVEL 1 – AREA C

- a. Sheet reissued dated 6/19/18. Grid lines and measurements adjusted.

SHEET - A-102C FLOOR PLAN LEVEL 2 – AREA C

- a. Sheet reissued dated 6/19/18. Grid lines and measurements adjusted.

SHEET - A-200 EXTERIOR BUILDING ELEVATIONS

- a. Sheet reissued dated 6/19/18.
- b. RFI # 0074.

SHEET - A-311 WALL SECTIONS - STAGE

- a. Sheet reissued dated 6/19/18.
- b. RFI # 0041.

SHEET - A-316 WALL SECTIONS - MUSIC WING

- a. Sheet reissued dated 6/19/18. Note updated in section.

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SHEET - A-402 ENLARGED FLOOR PLANS

- a. Sheet reissued dated 6/19/18. Interior elevations added.

SHEET - A-501 EXTERIOR SECTION DETAILS

- a. Sheet reissued dated 6/19/18.
- b. RFI # 0074.

SHEET - A-512 EXTERIOR PLAN DETAILS

- a. Sheet reissued dated 6/19/18. Brick tie updated.

SHEET - A-513 EXTERIOR PLAN DETAILS

- a. Sheet reissued dated 6/19/18. Brick tie updated.

SHEET - A-514 EXTERIOR PLAN DETAILS

- a. Sheet reissued dated 6/19/18. Brick tie updated.

SHEET - A-601 DOOR SCHEDULE

- a. Sheet reissued dated 6/19/18.
- b. RFI # 0087.

SHEET - A-612 DOOR DETAILS

- a. Sheet reissued dated 6/19/18. Detail updated.

SHEET - A-621 GLAZING SCHEDULE

- a. Sheet reissued dated 6/19/18.
- b. RFI # 0094.

SHEET - A-622 GLAZING SCHEDULE

- a. Sheet reissued dated 6/19/18.
- b. RFI # 0094.

SHEET - A-721 ELEVATOR PLANS AND SECTIONS

- a. Sheet reissued dated 6/19/18. Elevator pit revised.

SHEET - A-801 INTERIOR ELEVATIONS

- a. Sheet reissued dated 6/19/18. Interior elevation added.

SHEET - A-804 INTERIOR ELEVATIONS

- a. Sheet reissued dated 6/19/18. Interior elevation revised.

SHEET - A-805 INTERIOR ELEVATIONS

- a. Sheet reissued dated 6/19/18. Interior elevation revised.

SHEET - A-821 MILLWORK - CASEWORK DETAILS

- a. Sheet reissued dated 6/19/18. New sheet.
- b. RFI # 0076.

SHEET - A-841 INTERIOR FINISH LEGEND & SCHEDULES

- a. Sheet reissued dated 6/19/18. Finish legend revised.
- b. RFI # 0076.

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SHEET - A-861 SIGNAGE SCHEDULE & DETAILS

- a. Sheet reissued dated 6/19/18. Signage schedule revised.

MECHANICAL:**SHEET - M- 101A DUCTWORK FLOOR PLAN – LEVEL 1 AREA A**

- a. Sheet reissued dated 6/19/18. RTU-10 and ERV-4 moved.

SHEET - M- 101Bn DUCTWORK FLOOR PLAN – LEVEL 1 AREA B GYM

- a. Sheet reissued dated 6/19/18. Filter bank added. Switch location for EF 8 added.

SHEET - M- 101C DUCTWORK FLOOR PLAN – LEVEL 1 AREA C

- a. Sheet reissued dated 6/19/18. Dryer vent and detail added.

SHEET - M- 102C DUCTWORK FLOOR PLAN – LEVEL 2 AREA C

- a. Sheet reissued dated 6/19/18. Switch locations for exhaust fans added.

SHEET - M- 121A MECHANICAL ROOF PLAN – AREA A

- a. Sheet reissued dated 6/19/18. RTU-10 and ERV-4 moved.

SHEET - M- 121B MECHANICAL ROOF PLAN – AREA B

- a. Sheet reissued dated 6/19/18. Dryer vent shown. GIV-3 moved.

SHEET - M- 401 MECHANICAL DETAILS

- a. Sheet reissued dated 6/19/18. Dryer vent detail added.

SHEET - M- 501 MECHANICAL SCHEDULES

- a. Sheet reissued dated 6/19/18. Filter box schedule added.

SHEET - M- 502 MECHANICAL SCHEDULES

- a. Sheet reissued dated 6/19/18. Motorized dampers added to ERV schedule.
- b. Backdraft damper notes revised in gravity ventilator schedule.

ELECTRICAL:**SHEET - E- 001 (Narrative Only)**

- a. Sheet reissued dated 6/19/18. In regards to the floor box symbol legend, Hubbell is only the basis of design, and other approved equals are allowed.

SHEET - E-101A, E-101Bn, E-101Bs, E-101C (Narrative Only)

- a. Sheet reissued dated 6/19/18. Regarding the electrical rooms, revise the occupancy sensor to a standard manual toggle switch in these rooms.

SHEET - E- 111Bn (Narrative Only)

- a. Sheet reissued dated 6/19/18. In regards to the Dressing Rooms, Control the receptacles inside the Dressing Room and Toilet via a pilot light switch located outside of each Dressing Room door, circuit extension (Circuit 1LB-45).

SHEET - E- 111C (Narrative Only)

- a. Sheet reissued dated 6/19/18. Add two additional Maker Space Ceiling Receptacles for a total of six, (Circuit all six between the two circuits, L1D-29,31). Cord reels to be white in color, does not have to be industrial grade, and installed above acoustical ceiling, if allowed by local AHJ).

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- b. Projection screen connection moved to stage opening.

SHEET - E- 121A (Narrative Only)

- a. Sheet reissued dated 6/19/18. In regards to Kitchen Room 1308, add one fire alarm pull station at the west exit.

SHEET - E- 121A (Narrative Only)

- a. Sheet reissued dated 6/19/18. In regards to Work Room 1103, add notation that the fire alarm device is a 30 candela.

SHEET - E- 301 (Narrative Only)

- a. Sheet reissued dated 6/19/18. In regards to Lockers Room 1313, revise two receptacles on west side of room to GFCI type.
- b. In regards to Ware Washing Room 1310, add one new GFCI receptacle on north wall, circuit extension (Circuit LKA-37).

SHEET - E- 401 (Narrative Only)

- a. Sheet reissued dated 6/19/18. In regards to the panel schedule for BSB, revise branch breaker #2 from 800A/3P to 400A/3P.

SHEET - E- 501 DETAILS

- a. Sheet reissued dated 6/19/18. See revised drawing for new Detail 12, Fire Alarm Matrix.

PLUMBING:**SHEET - P- 101A WASTE AND VENT FLOOR PLAN – LEVEL 1 – AREA A**

- a. Sheet reissued dated 6/19/18. Footing coordination.

SHEET - P- 101C WASTE AND VENT FLOOR PLAN – LEVEL 1 – AREA C

- b. Sheet reissued dated 6/19/18. Footing coordination.

SHEET - P- 401 PLUMBING DETAILS

- a. Sheet reissued dated 6/19/18. Corrected details.

SHEET - P- 402 PLUMBING DETAILS

- b. Sheet reissued dated 6/19/18. Corrected details.

SHEET - P- 502 PLUMBING SCHEDULES

- c. Sheet reissued dated 6/19/18. Added mixing valve schedule

ACOUSTICS, AV, IT:**SHEET - TA-001 SHEET INDEX AND NOTES**

- a. Sheet reissued dated 6/19/18. Adjustment in text to Facility Note #4.

SHEET - TN-001 SHEET INDEX AND NOTES

Sheet reissued dated 6/19/18. Addition of speaker symbols.

SHEET - TN-100 OVERALL FLOOR PLAN

- a. Sheet reissued dated 6/19/18. Additional speakers added to Toilet/Shower (1813) and Gym Restrooms/Locker Area.

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- b. Hallway speakers added,
- c. Additional horn and IP loudspeaker added.

SHEET - TN-101A FIRST FLOOR PLAN – AREA A

- d. Sheet reissued dated 6/19/18. Changed alignment of data locations on Server (1306) POS locations per Owner Request.

SHEET - TN-101C FIRST FLOOR PLAN – AREA C

- a. Sheet reissued dated 6/19/18. Data drops added for Elevator and Elevator Mechanical area.

SHEET - TN-501 RACK ELEVATIONS AND DETAILS

- a. Sheet reissued dated 6/19/18. Backbox Riser added.
- b. Page layout readjusted to relate to riser.

SHEET - TY-001 SHEET INDEX AND NOTES

- a. Sheet reissued dated 6/19/18. Adjustment in text to Facility Note #4.
- b. Added new symbols.

SHEET - TY-101A FIRST FLOOR PLAN – AREA A

- a. Sheet reissued dated 6/19/18. Addition of Motion Detectors.
- b. Keypad and Duress Switch in plans.
- c. Reception (1102) doors – added additional security items

SHEET - TY-101Bs FIRST FLOOR PLAN – AREA Bs

Sheet reissued dated 6/19/18. Addition of Motion Detectors.

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END OF ADDENDA

SECTION 23 09 93

SEQUENCE OF OPERATION

6/18/2018: Revisions for addendum 2 are shown in red and underlined.

PART 1 GENERAL

SECTION INCLUDES

- A. Provide all labor and services to accomplish the sequence specified below.
- B. Provide all cabinets, sensors, actuators, wiring, tubing, graphics and software, in addition to all equipment required in order to accomplish the sequence below.

RELATED SECTIONS

- A. Section 23 09 23 – Direct Digital Control System for HVAC

PART 2 PRODUCTS – NOT USED.

PART 3 EXECUTION

SEQUENCE OF OPERATION

- A. General System Sequences:
 - 1. System shall include 365 day, 24 hour per day programmable capability with ability to program holidays.
 - 2. When in occupied mode, mechanical equipment shall be enabled.
 - 3. When in the unoccupied mode, all equipment shall be normally disabled and shall cycle on only to maintain unoccupied setback temperatures. Provide user adjustable setback temperatures for Winter (set initially at 55°F) and Summer (set initially at 85°F).
 - 4. Each room thermostat shall be equipped with a button to switch from unoccupied mode to occupied mode. When any of these buttons is depressed, the system shall switch to occupied mode for a user adjustable time period (set initially at 2 hours). After the time period has passed, the system shall return to the unoccupied mode.
 - 5. Thermostatic controls shall be capable of having a 5°F dead band between the heating and cooling set point.
- B. All setpoints are user adjustable by the system operator.
- C. Exhaust Fans:
 - 1. Roof mounted exhaust fans serving toilet rooms and the Nurses Suite:
 - a. Exhaust fans operate during occupied hours. Fans are cycled on and off by the BAS. Provide starters or relays as required to control fans.
 - b. Provide status by current sensor. Provide an alarm to the BAS if current sensor indicates that the exhaust fan is not operating.
 - 2. Exhaust fans serving Science Labs, Science Prep Rooms, Art Rooms, Maker Space, Ware-Washing, Custodial 1826 and the Kiln Room:
 - a. Exhaust fan shall be on/off with a wall switch located in the space served.
 - b. Provide fan status by current sensor. Provide an alarm to the BAS if current sensor indicates that the exhaust fan status does not match the command.
 - c. Provide on/off override by the BAS.
 - 3. Kitchen Grease Hood Exhaust Fans
 - a. Kitchen grease hood exhaust fans are on/off by switches located on the hoods.
 - b. Provide fan status by current sensor. Provide an alarm to the BAS if current sensor indicates that the exhaust fan status does not match the command.
 - 4. Ceiling mounted cabinet style exhaust fans serving toilets:
 - a. Ceiling mounted cabinet style exhaust fans are on/off with a wall switch.
 - 5. Ceiling mounted cabinet style exhaust fans serving janitor closets:
 - a. Exhaust fan shall be on/off with a wall switch located in the space served.

- b. Provide on/off override by the BAS.
- 6. Exhaust fan serving Electrical 1319:
 - a. Provide a wall mounted thermostat and hand/off/auto switch.
 - b. When the HOA switch is in auto, the fan shall cycle on for room temperature above setpoint.
 - c. When the HOA switch is in off, the fan shall be off. When the HOA switch is in the on position, the fan shall be on.
 - d. Provide fan status by current sensor. Provide an alarm to the BAS if current sensor indicates that the exhaust fan status does not match the command.

D. Unitary Rooftop Units:

1. Controls internal to the rooftop units will control the operation of the units.
2. Space temperature sensors and CO₂ sensors are provided by the RTU manufacturer.
3. The units will be equipped with BACnet communications interfaces. The interface will make available all points that are standard with the manufacturer's standard interface. All points (inputs, outputs, configuration properties) from this interface are to be mapped to the building management system.
4. Provide graphical interface for each unit.
5. Occupied mode: Rooftop units shall cycle on and controls internal to the unit will maintain the space temperature and relative humidity to the user adjustable setpoints. Units will be capable of cooling, dehumidification (cooling with hot gas reheat), CO₂ demand controlled ventilation, dry bulb economizing and single zone variable air volume operation.
 - a. Space temperature setpoint is by the local setpoint adjuster on the zone temperature sensor. Provide override by the BAS.
 - b. Set maximum indoor relative humidity initially to be 55%. Enable the dehumidification feature (cooling with hot gas reheat) in each RTU.
 - c. Enable the CO₂ demand controlled ventilation in all units except RTU-11 and those listed in the next item. Set maximum indoor CO₂ level initially to be 1000 PPM.
 - d. Enable the dry bulb economizer. Set the outdoor temperature for economizing initially to be 60°F. Disable the economizing sequence at RTU-11.
 - e. Enable the single zone variable air volume feature in all RTUs except RTU 11.
 - f. For RTU 11, provide outdoor air in accordance with the matrix provided on the unit schedule on the construction drawings.
6. CO₂ demand controlled ventilation is disabled in rooftop units 4, 8, 9 and 10. Demand controlled ventilation at these units is by the associated energy recovery ventilator.
7. Unoccupied mode: RTUs are normally off during unoccupied mode. Outside air dampers remain closed. If space temperature rises above the unoccupied setpoint (set initially at 85°F), the unit shall cycle on and cool until the unoccupied space temperature setpoint is satisfied. If space temperature falls below the unoccupied setpoint (set initially at 55°F), the unit shall cycle on and heat until the unoccupied space temperature setpoint is satisfied.
8. Smoke Sequence: Unit(s) shall shut down upon signal from fire alarm system.
9. Morning warmup: During morning warm up, outside air dampers remain closed. The units shall cycle on and heat, cool or dehumidify as needed to bring the space temperature and relative humidity occupied set points.
10. Provide the following control points minimum:

Analog Output
Space temperature setpoint
Space temperature setpoint override
Space temperature
Space relative humidity setpoint
Space relative humidity
Space CO ₂ setpoint
Space CO ₂ concentration

Unoccupied heating setpoint
Unoccupied cooling setpoint
Morning warmup setpoint
Outdoor air temperature
Outdoor air humidity
Outdoor air minimum flow or economizer minimum setpoint

Analog Input
Space temperature cooling setpoint input
Space temperature heating setpoint input
Space temperature local setpoint
Morning warmup setpoint temperature
Discharge air temperature
Cooling capacity status
Heat first stage status
Heat second stage status
Reheat capacity status
Supply fan speed command
Outdoor airflow or economizer minimum
Space CO2 concentration
Dehumidification high limit setpoint

Digital Output
Shut down for smoke alarm
Occupied/unoccupied command
Heat cool mode request
Morning warm up command

Digital Input
Filter status
Condensate drain pan high level

E. Energy Recovery Ventilators

1. Install a CO2 sensor in the return duct from the space, upstream of outside air supplies.
2. The energy recovery ventilators respond to indoor CO2 levels.
3. Set indoor maximum CO2 level initially to 1000 PPM. These values are user adjustable.
4. If indoor CO2 level is below setpoint, the ERV is off.
5. If indoor CO2 level rises above setpoint, the ERV shall cycle on with supply and exhaust fans at 50% speed, and intake and exhaust motorized dampers cycle to open position.
6. Indoor CO2 levels shall be sampled every 10 minutes. If after 10 minutes, the indoor CO2 level is still above setpoint, the ERV supply and exhaust fan speeds shall go to 100%.
7. If fans are operating at 100% and CO2 levels fall 100 PPM below setpoint, the fans shall go to 50%. If fans are operating at 50% and CO2 levels fall 100 PPM below setpoint, the ERV shall cycle off, and intake and exhaust motorized dampers shall cycle to closed position.
8. Frost control sequence: This sequence is integral to the ERV factory controls. On high alarm from wheel mounted pressure sensor, in conjunction with low temperature signal from wheel mounted outdoor air thermostat: unit shall enter timed exhaust sequence.
- 7-9. Filter differential pressure sensor shall signal 'dirty filter' alarm to BAS when differential pressure exceeds setpoint.

F. Type I grease hood and make up air units:

1. The kitchen equipment supplier will provide packaged kitchen hoods and make up air units.

2. The hoods will have a manual hood switch to index the interlocked hood exhaust and make-up air units on and off.
 3. The make-up air unit is a 100% outside air unit with filters and direct fired heat. A differential pressure switch shall be provided across the filters of the make-up air unit. The BAS shall be alarmed when the pressure drop across the filter exceeds the setpoint.
 4. Heating Control: A proportional temperature controller with sensor mounted in the hood supply duct shall be provided. The controller shall modulate the gas control valve to control the supply air leaving temperature to a setpoint of 55 F (adj.). The manufacturer shall provide all required safeties, including an air flow switch.
 5. Provide a smoke detector in the make-up air duct. Activation of the smoke detector, an alarm of the hood fire extinguishing system, or a building fire alarm shall shut down the make-up air unit, while the exhaust fan shall remain in operation. Coordinate with the Electrical Contractor and the Hood supplier. Provide a manual switch in the fire panel to override fan operation in fire mode. The Controls Subcontractor shall be responsible for coordinating all control work and shall provide all wiring, relays, switches, etc., for a complete and operational system.
 6. Provide the following status points:
 - a. Fan status
 - b. Fan start/stop
 - c. High/Low Temp Alarm
- G. Electric Unit Heaters.
1. Unit heaters shall be controlled by local thermostats only.
 2. Upon the space temperature falling below the setpoint (60 deg (adj.)), the unit heater shall be energized and remain so until the space temperature has risen above the setpoint.
- H. Filters:
1. Provide magnehelic style differential pressure gages across filter banks.
 2. Provide filter status (clean/replace) to the BAS. The differential pressure across the filter shall be displayed on the fan coil unit graphic. The differential pressure point for replace status shall be user adjustable.
- I. Ductless Mini-Split systems:
1. Units are controlled by controls integral to the units.
 2. Provide a separate space temperature sensor in rooms served by these units.
 3. Provide space temperature and high temperature alarm to the BAS.
- J. Domestic Hot Water System:
1. Provide on/off control for the domestic hot water circulating pump(s) and for the domestic water heater(s).
 2. During the unoccupied mode, the water heater(s) and circulating pump(s) are off.
 3. The water heater and circulating pump shall cycle on two hours prior to the start of occupied hours. The cycle on start time is user adjustable.
 4. Provide user override of timed operation so that Owner may set water heater and circulating pump to operate continuously.
- K. Smoke Detector Operation
1. Upon alarm by duct mounted smoke detectors or room smoke detectors, roof top units shall shut down.
 2. Smoke detectors and sampling tubes shall be furnished by the electrical contractor for installation by the mechanical contractor. Smoke detectors shall be connected under electrical and installed under the mechanical section of this specification.
- L. Fire Alarm Interface
1. The BAS shall shut-down all air handling equipment as required by code upon contact closure by a remote fire alarm relay located adjacent to the BAS control panel. The HVAC equipment shall de-energize based on whether the dedicated smoke detector or the general

alarm contact is in alarm. The equipment shall include, but not be limited to the following:

- a. Roof top units
2. The BAS shall monitor fire alarm system via BACnet/IP interface in the fire alarm control panel.

END OF SECTION

SECTION 237200

ENERGY RECOVERY VENTILATOR SYSTEMS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes:
 - 1. Energy recovery ventilators.

1.3 ACTION SUBMITTALS

- A. Product Data: For energy recovery ventilator units, include the following:
 - 1. Complete fan performance curves for Supply and Exhaust Air, with system operating conditions indicated, as tested in an AMCA Certified Chamber.
 - 2. Energy wheel performance data for both Summer and Winter operation.
 - 3. Sound performance data for Supply and Exhaust Air, as tested in an AMCA Certified chamber.
 - 4. Motor ratings, electrical characteristics and motor and fan accessories.
 - 5. Dimensioned drawings for each type of installation, showing isometric and plan views, to include location of attached ductwork and service clearance requirements.
 - 6. Estimated gross weight of each installed unit.
 - 7. Installation, Operating and Maintenance manual (IOM) for each model.

1.4 INFORMATIONAL SUBMITTALS

- A. Field quality-control test reports.

1.5 QUALITY ASSURANCE

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

1.6 COORDINATION

- A. Coordinate equipment layout and installation with adjacent Work, including lighting fixtures, HVAC equipment, plumbing, and fire-suppression system components.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Do not operate fans for any purpose until ductwork is clean, filters are in place, bearings have been lubricated, and fan has been test run under observation.

PART 2 PRODUCTS

1.8 ENERGY RECOVERY VENTILATORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Greenheck: www.greenheck.com
 2. Loren Cook: www.lorencook.com
 3. Spinnaker: www.spinnakerindustries.com.

1.9 MANUFACTURED UNITS

- A. Unit shall be fully assembled at the factory and consist of an insulated metal cabinet, a curb assembly, energy wheel, an outdoor air intake weather hood with bird screen, a motorized intake damper, a motorized exhaust damper, supply air blower assembly, an exhaust air blower assembly, and electrical control center. All specified components and internal accessories factory installed and tested and prepared for single-point high voltage connection.

1.10 CABINET

- A. Materials: Formed, double wall insulated metal cabinet, fabricated to permit access to internal components for maintenance.
1. Outside casing: 18 gauge, galvanized (G90) steel meeting ASTM A653 for components that do not receive a painted finish. Pre-painted components as supplied by the factory shall have polyester urethane paint on 18 gauge G60 galvanized steel. Base rail is 12 gauge, galvanized (G90) steel.
 2. Internal Assemblies: 24 gauge galvanized (G90) steel except for motor supports which shall be minimum 14 gauge galvanized (G90) steel.
- B. Cabinet Insulation: Comply with NFPA 90A and NFPA 90B and erosion requirements of UL 181.
1. Materials: Fiberglass insulation. If insulation other than fiberglass is used, it must also meet the Fire Hazard Classification shown below.
 2. Thickness: 1 inch (25 mm)
 3. Fire Hazard Classification: Maximum flame spread of 25 and smoke developed of 50, when tested in accordance with ASTM C 411.
 4. Location and application: Floor of each unit shall be insulated with fiberglass insulation. Entire interior of unit shall be insulated.
- C. Access panels: Unit shall be equipped with insulated removable access panels to provide easy access to all major components. Access panels shall be fabricated of 18 gauge steel. Removable access panels shall incorporate a formed drip edge.
- D. Control center / connections:
1. Unit shall have an electrical control center where all high and low voltage connections are made. Control center shall be constructed to permit single-point high voltage power supply connections.
- E. Energy Wheel:
1. Energy wheel shall be of total enthalpy, rotary air-to-air type, and shall be an element of a removable energy wheel cassette. The cassette shall consist of a galvanized steel framework, an energy wheel as specified, and a motor and drive assembly.
 2. The wheel shall have removable media for servicing.
 3. The wheel shall be capable of economizing sequence..
- F. Motorized Inlet/Exhaust Air Dampers: to be of low leakage type and shall be factory installed.

- G. Sensors: are considered to be part of various optional operational modes or device controllers and are to be factory supplied and installed.
- H. Curb Assembly: Refer to section 230548 for curb requirements. The installing contractor shall be responsible for coordinating with roofing contractor to ensure curb unit is properly flashed to provide protection against weather/moisture penetration. Contractor shall provide and install appropriate insulation for the curb assembly.
- I. Frost Control: shall be timed exhaust. Control system shall include an outdoor air thermostat and pressure sensor on the wheel assembly to initiate frost control sequence.

1.11 SUPPLY AND EXHAUST AIR BLOWER ASSEMBLIES

- A. Blower section construction, Supply and Exhaust Air: Drive motor and blower shall be assembled onto a minimum 14 gauge galvanized steel platform and must have neoprene vibration isolation devices, minimum of 1-1/8 inches thick.
- B. Blower assemblies: Shall be statically and dynamically balanced and designed for continuous operation at maximum rated fan speed and horsepower, and capable of modulating fan speed control based on analog input signal
- C. Centrifugal blower housing: Formed and reinforced steel panels to make curved scroll housing with shaped cutoff.
- D. Forward curved blower (fan) wheels: Galvanized or aluminum construction with inlet flange and shallow blades curved forward in direction of airflow. Mechanically attached to shaft with set screws.
- E. Blower section source quality control: Blower performance shall be factory tested for flow rate, pressure, power, air density, rotation speed and efficiency. Ratings are to be established in accordance with AMCA 210, "Laboratory Methods of Testing Fans for Rating".

1.12 MOTORS

- A. Refer to Section 230512, "Common Motor Requirements for HVAC Equipment."
- B. UNIT CONTROLS
 - 1. Sensors to be provided with the unit:
 - a. CO2 sensor in the return duct from the space served, upstream of outside air supplies.
 - b. Dirty Filter Sensors – For Outdoor Air Inlet and Exhaust Air filter.
 - c. Outdoor Air Thermostat – for initiation of frost control sequence.
 - d. Energy Wheel mounted pressure sensor – for initiation of frost control sequence.
 - e. Motorized damper position feedback to BAS.
 - 2. Control center shall include 24V control transformer, magnetic motor starter with overload protection, disconnect switch, distribution terminal strip and factory wiring for single point power connection.
- C. FILTERS
 - 1. Unit shall have 2" thick MERV-8 throwaway filters for the outdoor air intake, and exhaust air inlet. Filters shall be located upstream of the energy wheel. and shall be accessible from the exterior of the unit. Filters shall have differential type pressure sensor capable of signalling dirty-filter alarm to BAS.

PART 3 EXECUTION

1.13 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in for piping systems to verify actual locations of piping connections before equipment installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

1.14 INSTALLATION

- A. Install energy recovery ventilator units in accordance with manufacturer's installation instructions.

1.15 CONNECTIONS

- A. Install piping with clearance to allow service and maintenance.
- B. Connect ducts according to requirements in Section 233300 "Air Duct Accessories." Install flexible connectors on makeup air supply duct.
- C. Provide electrical connections.

1.16 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- B. Tests and Inspections:
 - 1. Test each equipment item for proper operation. Repair or replace equipment that is defective, including units that operate below required capacity or that operate with excessive noise or vibration.
 - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Prepare test and inspection reports.

1.17 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain energy recovery ventilator units. Refer to Section 017900 "Demonstration and Training."

END OF SECTION

SECTION 27 10 00
COMMUNICATION SYSTEMS

PART 1 - GENERAL

1.01 REQUIREMENTS

Contractor shall review all other documents for additional requirements and information that apply to the Work. If conflicts between this section and/or the general requirements and general conditions occur, the more stringent shall apply. Contractor shall deliver the complete communications system, including any design-build requirements of this section and the following drawings:

TN-001	Sheet Index and Notes
TN-100	Overall Floor Plans
TN-101A	First Floor Plan – Area A
TN-101Bn	First Floor Plan – Area Bn
TN-101Bs	First Floor Plan – Area Bs
TN-101C	First Floor Plan – Area C
TN-102C	Second Floor Plan – Area C
TN-501	Rack Elevations and Details
TN-701	Coordination Details
TN-801	MDF Room (1122) Enlarged Plans
TN-802	IDF Room (1810) Enlarged Plans
TN-803	IDF Room (2810) Enlarged Plans

1.02 PROJECT DESCRIPTION

- A. General:
1. Work includes the installation work for the entire voice/data infrastructure and cabling system throughout the addition space. All materials, installation and commissioning for the entire system is included under this scope of work, whether specifically delineated or not.
 2. Installation of backboxes and wall box connectivity points for OFE touch panel displays within each classroom.
 3. The Contractor shall be responsible for coordination with the work of all other trades for these systems.

1.03 SCOPE OF WORK

- A. The Contractor shall provide a turn-key system installation including, but not limited to, the installation of all low voltage, technology cable (backbone and horizontal station), jacks, faceplates, outlet housings, blank cover plates, patch panels, racks, cabinets, cable runway, TR cable trays and supports, cable ties, termination blocks, cross connect wire, patch cords, grounding, installed equipment, any miscellaneous items, labor and services required for a complete, standards and code-compliant communications system for the entire facility to meet the functional requirements outlined in this section.
- B. Labeling per TIA/EIA 606A:
1. At each workstation technology outlet, cable, faceplate and jack in the Work.
 2. At each telecommunications room, cable, patch panel port, punch-down location, rack, cabinet, and termination location in the Work.
- C. Fire stopping all telecommunication penetrations through the building structure as required by fire separations.

- D. Verification testing and documentation of each installed cable from the patch panel or termination block to the termination jack.
- E. Field verify site conditions including dimensions and clearances of all outlet locations (wall, floor, and furniture) prior to installation. Prior to installation by the Contractor, the Owner will confirm furniture termination locations.
- F. The Contractor will be held responsible to have examined the site and premises. They will be presumed to have satisfied themselves as to existing conditions under which they will be obligated to perform the work or that which will affect the work under this contract in any way.
- G. Permits: Obtain any necessary permits for the execution of this work in conformance with applicable union regulations, local, State and Federal codes and regulations.
- H. All aesthetic issues are to be coordinated and approved by the Owner, Architect, and Designer.
- I. Removal and reinstallation of any ceiling tiles that may be in place during the cable infrastructure installation that may hinder the telecommunication work. Contractor is also responsible for the replacement of any damaged ceiling tiles that are removed for the telecommunication work.
- J. Patch, repair, finish and paint any surfaces that are damaged or demolished for access during this work. Room finishes to be returned to initial condition.
- K. Coordinate with other trades to ensure that all required access and clearances to equipment and services are provided and maintained.
- L. Conduct testing and adjustment. Submit documentation required by this section. Participate in approval testing for acceptance by the Owner. Perform final adjustments as required to by this section.
- M. Verification testing and documentation for all backbone and tie cable as required by this section.
- N. Deliver to the Owner, bound "as-built" system documentation. Transfer all warranties and equipment guarantees to the Owner, at the time of acceptance of the work by the Owner.
- O. Provide system operation training as specified in Part 3 of this section.
- P. Provide, size, and install all conduit and penetrations, wire raceways, back boxes, and cabling connecting system components, as required by the communications system, not installed by the General Contractor.
- Q. Verify 120/208-volt AC power requirements and grounding busbar for each equipment location. Provide and coordinate installation of any additional or related cabling, or conductor circuits.
- R. Communications drawings depicting equipment installation and wiring are diagrammatic. The responsibilities for all types and final cable lengths throughout all phases of the Work are that of the Contractor.
- S. Provide size, and install all conduit and penetrations, wire raceways, back boxes, and cabling connecting system components as required by the Communication System, not installed by the General Contractor.

- T. Verify all conduit and penetrations, wire raceways, back boxes, mounting hardware to building structure, and cabling connecting system components, as required by the Communication System and installed by the General Contractor/Electrical Contractor as part of the base building fit out. Notify Owner of any discrepancies that may exist between the Shell Contract Documents and existing conditions.

1.04 QUALITY ASSURANCE

- A. All materials must be newly manufactured current production models and conform to all applicable codes and the relevant standards listed below:
 - 1. American National Standards Institute (ANSI)
 - 2. Institute of Electrical and Electronic Engineers (IEEE)
 - 3. Electronic Industries Alliance (EIA)
 - 4. Telecommunication Industries Association (TIA)
- B. Experience: The Contractor shall specialize in the installation of communications systems, have a minimum of five years of documented experience in the field of communications system installation and be a manufacturer approved vendor for all of the components installed.
- C. Supervision: Contractor shall designate a Project Manager and Foreman/Project Supervisor to oversee the installation work for the duration of the Work, to ensure that the system is installed in accordance with the section and drawings.
 - 1. Project Manager shall maintain adequate staff and be responsible for installing and testing the system on schedule.
 - 2. Project Manager and Foreman/Project Supervisor shall have at least five years of documented, recent and similar project experience.
- D. Contractor shall promptly notify the Owner, in writing, of any difficulties that may prevent proper coordination or time of completion of the Work. Failure to do so shall constitute acceptance of work and indicate that the site is suitable in all ways for this Work, except for defects that may develop in the work of others after commencement of system installation.
- E. Insurance: Provide evidence of insurance for the full value of equipment and material located on-site. Insurance shall cover losses due to fire, theft and vandalism, until the final acceptance of the system, by the Owner. Maintain additional liability insurance to protect the supplier and/or Owner, Architect, Designer against damage claims for personal injury, including death, which may arise during the performance of this work.

1.05 MANUFACTURERS QUALITY ASSURANCE

- A. Manufacturers must have a minimum of seven years experience manufacturing equipment designed specifically for voice and data communication networks. Manufacturers must be nationally known and recognized as competent in the construction and communication industries.
- B. Where this section and/or project drawings call for an installation to be made in accordance with the manufacturer's recommendations, a copy of such recommendations shall always be kept on the job site, and shall be available to the Owner's representative and the Architect.

- C. The Contractor shall follow manufacturer's instructions where they cover points not specifically indicated on in this section and/or project drawings. If the manufacturer's instructions differ from what is called for in this section and/or the project drawings, it is the responsibility of the Contractor to obtain clarification from the Owner's representative in writing before commencing work.

1.06 REFERENCES

A. General:

1. All work must conform to the most stringent of applicable codes. If during installation the Contractor identifies work that does not meet the most stringent code, the Contractor is to stop work immediately on that portion of the project and notify the Owner's representative in writing.
2. The Contractor must understand and have a working knowledge of all applicable codes and standards governing the Work.
3. The Contractor must follow the most current standard/code or the edition utilized by the authority having jurisdiction.

B. Codes:

1. National Electric Code, (NEC)
2. National Electric Safety Code (NESC)
3. National Fire Protection Association (NFPA) codes
4. State Codes:
 - a. STS-1000 Telecommunications Wiring Guidelines
 - a. Electric code
 - b. Building code
5. Local Municipal Codes:
 - a. Electric code
 - b. Building code

C. Industry Standard Requirements:

1. Underwriters Laboratories (UL)
2. Institute of Electrical and Electronic Engineers (IEEE):
 - a. IEEE 802.3 Ethernet
 - b. IEEE 802.11 Wireless LAN
3. ANSI/TIA:
 - a. ANSI/TIA-526-7-A Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant
 - b. ANSI/TIA-526-14-C Optical Power Loss Measurements of Installed Multi-mode Fiber Cable Plant
 - c. ANSI/TIA-568.0-D Generic Telecommunications Cabling for Customer Premises
 - d. ANSI/TIA-568-C.2 Balance Twisted Pair Communications and Components Standards
 - e. ANSI/TIA-568-C.2-2 Balanced Twisted-Pair Telecommunications Cabling and Components Standard, Addendum 2: Additional Considerations for Category 6A Patch Cord Testing
 - f. ANSI/TIA-568-C.4 Broadband Coaxial Cabling Components Standard
 - g. ANSI/TIA-568.1-D Commercial Building Telecommunications Infrastructure Standard
 - h. ANSI/TIA-569-D Telecommunications Pathways and Spaces
 - i. ANSI/TIA-598-D Optical Fiber Cable Color Coding
 - j. ANSI/TIA-606-B Administration Standard for Telecommunications Infrastructure

- k. ANSI/TIA-606-B-1 Administration Standard for Telecommunications Infrastructure Addendum 1- Automated Infrastructure Management Systems - Addendum to ANSI/TIA-606-B
 - l. ANSI/TIA-607-C Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
 - m. ANSI/TIA-758-B Customer-Owned Outside Plant Telecommunication Infrastructure Standard
 - n. TIA-862-B Building Automation Systems Cabling Standard
 - o. ANSI/TIA-942-A Telecommunications Infrastructure Standard for Data Centers
 - p. ANSI/TIA-942-A-1 Telecommunications Infrastructure Standard for Data Centers, Addendum 1 - Cabling Guidelines for Data Center Fabrics
 - q. ANSI/TIA-1005-A Telecommunications Infrastructure Standard For Industrial Premises
 - r. ANSI/TIA-1005-A-1 Telecommunications Infrastructure Standard For Industrial Premises, Addendum 1- M12-8 X-Coding Connector - Addendum to TIA-1005-A
 - s. ANSI/TIA-1183-1 Measurement Methods and Test Fixtures for Balun-Less Measurements of Balanced Components and Systems, Extending Frequency Capabilities to 2 GHz - Addendum to TIA-1183
 - t. ANSI/TIA-1152 Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling
 - u. ANSI/TIA-1179 Healthcare Facility Telecommunications Infrastructure Standard
 - v. ANSI/TIA-1183 Measurement Methods and Test Fixtures for Balun-Less Measurements of Balanced Components and Systems
 - w. ANSI/TIA-4966 Telecommunications Infrastructure Standard for Educational Facilities
 - x. TIA-104-B, FOTP-104 Fiber Optic Cable Cyclic Flexing Test
 - y. TIA-455-25-D, FOTP-25 Impact Testing of Optical Fiber Cables
 - z. TIA-604-18, FOCIS 18 Fiber Optic Connector Intermateability Standard – Type MPO-16
 - aa. TIA-604-5-E, FOCIS 5 Fiber Optic Connector Intermateability Standard – Type MPO
 - bb. TIA-5017, Telecommunications Physical Network Security Standard
 - cc. TIA-TSB-155-A Guidelines for the Assessment and Mitigation of Installed Category 6 Cabling to Support 10GBASE-T
 - dd. TIA-TSB-184 Guidelines for Supporting Power Delivery Over Balanced Twisted-Pair Cabling
 - ee. TIA-TSB-4979 Practical Considerations for Implementation of Multi-mode Launch Conditions in the Field
 - ff. TIA-TSB-190 Guidelines on Shared Pathways and Shared Sheaths
 - gg. TIA-TSB-162-A Telecommunications Cabling Guidelines for Wireless Access Points
 - hh. TIA-568-C.3 Optical Fiber Cabling Components Standard
 - ii. TIA-568-C.3-1 Optical Fiber Cabling Component Standard- Addendum 1, Addition of OM4 Cabled Optical Fiber and array connectors
4. ISO/IEC
- a. ISO/IEC 11801 - Information Technology – Generic Cabling For Customer Premises
 - b. ISO/IEC TR 11801-99-1 – Balanced cabling for 40Gbps channels
 - c. ISO/IEC 15018 - Information Technology – Generic Cabling for Homes
 - d. ISO/IEC 24702 - Information Technology – Generic Cabling – Industrial Premises
 - e. ISO/IEC 24764 - Information Technology – Generic Cabling Systems For Data Centres

- f. ISO/IEC 24764-1 - Data Centers - Amendment to add Intermediate Distributor (ID) for large or modular data centers
- g. ISO/IEC 14763-2 - Implementation and Operation of Customer Premises Cabling – Part 2: Planning and Installation
- h. ISO/IEC 14763-3 – Testing of Optical Fiber Cabling – methods for inspection and testing of installed optical fiber
- i. ISO/IEC TR 29125 - Information technology -- Telecommunications cabling requirements for remote powering of terminal equipment
- 5. ASHRAE:
 - a. ASHRAE Standard 90.4P, Energy Standard for Data Centers and Telecommunications Buildings
- 6. BICSI – Building Industry Consultative Services International:
 - a. BICSI 004, Information Technology Division Systems Design and Implementation Best Practices for Healthcare Institutions and Facilities
 - b. ANSI/BICSI 005, Electronic Safety and Security (ESS) System Design and Implementation Best Practices
 - c. Information Transport Systems Installation Methods Manual (ITSIMM)
 - d. ANSI/BICSI 002, *Data Center Design and Implementation Best Practices*
 - e. Network Systems and Commissioning (NSC) reference, 1st Edition
 - f. ANSI/NECA/BICSI 568, Standard for Installing Commercial Building Telecommunications Cabling
 - g. NECA/BICSI 607, Standard for Telecommunications Bonding and Grounding Planning and Installation Methods for Commercial Buildings
 - h. ANSI/BICSI 001, Information Transport Systems Design Standard for K-12 Educational Institutions
 - i. BICSI-003 Building Information Modeling (BIM) Practices for Information Technology Systems
 - j. Telecommunications Distribution Methods Manual
 - k. AV Design Reference Manual
 - l. Network Design Reference Manual
 - m. Outside Plant Design Reference Manual
 - n. Wireless Design Reference Manual
 - o. Electronic Safety and Security Design Reference Manual
 - p. Commercial Installation On-the-Job Training Booklet
 - q. Telecommunications Project Management (TPM) reference
- 7. Rural Utilities Service (RUS):
 - a. Bulletin 1753F-201: RUS Standard for Acceptance Tests and Measurements of Telecommunications Plant

1.07 SUBMITTALS

- A. Contractor shall comply with the general requirements and general conditions of this section.
- B. Bid submittals. Contractor shall submit the following qualification documents with the bid proposal:
 - 1. Firm description of the Contractor, and a copy of the Contractor's license, as well as a statement regarding the relationship of the license holder to the Contractor.
 - 2. Provide a minimum of ten related projects, four of which must have been completed within the last 12 months. Provide a full description of work, bid price, cost of change orders, reason for change orders, owner representative's name, telephone number and email address for each project.
 - 3. Résumé of Project Manager and Foreman/Project Supervisor documenting related experience. Foreman/Project Supervisor must have completed at least two similar installations in the past 12 months.

4. Submit a list including names, firm description, job foreman, copy of license and scope of work, for any subcontractors whose work would be part of this contract.
5. Submit insurance certificates - amount and type of liability as required by Owner.
6. Submit proof of Contractor's worker's compensation coverage.
7. Data manufacturers:
 - a. Specific pre-approved manufacturers are listed in this section. This list must be adhered to throughout the bidding and installation phases of the project. The bidder may suggest other paired manufacturers to be used based on the criteria outlined in this section, but these alternate manufacturers must be presented as an equal to the pre-approved manufacturers listed below. The suggested alternates may not be approved by the Owner and therefore must be presented secondarily with the approved manufacturers to be considered.
 - b. The bidding Contractor must also provide specific part numbers for all components in the channel/link solution. Only general guidelines are provided below with respect to manufacturers. Final approval of suggested/bid products is up to the Owner.
 - c. The preferred manufacturers/systems are:
 - i. Panduit/Belden
 - ii. Berktek/Leviton
 - d. Other acceptable manufacturers include:
 - i. Legrand/Superior Essex
 - ii. AMP/TE Connectivity
 - iii. Corning
 - iv. Ortronics
 - v. Hubbell
 - vi. Erico
 - vii. Siemon/CommScope
 - viii. Chatsworth
 - ix. Southwest Data Products
 - x. Nelson
 - e. The bidder is to take into consideration the consequences of pairing up component and cable manufacturers to the overall warranty of the system. The Owner considers this system as a whole and requires an integrated component/cable warranty on all material and labor as described below.
 - f. Refer to the project documents and this section for more detailed descriptions of products. The bidder is required to include all components necessary to provide a complete technology system as described in this section and noted in the associated project drawings.
8. Submit a detailed list of equipment and materials to be provided for the Work specified herein and on the project drawings. Include a list of the items for which submittals will be provided.
9. Submit manufacturer's product cut sheet documentation for the following materials and/or equipment, clearly noting each product and part number for review and approval:
 - a. Equipment racks
 - b. Equipment cabinets
 - c. All related seismic restraints
 - d. All cable types (copper and optical fiber)
 - e. All patch bays (fiber, copper and coax)
 - f. All connection/termination blocks (copper)
 - g. All technology outlets housing material
 - h. All technology outlet jack types and housings
 - i. All cable support material (cable runway, j-hooks, etc)
 - j. Fire stop material
10. Submit bid pricing worksheet for review with bid

- a. Bidder is to generate a pricing worksheet that indicates manufacturer, manufacturer part number and product costs plus installation costs for review by the Owner.
 - b. Bidder is to itemize any miscellaneous materials.
 - c. All costs in the bid pricing worksheet are to be inclusive of a turn-key communications system installation.
11. Submit a constant price affidavit - pricing good for one year from date of submittal.
 12. Submit manufacturer's 25-year extended warranty statement.
 13. Submit Contractor's 1-year warranty and service statement.
 14. Provide a statement indicating all materials are readily available. If not, provide a recommended solution as an alternate.
 15. Submit any other information and copies as required in the project's general requirements and Owners' supplemental information.
- C. Construction submittals:
1. Submittals to be submitted three weeks after written notification to proceed.
 2. Before ordering equipment, submit catalog data sheets, neatly bound with title page, space for submittal stamps and tabbed dividers between sections. List all equipment with reference to corresponding section paragraph numbers or equipment title. Denote all approved substitutions.
 3. Provide shop drawings and record drawings using the following scales:
 - a. Plans - not less than 0.125-inch = 1-foot
 - b. Details - not less than 0.25-inch = 1-foot
 4. Submit point-to-point wiring diagrams and typed wire lists identifying every connection. Indicate location of all components. Identify cables by type, color and wire number.
 5. Submit detailed floor plans, reflected ceiling plans, sections and elevations of all telecommunication rooms illustrating termination locations and associated wiring scheme.
 6. Submit system plans showing all device locations.
 7. Submit conduit riser diagrams showing connection of all devices along with types and quantities of cables to be used and cable identification tags.
 8. Submit conduit, sleeve and cable tray fill calculations.
 9. Submit rack layouts indicating the proposed arrangement of mounted equipment.
 10. Submit fully dimensioned construction details of all coordination items, such as panel or plate installation in casework or millwork.
 11. Submit a schedule of finishes indicating proposed materials and color selections options (from manufactures standard finishes) for approval by Owner/Architect.
 12. Submit samples of engraved labels, cable-marking system, and faceplate etching/finishes.
 13. Submit complete mockups of all faceplate types and verification that they are compatible with the locations and enclosures, including floor boxes and furniture, in which they will be installed.
 14. Submit samples of any cabling, device, or other IT system element that is being presented as an alternate.
 15. Submit mounting and support details for equipment racks, cable trays, and all other items mounted overhead, complete with parts lists and dimensions. Include a full plan view, front elevation and side elevation of each item, with corresponding support structure and mounting hardware. Verify load ratings of all hanging components including attachment hardware. A structural engineer registered in the State shall stamp details.
 16. Validation walkthrough submittals: Prior to requesting the validation walk through, submit copies of all "as-built and test report information" required in Part 3 of this section to the Designer.

1.08 PROJECT CLOSE OUT

- A. The Contractor shall provide type written and computer readable documentation, which indicates materials acceptance testing was conducted as outlined in this document. The Contractor shall also provide documentation that indicates that all cable termination testing was completed and that all irregularities were corrected prior to job completion for Owner/Designer analysis.
- B. After approval of the copy of all as-built and test report documents, submit the following to the Architect:
1. Two sets of full size prints
 2. Three sets of reduced B or half size prints whichever is larger.
 3. Five bound sets of all paper test results in three-ring binders. Divide information into sections and binders as required to fit into a maximum of 3-inch D-ring binders.
 4. Five project close out DVD/CD-ROM disks.
- C. As-built drawings:
1. Maintain a full set of shop drawings at the project site, marked up to indicate actual locations in general, the true state of the installation.
 2. Cableway and cable schematic illustrating point-to-point connections between all terminal points within the backbone cabling system.
 3. Complete riser diagram showing backbone interconnection and cable routing. Each cable type must be noted.
 4. Detailed elevations of the voice and data telecommunications room illustrating punch-down location and equipment rack locations.
 5. Equipment rack elevations illustrating vertical location of termination hardware (e.g. fiber boxes, patch panels, etc.) within all IT/telecom rooms and ceiling enclosures.
 6. Mounting and attachment details illustrating the connection of equipment racks and cabinets to the structure.
 7. Outlet layout floor plans including room/area numbers, outlet numbers and the corresponding cable identification numbers.
 8. Two sets of A size drawings showing the components and wiring in each individual rack. A drawing of each rack shall be mounted in a plastic jacket in the telecommunication room near the associated rack. The other complete drawing set shall be included in the manual.
- D. Bound Manuals:
1. Bound manuals must be:
 - a. Neatly presented in a three-ring binder and tabbed into separate sections.
 - b. Divide information into sections and number of binders as required.
 - c. Binders are to be a maximum of 3-inch thick D-ring binders.
 - d. Provide spine and front cover labels for each binder, label to call out building name, general contents of binder and volume number if multiple binders are required.
 - e. Contain a table of contents.
 - f. Provide the company name, address, telephone number and contact name for system service or maintenance in a clear plastic sleeve in the very front of the binder.
 - g. Provide clear plastic three-ring binder sleeve for DVD/CD-ROM. DVD/CD-ROM to be located behind the table of contents of each bound manual.
 2. The "Test Report Manual" will contain the following:
 - a. Cable run sheets: The information included on the run sheet shall be:
 - i. Separated by each floor and then by each cable type
 - ii. Cable source
 - iii. Cable destination

- iv. Cable type (e.g. horizontal riser, vertical riser, technology outlet, etc)
 - v. Generic cable section (e.g. OSP, Cat-6, fiber, etc)
 - vi. Manufacturer's cable section number
 - vii. Cable jacket color
 - viii. Cable label number
 - ix. Test results for each cable
3. The "Warranty, Operations, Maintenance Manual" will contain the following:
- a. Narration of system and patching procedures for this system.
 - b. Small scale plans showing locations and circuit numbers for all system outlets and receptacles.
 - c. Single-line block diagrams showing all major system components.
 - d. Listing of all equipment and materials with names of manufacturers and model numbers or part numbers.
 - e. Catalog data sheets displaying manufacturer's names, addresses and telephone numbers.
 - f. Results of all tests called for in Part 3 of this section.
 - g. Provide a narration of any manufacturer suggested maintenance for any of the materials.
 - h. Provide copies of Contractor and manufacturer warranties.
4. DVD/CD-ROM format:
- a. Submit copies of all information presented in the bound manuals on DVD/CD-ROM media.
 - b. Files shall use long windows names file structure.
 - c. A disk master file list in text format shall be placed on the DVD/CD-ROM with a short description of files on that disk.
 - d. Architectural drawings shall be in AutoCAD 2004 or later drawing (.DWG) format. Drawing Exchange File Format (.DXF) shall not be acceptable. All XREFs, fonts, and other drawing parts necessary to the drawings shall be included.
 - e. Network drawings shall be in Visio 2010 and AutoCAD 2004 or later drawing (.DWG) format. Drawing exchange file format (.DXF) shall not be acceptable. All XREFs, fonts, and other drawing parts necessary to the drawings shall be included.
 - f. All test report data.
 - g. Complete working copy of electronic software used to generate the test results for review by the Owner/Designer.
 - h. Documents and spreadsheets shall be in Microsoft Office 2010 or later format.
 - i. All files to be converted to searchable PDF files in addition to the native drawing, document and spreadsheet formats.
 - j. Manufacturers' manuals provided by the manufacturer to the Contractor or documents that are similarly not otherwise available to the Contractor in electronic format shall be excluded from this requirement.

1.09 GUARANTEES AND WARRANTIES

- A. Transfer all manufacturer and subcontractor's warranties to the Owner at the acceptance of all work.
- B. Register warranty in the Owner's name for any product with a manufacturer's warranty of more than one year.
- C. The warranty must include, but will not be limited to, the following statements regarding the cabling system:

1. "Will support and conform to TIA/EIA-568-C sections covering ANY CURRENT OR FUTURE APPLICATION which supports transmission over a properly constructed horizontal cabling system premises network which meets the channel and/or basic link performance as described in TIA/EIA-568-C."
 2. "The Warranty shall cover the replacement or repair of defective product(s) and labor for the replacement or repair of such defective product(s)."
 3. The warranty shall not be for less than 20-years.
- D. The warranty will not begin until after a 90-day period from the final date of acceptance, by the Owner. If during this period the installed system does not perform adequately, the Contractor must repair the installation within 24-hours to the satisfaction of the Owner and this section. Provide loaner equipment as required to keep the system operational if the system cannot be repaired within 24-hours of notification.

1.10 OWNER FURNISHED EQUIPMENT

- A. Certain equipment may be identified as owner furnished equipment (OFE). This OFE may presently be part of the Owner's systems or will be provided by the Owner, and will be delivered to the Contractor's off-site construction facility, delivered to the Contractor's on-site secured storage area or installed on site by others, as appropriate, for incorporation into the system.
- B. Clean and inspect the OFE, and notify the Owner in writing of damage or defect and the extent of repair and/or adjustment required to bring the OFE to original specification. Service OFE only as directed by the Owner under the arrangements of a separate contract.
- C. Incorporate into the system as if provided new, excepting warranty coverage.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Components are to operate on a 110-120 volt, 60 Hz electrical supply unless otherwise noted. Rack mounted equipment is to be mounted in a standard EIA 19-inch rack. The components listed in the equipment schedule are the basis of the system design and represent the minimum standards for each of the components. All of the properties of each component or system should be considered listed in full.
- B. The components listed in the equipment schedule are the basis of the communications system design and are the owners' preferred components. They represent the minimum functional and performance standards for each of the components. All of the properties of each component or system should be considered listed in full.
- C. Equipment, excepting the owner furnished equipment (OFE), and materials shall be new. The latest version at time of delivery and shall conform to applicable UL, CSA, ANSI, TIA/EIA provisions. Take care during installation to prevent scratches, dents, chips, etc.; equipment with significant or disfiguring cosmetic flaws will be rejected.

2.02 OUTLET JACKS AND CONNECTORS

- A. Materials:
 1. All modular data outlet jacks shall be rated to perform above the minimum TIA/EIA-568-C performance level for Category-6A.
 2. All Category-6A outlet jacks shall have an eight position, eight conductor module that accepts both RJ45 and RJ11 modular plugs. Outlet jacks must utilize the TIA/EIA-T568-C pin-out wiring scheme.

3. All Category-6A outlet jacks and the associated channel components must support gigabit Ethernet transmission speeds up to ninety meters.
4. All modular Category-6A outlet jacks shall be coordinated with faceplate color.
5. All optical fiber multi-mode modular outlet jacks shall be duplex LC connectors that are rated and approved by the manufacturer to perform at the level designated by the optical fiber strands terminated within each connector.
6. Preferred UTP copper jack manufacturers:
 - a. Belden
 - b. Leviton
 - c. Hubbell
 - d. Ortronics
 - e. Panduit
 - f. Siemon
 - g. CommScope
7. Preferred optical fiber termination connector manufacturer and systems:
 - a. Corning Unicam LC system
 - b. Panduit LC system

2.03 OUTLET HOUSING

- A. Materials:
1. Flush mounted faceplates in all technology outlet locations shall be a minimum of four, port plates. Color of each flush-mount faceplate must be coordinated with the Architect before purchase to match the electrical faceplate trim color.
 2. All outlet housing components must provide TIA/EIA-606 labeling spaces for each individual outlet jack and for the outlet housing.
 3. Faceplates for wall-mounted phones shall be one-port single gang faceplates that have wall-mount lugs allowing vertical phone mounting.
 4. Faceplates and connectors for floor-mounted outlets must be coordinated with the floor box that will be provided for the project.
 5. Furniture faceplates and connectors shall be capable of fitting in the furniture system selected by the Owner. Quantity of faceplates and connectors shall satisfy outlet jack requirements shown on drawings. Faceplate extenders shall be provided and used by the Contractor, if required, to maintain proper bend radii. Colors must be coordinated with the Owner before purchase.
 6. Preferred outlet housing manufacturers:
 - a. Belden
 - b. Leviton
 - c. Hubbell
 - d. Ortronics
 - e. Panduit
 - f. Siemon
 - g. CommScope

2.04 CABLE

- A. General:
1. All cable is to be plenum rated, unless otherwise noted.
 2. All plenum cable shall be designated "non" or limited combustible and be rated CMP-50 by the manufacturer with verification available, if requested, from an independent party.
 3. All cable shall be UL listed.
 4. All cable manufacturing shall be ISO 9001 certified.

- B. Category-6A cable:
1. All Category-6A, four pair cables will consist of eight, 20-26 gauge thermoplastic insulated solid twisted conductors that utilize the standard color code within a blue colored plenum jacket.
 2. The performance criteria for the Category-6A station cables shall be in accordance with the specific standards for the particular cable's rating. A Category-6A-rated cable must perform beyond the current section parameters for the published Category-6A rating by TIA/EIA-568-C series standards before, and after installation.
 3. All Category-6A cabling and the associated channel components must support ten gigabit Ethernet transmission speeds up to ninety meters.
 4. Preferred Category-6A cable manufacturer and systems:
 - a. Superior Essex 10Gain XP System
 - b. BerkTek LANmark-XTP System
 - c. Belden 10GXS System
 - d. CommScope GigaSPEED X10D System
- C. Multi-mode optical fiber cable:
1. All multi-mode optical fiber cable strands must be ISO/IEC 11801 Optical Multimode 3 (OM3) rated and have an outside cladding diameter of 125 micrometers and an inside core diameter of 50 micrometers with a dual operational wavelength of 850 nanometers and 1300 nanometers over distances less than 5 kilometers.
 2. All multi-mode optical fiber cables must contain a series of Kevlar strands for tensile strength reinforcement and contain a dry water propellant mechanism within the metallic interlocked armor if there is a possibility of water contamination at any point in the pathway.
 3. All multi-mode optical fiber cable shall exhibit stable performance in a building environment and the transmission performance of the optical fiber shall not be adversely affected by environmental fluctuations, installation conditions/methods, and/or aging.
 4. All multi-mode optical fiber cable shall be OFNP-rated, and all cable jackets shall have the industry standard orange coloring, that is constructed with a metallic interlocking armor directly encased within the jacket for protection, unless otherwise noted.
 5. The performance criteria for the multi-mode optical fiber cable shall be in accordance with the specific standards for the particular cable's rating by TIA/EIA-568-C.
 6. Preferred multi-mode optical fiber cable manufacturer and systems:
 - a. Corning Interlocking armored MIC cable system
 - b. CommScope Interlocking armored cable system
 - c. BerkTek Interlocking armored cable system

2.05 PATCH PANELS

- A. General:
1. All patch panels are to be rack mountable within industry standard TIA/EIA, 19-inch mounting rails.
 2. Unused ports or slots are to have blank inserts installed.
 3. Panels are to be UL-listed.
 4. All patch panels shall be produced by the same manufacturer that produces the outlet jacks for that system.
- B. UTP patch panels:
1. All installed UTP patch panels shall be forty-eight (48) port Category-6A patch panels with a 110-style termination connection on the back of the panels and a single RJ45 module on the front for each port, unless otherwise noted on the project drawings.

2. All installed UTP patch panels shall include horizontal cable management brackets directly behind the 110-style termination point.
 3. The performance criteria for the UTP patch panels must exceed the Category-6A parameters for frequency, attenuation, near end cross-talk (NEXT), attenuation to cross-talk ratio (ACR), power sum NEXT (PS-NEXT), power sum ACR (PS-ACR), equal level far end cross-talk (EL-FEXT), power sum far end cross-talk (PS-FEXT), and return loss (RL) as set forth in TIA/EIA-568-C.
 4. UTP patch panels are to utilize the TIA/EIA-T568-C pin-out termination scheme.
 5. UTP patch panel manufacturer and systems:
 - a. Panduit shall be the preferred patch panel manufacturer.
- C. Optical fiber patch panel trays:
1. All optical fiber patch panel trays shall be either 12-port, 24-port, 48-port or 96-port optical fiber trays that are modular in design and are able to accept various types of optical fiber connectors, and specifically LC connectors, unless otherwise noted on the project drawings.
 2. All optical fiber patch panel trays and associated bulkhead inserts shall have factory numerical labeling included in the design and presentation to the user side of the panel.
 3. All optical fiber patch panel trays must include bend radius control in the front of the panel for optical fiber patch cords and bend radius control inside the tray for optical fiber strand protection.
 4. The optical fiber patch panel bulkheads that house the terminating modules for the fiber cabling and any station optical fiber cabling shall accept TIA/EIA-568-C standard-compliant LC connectors.
 5. All fiber is to be terminated in fiber shelves/patch panel trays in counts indicated on the project drawings. In general, fiber will be terminated by type, i.e., all multi-mode terminated in one shelf and all single mode terminated in one shelf. However, the product must also have the capability of terminating both single-mode and multi-mode fiber in the same shelf/patch panel tray, if necessary.
 6. All termination modules are to have LC duplex connectors within the fiber tray(s).
 7. Optical fiber patch panel tray manufacturer and system:
 - a. Panduit shall be the preferred fiber panel manufacturer.

2.06 PATCH CORDS

- A. General:
1. All patch cords are to be shipped pre-assembled, verified and tested from the factory in sealed packages.
 2. On-site terminations will not be allowed under any circumstances.
 3. All patch cords shall be manufactured by the same manufacturer that produces the outlet and/or backbone connectivity components of system.
 4. All patch cords shall be approved by the Owner in writing prior to purchase.
- B. Category-6A copper patch cords:
1. All copper patch cords shall have stranded conductors that match the TIA/EIA-568-C performance characteristics of the solid conductor Category-6A cable specified.
 2. All Category-6A patch cords must utilize the TIA/EIA-568-C wiring scheme.
 3. All Category-6A voice and data patch cord colors are black.
 4. All Category-6A patch cord counts and lengths are noted in this section.
- C. Multi-mode optical fiber patch cords:
1. All multi-mode optical fiber patch cords must be LC duplex type cords.
 2. All multi-mode optical fiber patch cord colors are orange.
 3. All multi-mode optical fiber patch cord counts and lengths are to be confirmed with the Owner prior to purchase.

- D. The Contractor shall provide all patch cords required within the telecommunications rooms to meet functional requirements of the contract documents as well as the following additional category-6A patch cords in white:
 - 1. (70) – 5' patch cords
 - 2. (10) – 10' patch cords
 - 3. (10) – 20' patch cords
- E. The Contractor shall provide all patch cords required within each office and classroom to meet functional requirements of the contract documents as well as the following additional category-6A patch cords in blue:
 - 1. (6) – 10' patch cords
- F. The Contractor shall provide all patch cords required within each CTE room to meet functional requirements of the contract documents as well as the following additional category-6A patch cords in blue:
 - 1. (40) – 6' patch cords
- G. The Contractor shall provide all patch cords required within each Science Lab and Resource room to meet functional requirements of the contract documents as well as the following additional category-6A patch cords in blue:
 - 1. (15) – 6' patch cords

2.07 WIRE MANAGEMENT

- A. All horizontal wire management on 19-inch relay racks shall be one-RU and two-RU panels, as noted on the project drawings. All 19-inch horizontal managers must have sufficient depth to allow for TIA/EIA-568-C standard copper and fiber bend radii.
- B. All vertical wire management on 19-inch relay racks shall be six inches in width as noted on the project drawings. Vertical wire managers will be single and double sided, as noted. All 19-inch vertical wire managers must have sufficient depth to allow for TIA/EIA-568-C standard copper and fiber bend radii.
- C. Wire management manufacturer and systems:
 - 1. Panduit shall be the preferred wire management manufacturer.

2.08 CABLE RUNWAY SYSTEM

- A. All industry one and one-half inch high standard cable runway shall be manufactured with tubular steel rails 12-inches, 18-inches, or 24-inches, in width configured with industry standard one and one-half inch ladder cross bars positioned twelve inches on center perpendicular to the rails, as called for on the project drawings. Wire frame runway systems are not acceptable.
- B. Cable runway system shall include all components to install the support and bracing system including but not limited to: runway rails, end caps, wall angle support brackets, bonding straps, butt splice kits, junction splice kits, and top rack-to-runway mounting kits.
- C. All cable runway system components shall be grounded and bonded per TIA/EIA-607 standards.
- D. All cable runway system components shall be anodized, unless otherwise noted.

- E. Preferred cable runway system manufacturers and systems:
 - 1. Chatsworth Cable runway system
 - 2. SWDP Cable runway system
 - 3. Cooper B-Line Cable runway system

2.09 RELAY RACKS

- A. All open frame relay racks shall be aluminum, EIA standard 19-inches wide by 7-feet high height, with four posts and 45-RU of useable space.
- B. All open frame relay rack shall include components to brace it to the structure below and seismically braced from above as required for Zone 4, and noted on the project drawings.
- C. All open frame relay racks shall be grounded and bonded per TIA/EIA-607 standards.
- D. All open frame relay racks shall be anodized, unless otherwise noted.
- E. Racks are to be rated for the Uniform Building Code Seismic Zone 4.
- F. Power strips:
 - 1. Vertical mount power strips are to be provided at the rear of each rack, with pigtailed connected to power receptacles provided by others.
 - 2. The power strip shall have a minimum of fourteen (14) 20Amp 120VAC receptacles.
 - 3. For racks with UPS, route pigtail to UPS receptacles.
- G. Relay rack manufacturers and systems:
 - 1. Panduit shall be the preferred rack manufacturer.

2.10 CABLE TIES

- A. All cable ties and all Velcro cable wraps shall be provided inside each IT/telecom room and where necessary per industry and TIA/EIA-568-C standards.
- B. Velcro cable wraps shall be used IT/telecom room; nylon style cable ties shall not be used in any of the wire management systems in the IT/telecom room.
- C. Velcro cable wraps shall be used for patch cords where installed to help manage patch cords.
- D. Acceptable cable tie manufacturers:
 - 1. Velcro Velcro cable ties
 - 2. Leviton Velcro cable ties
 - 3. Hubbell Velcro cable ties
 - 4. Ortronics Velcro cable ties
 - 5. Panduit Velcro cable ties
 - 6. Siemon Velcro cable ties

2.11 FIRE STOPPING

- A. All fire stopping material associated with the telecommunications transport system shall comply with all applicable laws, regulations, standards, and codes and shall be re-enterable by design.
- B. All fire stopping material shall re-establish the integrity of fire-rated walls, floors, ceilings, etc when these barriers are either partially or completely penetrated by cables, conduit, slots and other penetration elements.

- C. All fire stopping shall ensure that all floor and wall penetrations comply with the "F" and "T" ratings of ASTM E-814 after all work has been completed. Thickness or depth of fire stopping material(s) shall be as recommended by the material manufacturer and backed by formal ASTM E-814 tests.
- D. All fire stopping material shall provide fire-resistance protection using a mechanical fire stop system that consists of pre-manufactured elastomeric components shaped to fit around standard cables, tubes, and conduit.
- E. If a non-mechanical fire stop system is to be used, the Contractor shall state what form will be used and state the properties of the material to be used in each specific situation, i.e., putty (with intumescent sheet materials, ceramic fiber or rock wool fill), caulk, silicone foam, pre-manufactured "pillows", or other materials of a cement-like nature.
- F. All fire stopping materials and methods shall be approved by the Owner prior to purchase and installation.
- G. Preferred fire stopping manufacturer:
 - 1. Nelson Firestop material
 - 2. 3M Firestop material

2.12 CABLE TESTER

- A. The utilized cable tester shall be a Level-III compliant tester certified by an independent laboratory such as ETL.
- B. The Owner requires that the Contractor utilize the following specific testers to ensure proper verification of the installed cable plant:
 - 1. Fluke CableIQ Qualification Tester
 - 2. Ideal Networks LanTEK III

2.13 LABELS

- A. All labels shall be machine-manufactured by a labeling machine provided by the Contractor and must have a neat and uniform appearance.
- B. Handwritten labels will not be accepted.

2.14 INTERCOM

- A. Basis of design for the intercom system will follow (expand) the existing Bogen Communications, Inc Quantum Multicom IP specification as provided by Bogen Communications, Inc.
- ~~B. Loudspeakers are to be ceiling mounted devices.~~
- C. Ceiling mounted VOIP Intercom loudspeakers to be adjusted to 2W SPL level within the software.
- D. Exterior intercom to be Bogen ADP1 two-way terminal.
- ~~E. Paging Horns and Ceiling mounted Loudspeaker 25 Volt system.~~
- ~~F. Paging Amplifier 250 watts~~

PART 3 - EXECUTION

3.01 GENERAL

The following is required for acceptance of the communications system by the Owner:

- A. Install complete and functioning communications system.
- B. Label equipment and cables corresponding to functional diagram.
- C. Conduct adjustments and testing.
- D. Report results of testing along with system documentation.
- E. Participate in validation walkthrough and deliver final system and documentation.
- F. Conduct any adjustments or re-testing required to meet the performance sections.
- G. Provide training to an individual(s) designated by the Owner/Architect/Designer.
- H. Complete the work as called for in this section and on the project drawings.
- I. The Contractor's personnel shall be knowledgeable of the following communication practices:
 - 1. Color coding of telephone cables
 - 2. Bonding and grounding of shields
 - 3. Testing conductors for electrical continuity, polarity and sequence
 - 4. Special handling of fiber optic cable assemblies
 - 5. Industry-standard cable termination methods, such as, but not limited to: 110 connector blocks, RJ jacks, and fiber connectors
 - 6. TIA/EIA-568-C standards for UTP and optical fiber installation and testing procedures
 - 7. NEXT, signal attenuation, and noise burst test procedures for UTP
 - 8. Power metering of fiber optic cables
 - 9. Industry and manufacturer's installation, testing instructions and verification documentation for all other products specified in this document
- J. Work shall conform to all Owner, OSHA, State, job site, and labor requirements.
- K. All trade contractors must follow all rules of the job site specified by the Owner and by the project's General Contractor.
- L. All work must be completed in a timely fashion following the published start and completion dates.
- M. Coordinate construction schedule with the Owner and General Contractor before beginning installation.
- N. Ensure preceding trade's work is accurate before proceeding with the technology infrastructure installation. Examples of work which must be verified and approved, in writing include, but are not limited to:
 - 1. Electrical requirements (conduit installation and capacity, power receptacle location and type, grounding system, and pull strings by other trade contractors).
 - 2. Telecommunications rooms sizes and verification they have been constructed to the size shown on the project drawings.

3. Adequate clearances of doors, riser spaces, vertical dimensions and ceilings.
- O. Stage the installation equipment in dedicated telecommunications space to avoid damage and interference with other trades.

3.02 INSTALLATION

- A. All materials shall be firmly secured in place per the manufacturer's installation guidelines unless requirements of portability dictate otherwise in the project documents.
- B. Fastenings and supports shall be adequate to support their loads with a safety factor of at least three times. Requirements for Zone 4 seismic bracing and earthquake safety shall be met at all times.
- C. All boxes, equipment, materials, outlet housing, etc., shall be secured, plumb and square unless otherwise indicated by the project documents and/or the manufacturer's installation instructions.
- D. In the installation of equipment and cable, consideration shall be given not only to operational efficiency, but also to overall aesthetic factors.
- E. Protective covers normally shipped with the connector shall remain over the connector after installation. The cover shall be held in place with electrical tape or plastic tie-wraps if there is any chance of it being dislodged during construction and move-in.
- F. Any connector (including all hardware) that is not normally shipped with a protective cover shall be covered with a clear non-conductive medium, such as heat-shrink or plastic wrap, to protect against dust, paint and moisture. Protective covering shall not cover cable or station identification.
- G. Leave nylon pull strings in all conduits and pathways for future installations. The nylon pull string must have a minimum tensile rating of 200-pounds.

3.03 COPPER CABLE

- A. Install all copper cable per the manufacturer's recommended installation instructions, under the guidelines of TIA/EIA-568-C, and in counts indicated on the project drawings.
- B. Install all cables with proper attention paid to bend radii, pulling method, attachment method, and pulling forces. The cable manufacturer's specifications for each particular cable type shall be followed exactly unless otherwise indicated on the project drawings.
- C. Install the copper cable in groups according to quantities listed on the project drawings.
- D. All cable shall be pulled using an appropriate measuring device to ensure that the specified force is not exceeded.
- E. All cable shall be visually inspected for insufficient bend radius during and after pulling. Damaged cables, or those installed under questionable methods and/or circumstances shall be replaced at no additional cost to the Owner.
- F. All cables shall be clearly labeled on both ends and in an accessible location no more than two-feet from the cable ends.

3.04 OPTICAL FIBER CABLE

- A. Install all optical fiber cable per the manufacturer's recommended installation instructions, under the guidelines of TIA/EIA-568-C, and in counts indicated on the project drawings.
- B. Install all cables with proper attention paid to bend radii, pulling method, attachment method, and pulling forces. The cable manufacturer's specifications for each particular cable type shall be followed exactly unless otherwise indicated on the project drawings. All cable shall be pulled using an appropriate measuring device to ensure that the specified force is not exceeded.
- C. Install the optical fiber cable in groups according to quantities listed on the project drawings.
- D. A minimum of six feet of each optical fiber strand shall be left protected within the termination shelf for any future re-termination of a particular optical fiber strand.
- E. All cable shall be visually inspected for insufficient bend radius during and after pulling. Damaged cables, or those installed under questionable methods and/or circumstances shall be replaced at no additional cost to the Owner.
- F. All optical fiber cable shall be securely fastened to the termination shelf in a way that does not damage the optical fiber strands or impede the performance of the media. This secure fastening method shall also serve to insure a secure termination environment.
- G. All cables shall be clearly labeled on both ends and in an accessible location no more than two-feet from each cable end.

3.05 UNIVERSAL HORIZONTAL STATION CABLE

- A. All horizontal UTP cabling will be universal in nature and should be installed as such.
- B. Install all universal horizontal station cable per the manufacturer's recommended installation instructions, under the guidelines of TIA/EIA-568-C, and in counts indicated on the project drawings.
- C. Install all cables with proper attention paid to bend radii, pulling method, attachment method, and pulling forces. The cable manufacturer's specifications for each particular cable type shall be followed exactly unless otherwise indicated on the project drawings. All cable shall be pulled using an appropriate measuring device to ensure that the specified force is not exceeded.
- D. All cable shall be visually inspected for insufficient bend radius during and after pulling. Damaged cables, or those installed under questionable methods and/or circumstances shall be replaced at no additional cost to the Owner.
- E. All universal horizontal station cable shall be securely fastened to the termination shelf and at the station end in a way that does not damage the individual copper conductors or impede the performance of the media. This secure fastening method shall also serve to insure a secure termination environment.
- F. All cables shall be clearly labeled on both ends and in an accessible location no more than two-feet from each cable end.

3.06 PATHWAYS AND CABLE SUPPORT

- A. The electrical contractor shall install conduit systems and outlet boxes outside of the telecommunication rooms as called for by the project documentation.
- B. All cable transport systems outside of the telecommunication rooms excepting conduit systems and outlet boxes shall be provided by The Contractor.
- C. All cable transport systems within the telecommunication rooms shall be provided by the Contractor.
- D. Draping cables over other structures in the ceiling is unacceptable. Water pipes, ceiling grid, sprinkler system, electrical supports, air ducts or any other in-ceiling structure may not be used for cable support.
- E. Cable must be routed to follow existing corridors and parallel or ninety (90) degree angles from all walls and the cable tray.

3.07 TECHNOLOGY OUTLET HOUSING AND TERMINATION COMPONENTS

- A. The Owner reserves the right to specify a new location for any technology outlet without increasing contract cost - providing that the new location is specified prior to roughing-in and is not farther than ten (10) feet away from the original location specified.
- B. Install all technology outlet housing and termination component per the manufacturer's recommended installation instructions, under the guidelines of TIA/EIA-568-C, and in counts indicated on the project drawings.
- C. All technology outlets located on a wall shall be flush mounted, level and plumb. All technology outlets shall be mounted at right angles and parallel to the floor.
- D. The Owner, prior to installation by the Contractor, must confirm furniture termination locations and faceplates.
- E. Install blank inserts in spaces within the faceplates that are not being filled with cable connection ports.
- F. Mount all outlets at building standard outlet height, unless noted otherwise on the project drawings.
- G. All faceplates, as well as each individual utilized port, must be labeled in accordance with an Owner-approved labeling scheme.
- H. Terminate all technology outlet jacks and modules per the manufacturer's recommended installation instructions, under the guidelines of TIA/EIA-568-C, and in counts indicated on the project drawings.
- I. Specific attention shall be paid to the length of UTP cable jacket stripping so that it does not exceed 0.5-inch from the termination point within the outlet jack.

3.09 CABLE MANAGEMENT

- A. Install all vertical and horizontal cable management per the manufacturer's recommended installation instructions, as indicated on the project drawings.

- B. When dressing the cables, the top 24 ports shall route up into the horizontal cable manager above the patch panel, and the bottom 24 ports shall route down into the horizontal cable manager below the patch panel.
- C. All cable bundles inside the telecommunications rooms shall be secured with Velcro cable wraps.
- D. Cable ties and Velcro cable wraps shall not be pulled tight enough to kink the cable jacket.
- E. The maximum amount of cables per bundle in the telecommunications rooms is 24.

3.10 RELAY RACKS

- A. Install all relay racks per the manufacturer's recommended instructions for a Zone 4 installation, as indicated on the project drawings.
- B. Provide two-post and/or four-post open frame racks as indicated on the project drawings.
- C. Anchor all racks to the concrete floor and cable runway system above for support bracing.
- D. Label the top and bottom of all relay racks and cabinets as indicated on the project drawings.

3.11 GROUNDING

- A. All grounding shall be in accordance with the National Electrical Code and TIA/EIA-607.
- B. The Contractor is responsible for providing and installing all ground wire to every rack, cabinet, runway, cable tray, etc. from grounding busbars (installed by others).
- C. All non-active equipment in the telecommunications rooms must be grounded to the local busbar by an individual ground wire. Active equipment shall be grounded through the electrical system.
- D. Install the connecting ground wire in a star topology deriving from the main telecommunications ground bar within each IT/telecom room. Daisy-chaining ground wire is unacceptable.
- E. All telecommunications grounding and bonding from busbars to racks or cabinets shall comply with all applicable laws, regulations, standards and codes and any applicable amendments.
- F. Ground wire must be solid conductor or braided and in sheath(s). Stranded wire may not be used. Bare wire may not be used.
- G. Total DC resistance to ground must not exceed 1 ohm.

- H. At a minimum, Contractor shall use grounding conductors in accordance with the following table:

Distance (feet)	Wire Size (AWG)
Up to 100	6
101-160	4
161-250	2
251-350	1
351-400	0
401-500	00

- I. Gas and water pipes shall NOT be used as a grounding electrode.
- J. All bonds shall be suitably protected against corrosive atmospheres, vibration and/or mechanical damage.
- K. Each bonded joint shall be protected against corrosion by assuring that the metals to be bonded are galvanically compatible. Bonds shall be protected from vibration-induced deterioration by assuring that bolts and screws are adequately torqued.
- L. Compression bonds between copper conductors or between compatible aluminum alloys shall be located in easily accessible areas not subject to weather exposure, corrosive fumes or excessive dust and shall not require sealing.
- M. Any power strips provided in equipment cabinets and/or racks must be grounded to the electrical ground system.

3.12 FIRE STOPPING

- A. General:
 - 1. Install all fire stopping material associated with the telecommunications transport system with methods that comply with all applicable laws, regulations, standards, and codes.
 - 2. Install all fire stopping material to be compliant with installed sleeve details.
- B. Fire stopping requirements:
 - 1. Seal all penetrations for rigid conduit or sleeves using approved materials installed according to the manufacturer's sections and local codes.
 - 2. All slot or chase-type penetrations placed at time of casting shall be fire stopped.
 - 3. All individual cable or wire penetrations that are not in conduit shall be fire stopped.
 - 4. Penetrations in gypsum board wall for cable trays shall be boxed-out with gypsum board and sealed with a design-tested fire stopping system installed per the manufacturer's sections and instructions.
 - 5. All metal conduits/sleeves identified as serving the possible purpose of routing voice and data cabling, with or without wire and/or cable inside shall be fire stopped.

3.13 LABELING

- A. Install all labeling to comply with TIA/EIA-606 standard for labeling and administration of cable plants that is also consistent with the Owner's guidelines. Contractor shall confirm cable plant labeling system with Owner and Owner's representative, in writing, prior to installation as part of the submittal process.

- B. Each cable must be machine labeled on both ends and at all locations where the cable is accessible for administration.
- C. Each outlet shall be given a unique number outlined in a labeling scheme provided by the Owner. The labeling scheme will be prepared under the guidelines of TIA/EIA-606 standards for labeling and administration. The Contractor is responsible for utilizing the Owner's approved labeling scheme throughout the Work.
- D. Label each patch panel port with the same color and number of corresponding outlet as designated in the Owner's labeling scheme. Label each port on the technology outlet with a machine labeled port designation.
- E. Label cables with the number of pairs or fibers and the location of terminations. Use full wording for the names of termination points. Labels that refer to room numbers only are unacceptable and will be replaced at no additional cost to the Owner.
- F. Label the MDTR, BDTR and FDTR backbone voice fields with pair numbers. Begin with 0001 and work forward when designating a copper backbone cable, unless otherwise directed by the Owner. Label the FDTR station fields with unique technology port identifiers, as indicated in the Owner's labeling scheme.

3.14 TESTING

- A. The Contractor shall be responsible for all testing and performance parameters required by this section and all applicable TIA/EIA-568-C series standards.
- B. Furnish all equipment and personnel to conduct these tests in accordance with the performance section requirements.
- C. Prepare Test Reports Manual as described in this section documenting the results of these tests and readings.
- D. Test results must be submitted to the Owner as part of the project documentation prior to acceptance as required by this section.
- E. Testing of copper wiring shall be performed prior to system cutover (100 percent of the horizontal and riser wiring pairs shall be tested for opens, shorts, polarity reversals, transposition and presence of AC voltage).
- F. Any pairs not meeting the requirements of the standards shall be brought into compliance by the Contractor, at no charge to the Owner.
- G. Category-6A data cable test procedures must comply with and meet the following standards:
 - 1. TIA/EIA-568-C
 - 2. NEMA Low Loss extended frequency requirements
 - 3. Any additional Owner standards attached to general conditions
- H. Complete four pair testing must be performed with full sweep frequency measurements from 1 MHz to 500 MHz, and the Power Sum Far End Cross-Talk test. This test will establish each channel's installed performance measurement. This is not a certification or compliance test, rather a measure of available headroom. Any copper cable failing to meet the above-indicated standards must be removed and replaced, at no cost to the Owner, with copper cable that proves in testing to meet the standards.

- I. Test all Category-6A cables with a third party approved tester noted above. The testing device must be provided by the Contractor and approved by the Owner's representative prior to use. It is the responsibility of the Contractor to get written authorization from the Owner's representative to commence testing with said device.

- J. All cables are to be tested for:
 - 1. Continuity
 - 2. Polarity
 - 3. Insertion Loss
 - 4. Length

- K. Test procedure - Category-6A cables
 - 1. All CAT-6A cables shall comply, must be tested, and meet the following TIA/EIA-568-C standards:
 - a. Insertion Loss
 - b. Near End Cross talk (NEXT)
 - c. Power Sum Near-End Cross talk (PSNEXT)
 - d. Attenuation to Crosstalk Ratio – Near End (ACRN)
 - e. Power Sum Attenuation to Crosstalk Ratio – Near End (PSACR-N)
 - f. Far End Crosstalk (FEXT)
 - g. Power Sum Attenuation to Crosstalk Ratio – Far End (PSACRF)
 - h. Return Loss (RL)
 - i. Wire Map
 - j. Propagation Delay
 - k. Delay Skew
 - l. Length

- L. Test procedure - fiber data cabling:
 - 1. All fiber testing shall be performed on all fibers in the completed end-to-end system. There shall be no splices. Testing shall consist of a bi-directional end-to-end power meter test performed per TIA/EIA-568-C. The Contractor shall test all fiber cable prior to the installation of the cable. The Contractor shall assume all liability for the replacement of the cable should it be found defective at a later date.
 - 2. Loss budget:
 - a. Fiber links shall have a maximum loss of: $(\text{allowable cable loss per km})(\text{km of fiber in link}) + (.4\text{dB})(\text{number of connectors}) = \text{maximum allowable loss}$.
 - b. A mated connector-to-connector interface is defined as a single connector for the purpose of this section.
 - c. Loss numbers for the installed link shall be calculated by taking the sum of the bi-directional measurements and dividing that sum by two.
 - 3. Any link not meeting the requirements of the standard shall be brought into compliance by the Contractor, at no charge to the Owner.
 - 4. Optical fiber splices, fusion or mechanical, shall not exceed a maximum optical attenuation of 0.3dB when measured in accordance with ANSI/TIA/EIA--455-34, Method A (factory testing) or ANSI/TIA/EIA--455-59 (field testing).
 - 5. The testing of all Fiber optic cables must include tests using an Optical Time Domain Reflectometer (OTDR) or other Owner and Owner representative-approved test equipment. Documentation of the signature trace of the cable must include each of the following:
 - a. Attenuation per kilometer
 - b. Total length of each strand
 - c. The length of the longest cable run from each closet must be recorded and entered into the projects cabling database
 - 6. The test results must include the loss generated by each connector. Loss should be stated in dB. No fiber optic link will be accepted with a loss greater than 2dB.

7. Insertion Loss testing must be done using hand held units for the source and meter. Acceptance tests for all fiber strands shall include attenuation, attenuation uniformity, and end-to-end integrity. The Contractor is to ensure that losses are within budget levels. These tests shall be accomplished and documented using loss sets at the desired wavelength of 1300 and 850 NM. The loss test should be performed after all splicing, connectorization and interconnection has been completed. Loss tests should be zeroed using the test lead to be used making the measurements.

3.15 TESTING AND DOCUMENTATION

- A. A complete set of test results must be presented to the Owner and the Owner's representative at least one week before the placement of active electronics in all Owner IT/telecom rooms. The Contractor shall identify the types of cable testers used during the testing and verification when presenting the results.

3.16 SYSTEM ACCEPTANCE

- A. Provide a statement of completion certifying that the system is installed and is ready for initial review, demonstration that the system is operational and functional, and ready for owner testing.
- B. Schedule a time for the Designer and Owner to perform the validation walkthrough and owner testing with at least 14 days advance notice.
- C. Qualification for acceptance: Subsequent to completing the validation walkthrough and Owner testing, Contractor shall furnish the Owner/Designer with copies of initial project close out documentation as required in this section.
- D. Furnish all equipment and personnel to conduct spot tests as directed by the owner of the performance requirements outlined in this section, these tests will be completed in accordance with the performance section requirements.
- E. The installation will not be accepted by the Owner until all work, including training, documentation, and all punch list items are remedied to the Owner's satisfaction.
- F. The project manager must be available to answer questions about the installation and to attend site visits and meetings during the acceptance period.
- G. If the system does not meet criteria or if additional trips to the JOB SITE for testing or adjustment are required, the Contractor shall reimburse the Owner for all expenses and professional time encountered by the Design Consultant/Architect.

3.17 CLEANUP AND REPAIR

- A. The Contractor shall perform a daily cleanup of the installation site removing all debris created as a direct result of the installation of the voice data communication system.
- B. Remove all debris and repair any damage caused to the premises by installation activities.
- C. Upon completion of an installation task, the relevant areas and equipment shall be left clean and in an operational state.

3.18 TRAINING

- A. Provide four, non-contiguous, four-hour, (16 total hours) of post-installation training sessions by a suitably qualified instructor, to personnel designated by the Owner in the operation and maintenance of the installed cable plant.

END OF SECTION 27 10 00

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SECTION 280500
ELECTRONIC SAFETY AND SECURITY

PART 1 – GENERAL

1.01 REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Security contractor shall review all documents for additional requirements and information that apply to the Work. If conflicts between this section and/or the General Requirements and General Conditions occur, the more stringent shall apply. Security contractor shall deliver the complete communications system, including and design-build requirements of this Section and the following Drawings:

- TS-001 Sheet Index and Notes
- TS-100 Overall Floor Plans
- TS-200 Overall Reflected Ceiling Plans
- TS-701 Coordination Details

1.02 PROJECT DESCRIPTION

- A. Section Includes: Provide new equipment for this project that will interface with the Owner's existing integrated electronic security system (IESS) according to the requirements defined in this section, and specific requirements defined in related sections and in the contract drawings.
- B. This project involves making additions to currently operating systems. Great care must be exercised before making changes to the Owner's systems or programming.
- C. The IT infrastructure and hardware required for all IT based security devices is to be supplied by the Owner's structured cabling contractor.
- D. Owner furnished and installed items:
 - 1. Access control system credentials.
 - a. ~~Test cards will be issued by Owner for contractor testing and verification.~~
 - 2. Security workstation computers and monitors
 - 3. ~~Avigilon Video Management System software, licenses and recording/storage hardware~~
 - 4. ~~Network switches, including PoE ports as necessary~~
- E. Security contractor furnished and installed items:
 - 1. All equipment as required for a complete and fully functioning IESS.
 - a. Card access readers to match existing devices in current space in locations specified per drawings
 - b. Axis network cameras in locations specified per drawings
 - 2. All security device cabling for connected field located security devices not serviced by provided network cables.
 - 3. All IESS programming and provisioning of new devices on Owner's:
 - a. Current access control system.
 - b. Current Video Management System and all camera programming based on Owners requirements whether delineated in this document or not.
- F. Alternate Work

1. All external cameras shown on drawings will be an alternate to the base system.

1.03 SCOPE OF WORK

- A. Contractor shall provide a turn-key security system installation including, but not limited to, all cabling, cameras, mounting hardware and electrical components including the necessary equipment, interconnections, labor, and services required to meet the functional requirement outlined in the design documents.
- B. The Contractor will be held responsible to have examined the site and premises and satisfied them self as to existing conditions under which they will be obligated to operate in performing their part of the work or that, which will in any manner affect the work under this contract.
- C. Permits: Obtain any necessary permits for the execution of this work in conformance with applicable union regulations, local, State and Federal codes and regulations.
- D. All aesthetic issues are to be coordinated and approved by the Owner, Architect, and Design Consultant.
- E. Provide, size, and install all conduit and penetrations, wire raceways, back boxes, and cabling connecting system components, as required by the Security System, not installed by the General Contractor.
- F. Verify all conduit and penetrations, wire raceways, back boxes, mounting hardware to building structure, and cabling connecting system components, as required by the Security System and installed by the General Contractor/Electrical Contractor as part of the base building fit out. Notify Owner of any discrepancies that may exist between the Contract Documents and existing conditions.
- G. Verify AC power requirements for each equipment location. Notify Owner of any discrepancies that may exist between Contract Documents and existing conditions.
- H. Patch, repair, finish and paint any surfaces that are damaged or demolished for access during this work. Room finishes to be returned to initial condition.
- I. Coordinate the resolution of any audiovisual system issues including, but not limited to, architectural and structural items associated with the project.
- J. Coordinate with other trades to ensure that all required access and clearances to equipment and services are provided and maintained.
- K. Verify site conditions including dimensions and clearances. Coordinate and size the exact location of the equipment racks with the architectural drawings.
- L. Conduct preliminary testing and adjustment. Submit documentation required by this Specification. Participate in approval testing for acceptance by the Owner. Perform final adjustments as required to meet the Specifications.
- M. Deliver to the Owner, bound "as-built" system documentation. Transfer all warranties and equipment guarantees to the Owner and provide a written description of system operation at the time of acceptance of the Work by the Architect/Owner.

1.04 QUALITY ASSURANCE

- A. Perform the work in accordance with current editions of all applicable local, municipal, and state codes and statutes listed below. In instances where a conflict of requirements occurs, the more stringent shall be deemed acceptable:
 - 1. NEC Article 725
 - 2. NEC Article 800
 - 3. TIA 568A/B
 - 4. UL 294 Access Control Systems
- B. Contractor organization shall have a minimum of 5 years' experience installing, configuring and servicing the IESS software applications.
 - 1. Contractor must be a factory authorized reseller of all major IESS head end components and software.
- C. Contractor personnel for the project shall include, the following qualified resources at a minimum for the duration of the project:
 - 1. A dedicated project manager, with a minimum of 3 years' experience managing IESS installation of similar scope and design.
 - 2. A dedicated IESS designer, factory trained proficient in, and with no less than 3 years' experience in the design, installation, configuration, and maintenance of the major IESS components and software.
 - 3. Installation and Service Technicians, with a minimum of 2 years' experience, factory trained and proficient in: the installation and maintenance of the major IESS components and software; wire selection, sizing, and installation; wire termination methods; power supply installation; camera housing and lens selection and installation; camera image adjustments and optimization.
- D. Notify Owner in writing where Contractor does not have the requisite installation and design experience for any equipment or materials identified in the specifications.
- E. Substitutions: All proposed substitutions shall be submitted and approved prior to procurement.
- F. Verify compatibility of all equipment that is to be furnished and integrated under this scope of work.
- G. Notify Owner in writing where the actual dimensions or appearance of installed materials or equipment will vary from the submitted and approved materials and equipment.
- H. Insurance: Provide evidence of insurance for the full value of equipment and material located on-site. Insurance shall cover losses due to fire, theft and vandalism, until the final acceptance of the system, by the Owner. Maintain additional liability insurance to protect the supplier and/or Owner, Architect, Design Consultant against damage claims for personal injury, including death, which may arise during the performance of this work.

1.05 DEFINITIONS AND ABBREVIATIONS

- A. Brunswick County Schools and their designated appointees and representatives shall be referred to in this document as Owner. The respondent to this scope of work shall be referred to as Contractor.

- B. Definitions:
 - 1. Final acceptance:
 - a. Owner's written acknowledgement of the successful completion of the scope or a portion of the scope of work.
 - 2. Fully functional and operational:
 - a. Ready for Owner use and providing all functionality and performance characteristics as defined in the specifications and drawings.
 - 3. Notify in writing:
 - a. Use of either paper or electronic documentation for project communication

1.06 SUBMITTALS

- A. Contractor shall comply with the General Requirements and General Conditions of this Specification.
- B. Bid Submittals: Contractor shall submit the following qualification documents with the bid proposal:
 - 1. Firm description of the Contractor, and a copy of the Contractor's license, as well as a statement regarding the relationship of the License Holder to the Contractor.
 - 2. Provide a minimum of ten related projects, four of which must have been completed within the last 12 months.
 - 3. Résumé of Project Manager and onsite Foreman/Project Supervisor documenting related experience. Foreman/Project Supervisor must have completed at least two similar installations in the past 12 months. Indicate any certifications held by the Project Manger and onsite Foreman/Project Supervisor such as PMP or other.
 - 4. Project Manager and Foreman/Project Supervisor cannot be changed without approval of Owner.
 - 5. Submit a list of major equipment components, along with any deviations, to the system design and Specification. Indicate which products will not be purchased directly from the manufacturer.
 - 6. Submit a list including names, firm description, job foreman, copy of license and scope of work, for any subcontractors whose work would be part of this Contract.
 - 7. Submit a list of names for the lead installers who will be working on this project and indicate for each, any certifications held.
- C. Construction Submittals
 - 1. Before ordering equipment, submit an electronic equipment cut sheet book:
 - a. Organize book by specification section, first by applicable specification section, then by manufacturer name and part name or number. For devices required by drawing references, add these devices to the end of the specification submittal data sheets.
 - b. Include an alphabetized index at the front of each binder. Use consistent text font, alignment and justification.
 - c. Include a manufacturer's cut sheet for each unique type of material or equipment to be supplied. Annotate cut sheets to indicate the specific equipment models proposed, and all proposed options and accessories.
 - d. Submit manufacturer's product literature showing cable specifications including NEC Type and UL listing information to verify compliance with this specification. Clearly identify all proposed substitutions, variances and exceptions.

- e. Submit proposed changes to camera mounting methods and heights, camera angle/orientation, if required, for compatibility with coverage requirements.
2. A list of proposed substitutions, if any.
 - a. Identify all proposed equipment substitutions. Identify all instances where a part other than that specified is proposed for use. All proposed substitutions shall be submitted and approved by the Owner or architect prior to procurement.
3. Proposed system riser and communications diagrams.
 - a. Show all equipment head end locations.
 - b. Show all data communications methods between security head end equipment and client provided equipment.
 - c. Indicate any transition between data communications methods or communications cable types. Show each typical major head end equipment component and the quantity contained in each location.
 - d. Show each typical field equipment component and cable, with aggregated quantities, for each destination equipment location.
 - i. Use device symbols and abbreviations consistent with those used on the drawings.
 - ii. Key cable types to the submitted and approved cable legend.
4. Proposed point to point wiring diagrams for all equipment and components.
 - a. Provide a typical wiring diagram for each instance of field device wiring
 - i. Standard wiring diagrams from manufacturer's installation manuals are acceptable *where standard wiring is proposed*.
 - ii. For each wiring diagram identify applicable details or equipment locations by the reference or device number(s) shown on the drawings.
 - b. Provide specific point to point wiring diagrams for interfaces to third party control equipment and specialty portals, listed below.
 - c. Provide a point to point diagram for each access control panel.
 - i. Create panel point to point diagrams in Microsoft Visio or equivalent.
 - ii. Show each board and its terminals in spatially accurate location and orientation.
 - iii. Show each terminal and punch block.
 - iv. Show data communication connections.
 - v. Show power distribution and connections.
 - vi. Show each specific security device symbol and component with connections to the boards in the panel: indicate the device type, device number, and description. Identify all terminals by function with text labels.
 - vii. Identify all cables and conductor by type with text tag.
5. Proposed cable legend with proposed manufacturers and model numbers.
6. Proposed loading schedule and addressing for all system device points.
 - a. Include the following information:
 - i. Device number as shown on plan drawings
 - ii. Proposed system device name
 - iii. Room name and number, or other device location
 - iv. Device type description or abbreviations as shown on plan drawings
 - v. Destination equipment room (IDF, SER, etc.)
 - vi. Specific port and address of device.
 - b. Review existing Owner naming standards prior to submitting loading schedules. Conform to existing standards.
 - c. Use consistent abbreviations in all system device names.

7. Proposed testing reports:
 - a. Create and submit for Owner approval a testing report for each detail or equipment type.
 - i. Include a line item for each instance of each numbered functional or technical requirement identified in the security drawings and in the appropriate specification section.
 - ii. Test reports should include: The device number and room number, as indicated in the drawings, of each device tested, an indication of the result of each test, the signature of the project manager and installation technician, with the date of the test.
 - b. Include a test report for any additional tests recommended or required by the manufacturer of each piece of equipment.
8. Submit for Owner approval, not less than 10 business days prior to Owner's final acceptance test.
 - a. Composite Equipment Manuals. Submit copies of all installation, operation and maintenance manuals for all equipment.
 - b. Include all manuals, installation guides, instruction sheets, data sheets and any related literature from the original shipping containers for the equipment.
 - i. Include all warranty cards in a separate container.
 - c. Organize the Composite Equipment Manuals alphabetically, first by manufacturer name, and then by product part number or name.
9. Final project record documents (copies of current "red-lines"). See 1.6, A, 3 below.
10. Completed testing forms.
 - a. Create and submit a completed testing report for each instance of each detail or equipment type following the completion of all installation and configuration work.
 - i. Include a line item for each instance of each functional and technical requirement identified in the security drawings and in this section.
 - b. Test reports should include:
 - i. The device number or room number, as indicated in the drawings, of each device tested.
 - ii. The result of each test.
 - iii. The signature of the project manager and installation technician, with the date of the test.
11. Include a test report for any additional tests recommended or required by approved equipment manufacturers.

1.07 PROJECT CLOSE OUT

- A. General
 1. Submit for Owner approval, no more than 10 business days after Owner's final acceptance test.
 - a. Use the design drawings as the basis for the as-built drawings. Obtain electronic copies from the system designer, architect or general contractor.
 - b. Include the following information
 - i. Accurate locations of all pull boxes, security junction boxes and access locations for raceways.
 - ii. Accurate location of all equipment installed under this SOW.
 - iii. A complete equipment list for each head-end location, including manufacturer name, model number, firmware version and quantities for each major component.

- iv. Electrical breaker panel and circuit identifiers for input AC power for all IESS equipment and power supplies.
- 2. Final riser and communications diagrams.
- 3. Final loading and addressing schedules.
- 4. Final Point-to-point wiring diagrams.
- 5. Final testing reports (as required following Owner's final acceptance test).
- 6. Warranty Letter ready for Owner signature.

1.08 GUARANTEES AND WARRANTIES

- A. Provide a warranty to cover all parts and labor to remain in effect for one year from the date that the warranty letter is signed by Owner, unless the manufacturer's equipment warranty exceeds 1 year, in which case the equipment warranty period shall be the longer of the two. The warranty expiration date shall be specified within the warranty letter and agreed to by the Owner.
- B. For all new equipment installed under the contract:
 - 1. Provide materials and labor as required for the duration of the warranty period to repair and correct any of the following conditions:
 - a. Defects in material.
 - b. Defects in workmanship.
 - c. Defects in design or implementation.
 - d. Product not new or not of the kind and quality specified.
 - e. Product not suitable for the use intended.
 - f. Product not performing in the manner specified.
 - 2. Equipment warranty will exclude repairs to Owner provided equipment.
- C. Respond to all Owner requests for warranty service according to terms and conditions defined in section 1.10, Service Levels, below.
- D. Owner may place requests for service both prior to final acceptance and during the warranty period.
- E. Provide normal warranty service at no additional cost to Owner during normal business hours, which are between 7:00 AM and 5:00 PM, Monday through Friday.
- F. Provide emergency service at an additional cost to Owner, upon Owner request.
 - 1. All Emergency Service within the first year warranty period will be performed and billed using the labor rates submitted at the time of bid.
- G. Response time is the elapsed time measured from when a problem is first reported by an Owner representative to Contractor's designated help line, to when a qualified Contractor technician arrives on site and begins working on the problem (or via phone if approved by Owner).
 - 1. Required response times:
 - a. Normal Service:
 - i. Within 4 hours for all calls placed before 1:00pm.
 - ii. By 7:00 am the following business day for all calls placed after 1:00pm.
 - b. Emergency Service: within 2 hours.
- H. Resolution time is the elapsed time measured from when an Owner representative first reports a problem, to when the system has been restored or an acceptable work-around has been implemented
 - 1. Required resolution times:

- a. Normal Service: 1 business day.
 - b. Emergency Service: 4 hours.
2. If the resolution time expires without problem resolution, Contractor will provide:
- a. A written explanation for the delay along with an estimate of the time required for fully restoring the system to complete functionality. (Due within 1 business day).
- I. Owner will classify all service calls as "Normal" or "Emergency" at the time the call is placed.
- J. Contractor's service dispatch and response personnel will possess a written definition of and be trained in:
1. Required Response times.
 2. Required Resolutions times.
- K. The conditions of the service levels will apply through the conclusion of the warranty period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Contractor is responsible for identifying all equipment necessary for a fully functional and operational IESS. Review the specifications and drawings to identify all products, materials and components required to provide the functionality indicated at the locations shown. Verify all required quantities.
- B. Coordinate with Owner on integrating proposed new system device(s) as indicated on the plan drawings connecting with existing ACS systems/components.
- C. Provide all functionality as defined in the drawings and details.
- D. This specification may contain parts and/or equipment that are not specifically included in this project. Refer to drawings to confirm all required device types and quantities.

2.02 CONDUCTORS, CABLES AND CONNECTORS

A. GENERAL

1. All cables shall be UL listed for the intended use
2. When cable is to be installed in wet locations as defined by NEC, provide "Water Blocked" cable listed for use in such locations.
3. Cables shall meet or exceed NEC classifications as follows:
 - a. Article 725 Class 1, Class 2, and Class 3 Remote-Control, Signaling, and Power-Limited Circuits
 - 1) Commercial Cable Types: Type CM, CMG or CL2
 - 2) Riser Cable Types: Type CMR or CL2R
 - 3) Plenum Cable Types: Type CL2P
 - b. Article 800 Communications Circuits
 - 1) Commercial Cable Types: Type CM or CMG
 - 2) Riser Cable Types: Type CMR
 - 3) Plenum Cable Types: Type CMP

4. Cable Marking
 - a. Provide manufacturers name, manufacturers part number, manufacturers UL file number and sequential foot markers not more than every 2 feet along the entire cable length.

5. Shield/drain wiring requirements
 - a. All shield/drain wires shall have clear vinyl insulating tubing installed over bare conductor from 1/8" below (inside) the cable jacket to within 1/8" of the wire attachment point, screw terminal and the like.
 - b. Multiple shield/drain wires may not share a single insulated tubing.
 - c. ID of insulated tubing shall not be more than 50% larger than the shield/drain wire diameter.

- B. CABLES AND CONDUCTORS
 1. Belden 2413 Enhanced CAT 6 Non-Bonded cable, no substitutions
 - a. Plenum rated Cable
 - b. Exterior color - Violet

 2. Wiring, Multiconductor with Flamearrest Jacket
 1. Belden 6302FE 4 Conductor bare copper cable, no substitutions
 - a. 18AWG
 - b. Beldfoil outer shield

- C. INSULATION DISPLACEMENT CONNECTORS
 1. 3M Scotchlok™ Insulation Displacement Connectors (Solid wires only).
 - a. Dry type
 - 1) UAL, UP2, UP3, UR2-D, UY2-D etc. or approved equal.
 - b. Gel Filled
 - 1) UG, UR, UY2, etc. or approved equal.
 2. Utilize only single stroke, parallel jaw, and ratchet-release connector tool with minimum 10:1 mechanical advantage or approved equal. Use of non-ratchet style connector tools is not acceptable.

- D. INSULATED ELECTRICAL CRIMP SLEEVE CONNECTORS
 1. 3M Scotchlok S-11.
 - a. 22 AWG to 14 AWG.
 - b. UL Listed.
 - c. CSA Certified.
 - d. .091" ID copper insert.
 2. 3M Scotchlok S-31.
 - a. 18 AWG to 10 AWG.
 - b. UL Listed.
 - c. CSA Certified.
 - d. .152" ID copper insert.

 3. Tyco Electronics D-200-0228, In-line solder/crimp with heat shrink sleeve, Red
 - a. 20 AWG to 26 AWG
 - 1) Use at all wired hinge connection locations
 4. Tyco Electronics D-200-0229, In-line solder/crimp with heat shrink sleeve, Blue
 - a. 16 AWG to 20 AWG

- E. WIRE & CABLE LABELS
 1. Labels shall be sleeved heat shrink type, machine-printed, polyolefin wire markers for all cables, or approved equal.

2. Provide Brady IDxpert labeler or approved equal.
 - a. Model XPERT-ABC
 - b. Wire label for control cables, wire wrap style
 - 1) Brady X-19-498 label cartridge, 1" H x 1" W
 - c. Wire label for large wires or cords (wire wrap style) or flat label
 - 1) Brady X-21-498 label cartridge, 1" H x 2 1/2" W
 - d. Wire label for outlets or boxes
 - 1) Brady X-61-483 label cartridge, 1/2" H x 2" W
 - e. Wire label for small outlet boxes
 - 1) Brady X-17-422 label cartridge, 1/2" H x 1" W
 - f. Large label for general use
 - 1) Brady XC-1000-595-WT-BK, 1" W x continuous

2.03 TERMINAL BLOCKS

A. TERMINAL BLOCKS

1. Phoenix Contact MBK 2,5/E or approved equal
 - a. Feed through style, 24 – 14 AWG wire, DIN rail mount
 - b. Phoenix Contact E/MBK End bracket or approved equal
 - c. Phoenix Contact NS 15 PERF 2000MM DIN rail or approved equal
 - d. Phoenix Contact terminal labels or approved equal
2. TAMPER SWITCHES
 - a. Provide tamper switch for interior enclosures per section 2.8, B, 1

2.04 POWER SUPPLIES

A. GENERAL

1. Furnish each power supply assembly manufactured as an integral unit, complete with all parts and ready for field installation.
2. Power Supplies shall have UL listing marks for the intended categories:
 - a. UL294 Access Control Systems.
3. Power Supplies shall be Class 2 power limited.
4. Power Supplies shall have lifetime warranty.

B. Ethernet Switch Power Supply

1. TrendNet 120 W Single Output Industrial (TI-S12048), no substitutions
 - a. DIN-Rail Power Supply
 - b. Provides up to 120 Watts of power (48 V, 2.5 A)
 - c. Built-in active PFC (PF > 0.93)

C. Fiber Converter Power Supply

1. TrendNet 60 W Single Output Industrial (TI-M6024), no substitutions
 - a. DIN-Rail Power Supply
 - b. Provides up to 60 Watts of power (48 V, 2.5 A)
 - c. Rated to -20 Celsius operating temperature

D. BACK UP BATTERIES

1. Powersonic PS1270, 12 VDC, 7 Amp Hour or approved equal, UL Listed
 - a. Provide 1 battery for every 12 VDC power supply
 - b. Provide 2 batteries (series connected) for every 24 VDC power supply

2.05 ACCESS CONTROL SYSTEM

A. GENERAL

1. Contractor is responsible for identifying all equipment necessary for a fully functional and operational ACS addition to the Owner's currently functioning Lenel ACS.
2. Review the specifications and drawings to identify all products and components required to provide a complete and fully functional system.
3. Verify all required quantities.

B. EQUIPMENT AND MATERIALS

A. Access Control System Equipment

1. Card Reader, Wall mounted
 1. To match Owners existing hardware
2. Electric Lockset with internal REX switch
 1. To match Owners existing hardware
3. Electric Lockset with internal Power Transfer Hinge / Pivot
 1. To match Owners existing hardware

B. SYSTEM INTERFACES AND INTEGRATION

1. None required

2.06 VIDEO CAMERA SYSTEMS

A. GENERAL

1. Contractor is responsible for identifying all equipment necessary for a fully functional and operational Camera System .
2. Review the specifications and drawings to identify all products and components required to provide a complete and fully functional system.
3. Verify all required quantities.

B. EQUIPMENT AND MATERIALS

A. Parapet, Dome and Building Mounted Cameras

1. 1080P PTZ Camera
2. Indoor/Outdoor rated
3. Dimensions 232mm X 280mm X 280mm
4. Accessories / mounting hardware as required.
5. Axis P5635-E MkII PTZ Dome Network Camera, w/ 30X Zoom lens

B. Dome Ceiling Mounted Cameras

1. 1080P Camera
2. Indoor rated
3. Dimensions 91mm X 36mm
4. Accessories / mounting hardware as required.
5. Axis M3015 Network Camera

C. Bullet Ceiling and Wall Mounted Cameras

1. 1080P Camera
2. Indoor rated
3. Dimensions 91mm X 36mm
4. Accessories / mounting hardware as required.
5. Axis P1435-LE Network Camera

- D. 360-degree Ceiling Mounted Camera
 - 1. 12MP Camera
 - 2. Indoor/Outdoor rated
 - 3. Dimensions 66mm X 149mm
 - 4. Accessories / mounting hardware as required.
 - 5. Axis M3058-PLVE 360 degree Network Camera

2.07 SECURITY EQUIPMENT WIRE HANDLING DEVICES AND CAT 6 PATCH CABLES

- A. ~~Furnished, installed and provisioned by owner.~~ Furnished and installed by Network / Data Contractor.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify site conditions are appropriate and satisfactory to accept the equipment and work identified in this section and in the project drawings. Do not begin installation until all unsatisfactory conditions have been corrected.
- B. Verify all rough-in is completed as show on Architectural, Civil and/or Electrical drawings prior to installation of IESS equipment.
- C. All IESS equipment and components shall be inspected and tested in the Contractor's facility for workmanship dimensions and finishes per the manufacturer's specification and the procurement order. Verify that equipment is free from physical defects prior to installation.
- D. Observe cable manufacturer's color coding for individual conductors or pairs and apply consistent color coding for similar devices across all installed locations.
- E. Verify all cable distances for compatibility with IESS devices, including but not limited to:
 - 1. Cameras, illuminators and media converter power and data communication requirements.
 - 2. Notify Owner in writing where measured cable run distances shall exceed manufacturer's specifications or common standards for power and data.

3.02 SHIPPING

- A. Equipment and components shall be packaged as necessary to prevent damage from handling. The shipping container(s) shall maintain their structural integrity when transported by common carrier or installer's vehicle.

3.03 COORDINATION AND PREPARATION

- A. Coordinate all security tasks and milestones with the general contractor for inclusion in the project schedule.
 - 1. Identify all tasks on the project critical path.
 - 2. Identify all system testing and close-out tasks.
 - 3. Include all equipment burn in, orientation and training activities required by Owner.
- B. Provide documentation to and coordinate with the Electrical Contractor for the timely installation of all required conduit, junction boxes, metal wire gutters and 120VAC power.
- C. Provide documentation to and coordinate with the Low Voltage Systems Contractor for the timely installation of all vertical and horizontal data network infrastructure.

- D. Provide documentation to and coordinate with the appropriate suppliers for the timely installation of all doors and door hardware.

3.04 INSTALLATION – CABLE

- A. ~~By owner by others.~~ Installed by Network / Data Contractor.
- B. Obtain specific approval from Owner for the location and appearance of any cable or raceway that is not hidden.
- C. Coordinate with the Electrical Contractor for the timely installation of all required conduit, junction boxes and pull strings.
- D. Coordinate with the Electrical Contractor to obtain information on conduit and junction box locations as required for the accurate completion of all project record and as-built documentation.
- E. Comb wire groups. Route and support all wiring and cable to achieve the highest quality appearance in all areas, including the interior of all panels and racks.
- F. Install a maximum of two wires to any single screw terminal.
- G. Wiring Inspection
 1. Visually inspect wire and cable for faulty insulation prior to and during installation.
 2. After installation, visually inspect all wiring for flaws such as cuts, punctures and abrasions. If any flaws are found, replace the wire at no additional cost to Owner.

3.05 INSTALLATION – GENERAL

- A. This contract involves integration to currently functioning systems. Coordination with Owner is critical. Do not interrupt any functioning system without prior coordination with Owner.
 1. Schedule all work required at current project site with Owner a minimum of 48 hours in advance. Submit work requests in writing to Owner's representative, and include:
 - a. Description of work to be performed.
 - b. Name of resource(s) to perform the work.
 - c. Expected duration.
 - d. Projected system down time and risks to operations.
 2. Following configuration of the first equipment in the IESS software, submit to Owner and maintain the Installation Status Report summary as defined above. Update as often as necessary to communicate any changes in device installation status.
- B. Comply with all manufacturers' written installation instructions, unless more stringent requirements are indicated. Notify Owner of all conflicts between construction documents and written manufacturer's requirements. Resolve all conflicts prior to installation.
- C. If any technical problem or malfunction occurs, and if in Owner's judgment adequate progress is not being demonstrated in resolving the problems, provide manufacturers' factory technical representatives and diagnostic equipment at no additional cost to Owner until the problems are resolved to Owner's satisfaction.
- D. Aesthetics are an important consideration in this installation. Install all components to provide aesthetically pleasing results. Coordinate the actual locations of all visible components in advance with Architect and Owner.
- E. Perform all installation in a professional and workmanlike manner.

- F. Consistency of installation:
 - 1. Install all equipment and parts of the same type in a consistent manner throughout the entire project. Include in the consistency of installation, at a minimum, the following:
 - a. Wire type and brand
 - b. Wire color coding
 - c. Wire tagging
 - d. Terminal board connection order
 - e. Physical layout in security junction boxes and equipment enclosures
- G. Provide Velcro wire dressing materials for wiring inside all panels, enclosures and racks.
- H. Install all equipment and parts plumb and true at locations shown on the drawings.
- I. Connections to door hardware (door hardware provided by others) are to be installed to best industry standards. Electrified door hardware is to be configured as fail-secure, with the unlock function initialized from the ACS.
- J. Install all equipment so that outlet boxes and back boxes are fully concealed.
- K. Install all accessible components with tamper resistant security fasteners.
 - 1. Provide and install tamper resistant security fasteners on all exposed and accessible pull boxes and junction boxes.
 - 2. Provide a minimum of 2 compatible tools to Owner prior to final acceptance for use with tamper resistant fasteners.
- L. Before commencing installation of any powered component, confirm that the necessary electrical power and grounding provisions are available to meet the manufacturer's stated requirements.
- M. Cutting, Sealing, Patching, and Painting
 - 1. Do not drill, bore or notch any structural member in any manner that impairs its structural value.
 - a. If cutting holes in structural members is required, only use core drills and only with the specific approval of Owner for each instance.
 - b. Any required core drilling shall include Link-Seal protection.
 - 2. Patching, painting, and repairs the buildings to facilitate conduit and mount installations will be by Owner.
 - 3. Coordinate all repair needs with Owner prior to final install.
 - 4. Contractor is responsible for all outdoor device painting as required.
- N. Installation Status Reporting.
 - 1. Create and maintain an up-to-date list of all equipment locations by device or room number, indicating the installation status of the field devices and the equipment at the IESS head-end locations.
 - 2. Provide a summary report of all equipment and devices that are or will be configured in the IESS software, sorted by device number and device description. Indicate when each device is:
 - a. Rough-in
 - b. Configured in the software but not fully installed and/or tested.
 - c. Installed
 - d. Installed, fully tested and available for Owner's use and monitoring.
 - 3. Installation status reports will be updated on a daily basis at a minimum.

- O. System programming and device naming
 - 1. Owner to provide programming sheets to be completed by the VAR per the Owner's specified format. Once the Owner has reviewed and approved the programming sheets, the program IESS.

3.06 ADJUSTING

- A. Adjust all equipment and components after installation for proper and smooth operation.
- B. Complete all required adjustments prior to commencing cleaning, training or testing.

3.07 CLEANING

- A. On a daily basis, clean up all debris from work performed and deposit in the appropriate containers.
 - 1. Stack and organize all parts, tools and equipment when not being used.
- B. Protect, and where necessary, cover all installed devices to protect from dust and debris during construction/installation.
- C. At the conclusion of the installation work in all areas (including all enclosures), vacuum and clean to remove all debris, grease and smudges.
- D. Repair damaged

3.08 TRAINING

- A. Training requirements: refer to specific system sections.
- B. Where specific system sections do not mention training session numbers and length, provide a minimum of 8 hours of total user training combined for all major systems, including Access Control, Video Management and Video Cameras.

3.09 TESTING

- A. Test and verify the fully functional and operational status of each field device prior to Owner's final acceptance testing.
- B. Verify compliance with each functional and technical requirement at each location as defined in the drawings and the specifications.
- C. Document test results using approved testing reports.
- D. All completed testing reports will be signed and dated by Contractor's installation technician and project manager prior to delivery to Owner for use in performing the final acceptance test.
- E. Successful testing of all devices and equipment is required. Failure to complete and document the tests will delay Owner's final testing and acceptance.
- F. Attend and assist with Owner verification testing.
- G. All test failures or instances of non-compliance with the drawings, approved submittals, this section, and referenced related sections will be added to an Owner-generated punch list as items

to be repaired or remedied. Excessive punch list items will result in the rescheduling of Owner's final acceptance test.

1. Contractor shall remedy or repair all punch list items within 10 business days of punch list generation.
2. Exception: punch list items that cannot be remedied due to Owner caused delays will be remedied 5 business days following Owner notification

3.10 CLOSE OUT

- A. Owner will provide final acceptance of the work contingent on the successful completion of all punch list items.
- B. The following conditions must be met in order for any portion of the work to be considered by Owner for final acceptance:
 1. Each piece of electronic equipment must be properly grounded prior to applying power.
 2. All wire shields must be insulated with clear vinyl tubing and grounded to the appropriate earth ground at the head or controller end only, not at the remote or device end.
 3. Disconnect, remove and dispose off-site of all temporary equipment and utilities.
 4. Label and identify all systems, equipment and devices.
 5. Labeling for all wiring must match as-built documentation.
 6. Have all systems, equipment and devices in full and proper adjustment and operation.
 7. Have all equipment and materials in neat, clean and unmarred condition with parts securely attached.
 8. Replace or properly repair all broken work, including glass, raised flooring and supports, ceiling tiles and supports, walls, doors, etc. Clean up and appropriately discard all debris.
 9. Deliver and store all extra materials at the premises as directed.
- C. Once all conditions for final acceptance defined above have been satisfied, perform the following in preparation for Owner's final acceptance test:
 1. Complete and submit all required testing reports.
 2. Submit final redlined project record documentation to Owner for comment and approval.
 3. Notify Owner in writing of any work in the building that will not be completed at the time of Owner's final acceptance test.
 - a. Deliver this notification no less than one business day prior to the scheduled test time and date.
- D. After Owner approves test reports and project record drawings, test the completed security systems in the presence of Owner. Demonstrate performance and compliance with specifications, drawings and details. This demonstration will serve as Owner's final acceptance test.
 1. Assume Owner will test and verify proper operation of all devices, Lenel controllers and boards, power supplies, and batteries.
 2. Owner will use the testing reports to assist in final acceptance testing. Owner will initial or mark individual test report records at Owner's convenience only.
- E. After completion of Owner's final acceptance test, incorporate all Owner requested changes and corrections to the project record drawings, and transfer all data information to a final set of as-built documents.
- F. Complete the Owner generated punch list following the final acceptance test. Notify Owner when all punch list items have been completed. Demonstrate completion of all punch list items in the presence of Owner.
 1. Owner will sign and date each testing report to acknowledge proper operation of each device listed.
- G. Deliver all spare parts to Owner with an itemized list.

H. Letter of Completion.

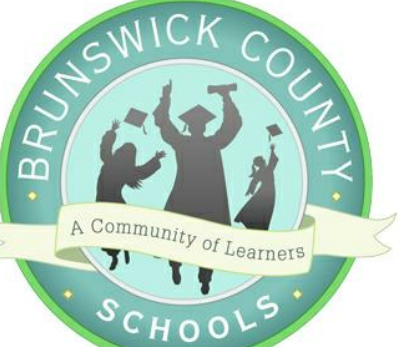
1. After the system acceptance requirements described above for each portion of the work have been satisfactorily completed, Owner will, within 3 business days, issue a letter of completion to Contractor, acknowledging punch list completion and receipt of as-built documents.
2. The invoice for final payment may be submitted following Owner's acknowledgement of punch list completion and receipt of final as-built documents.

I. Warranty Letter.

Issue a warranty letter to Owner within 3 business days of receipt of the letter of completion. The date of the warranty letter shall be the start of the warranty period.

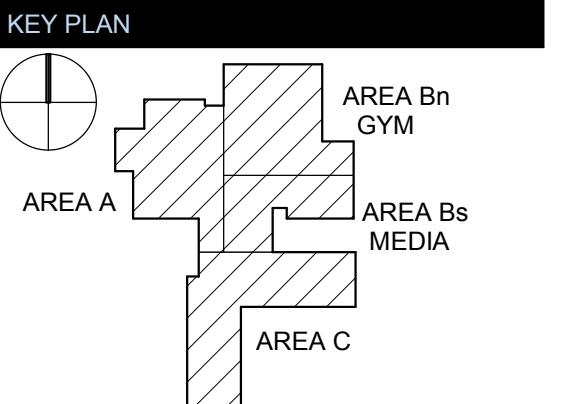
END OF SECTION 28 05 00

Q:\2017\17055 - Town Creek Middle School\Security\Spec Sections and Bidding Requirements\280500 - Security Specification 17055 2017-04-26 jira.docx



TOWN CREEK MIDDLE SCHOOL

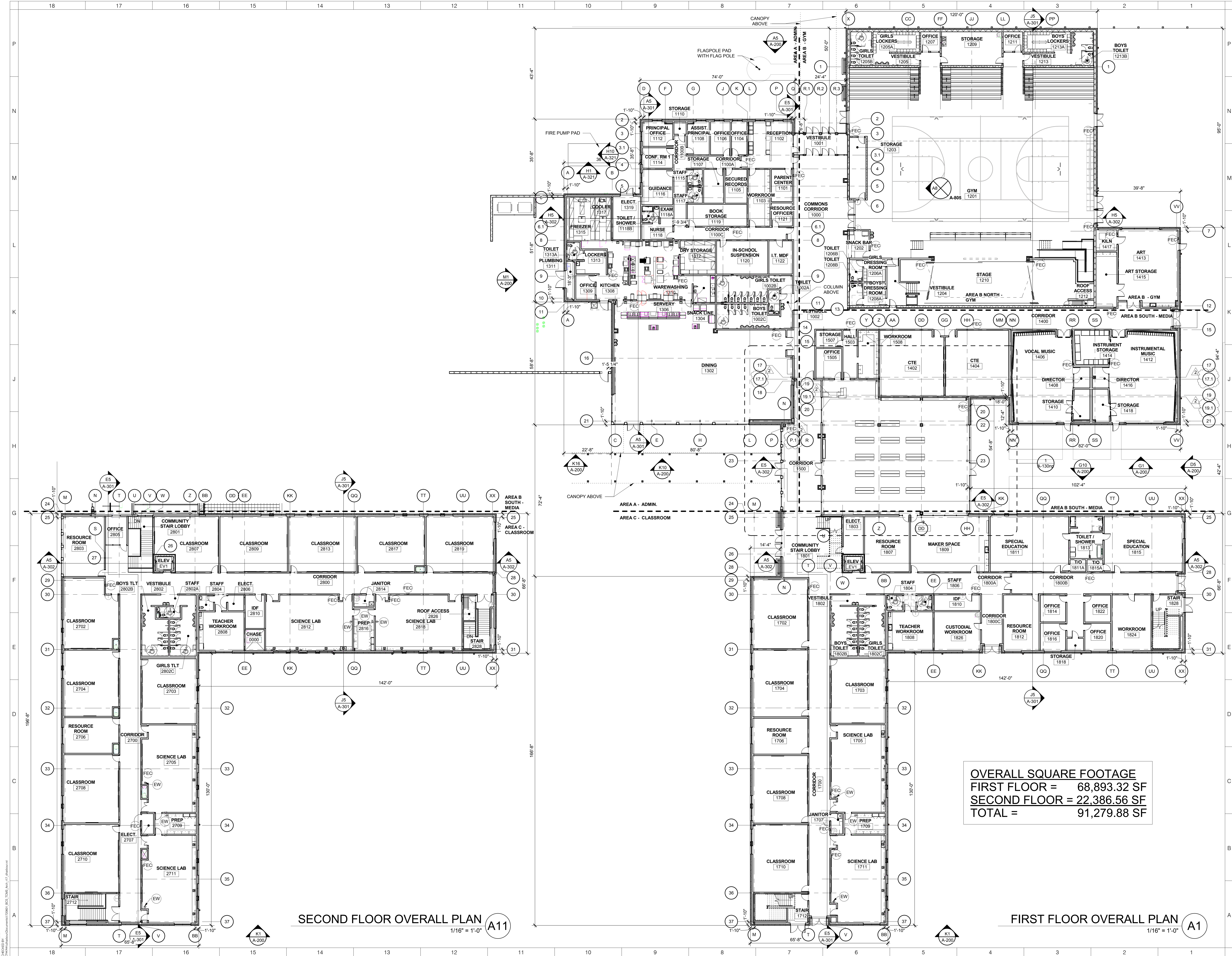
6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479



No.	Description	Date
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS
 DATE: 05/24/2018
 SCALE: 1/16" = 1'-0"
 SHEET NAME: OVERALL FLOOR PLANS
 SHEET NUMBER:

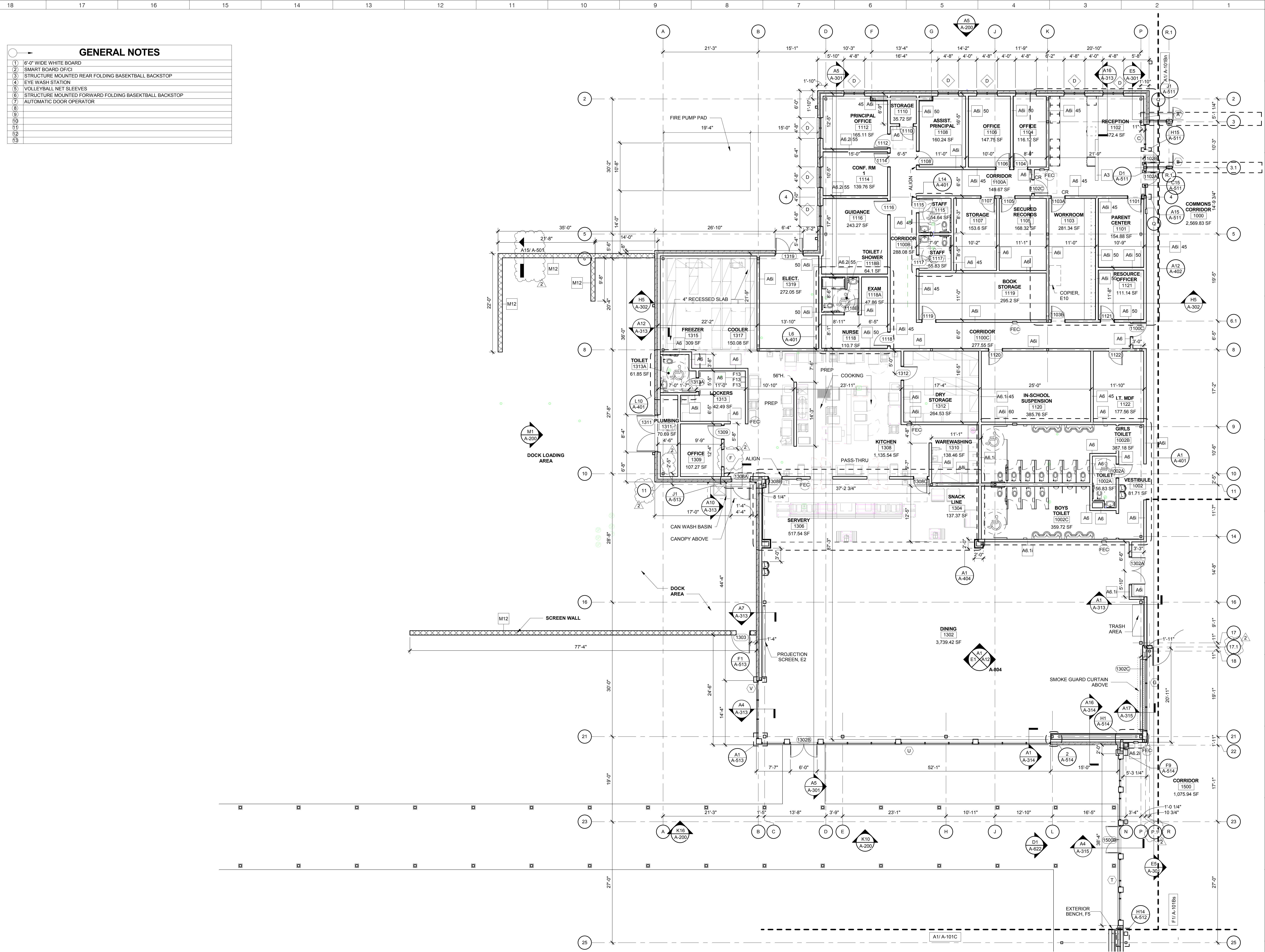
A-100



SECOND FLOOR OVERALL PLAN 1/16" = 1'-0" A11

FIRST FLOOR OVERALL PLAN 1/16" = 1'-0" A1

OVERALL SQUARE FOOTAGE
 FIRST FLOOR = 68,893.32 SF
 SECOND FLOOR = 22,386.56 SF
 TOTAL = 91,279.88 SF



- GENERAL NOTES**
- 1) 6" WIDE WHITE BOARD
 - 2) SMART BOARD OFFICE
 - 3) STRUCTURE MOUNTED REAR FOLDING BASKETBALL BACKSTOP
 - 4) EYE WASH STATION
 - 5) VOLLEYBALL NET SLEEVES
 - 6) STRUCTURE MOUNTED FORWARD FOLDING BASKETBALL BACKSTOP
 - 7) AUTOMATIC DOOR OPERATOR
 - 8)
 - 9)
 - 10)
 - 11)
 - 12)
 - 13)

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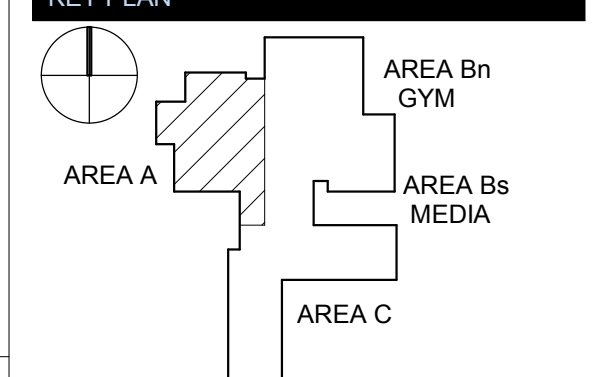
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TOWN CREEK MIDDLE SCHOOL
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REVISIONS

No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1/8" = 1'-0"
SHEET NAME: FLOOR PLAN LEVEL 1 - AREA A
SHEET NUMBER:

FLOOR PLAN LEVEL 1 - AREA A
 1/8" = 1'-0" **A1**

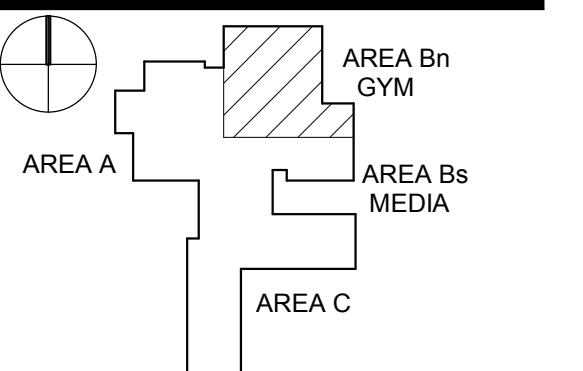
A-101A



TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479

KEY PLAN



No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

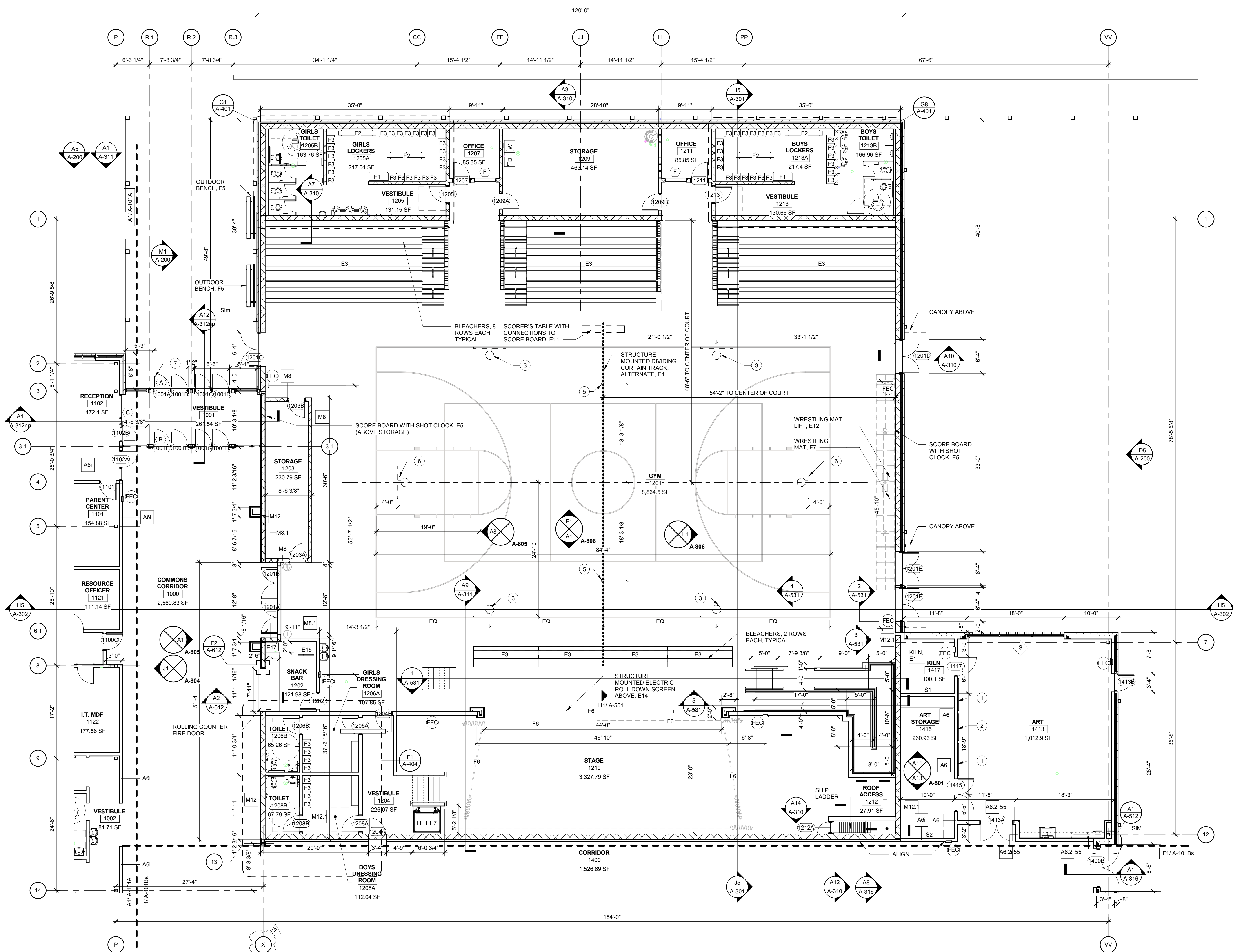
ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1/8" = 1'-0"

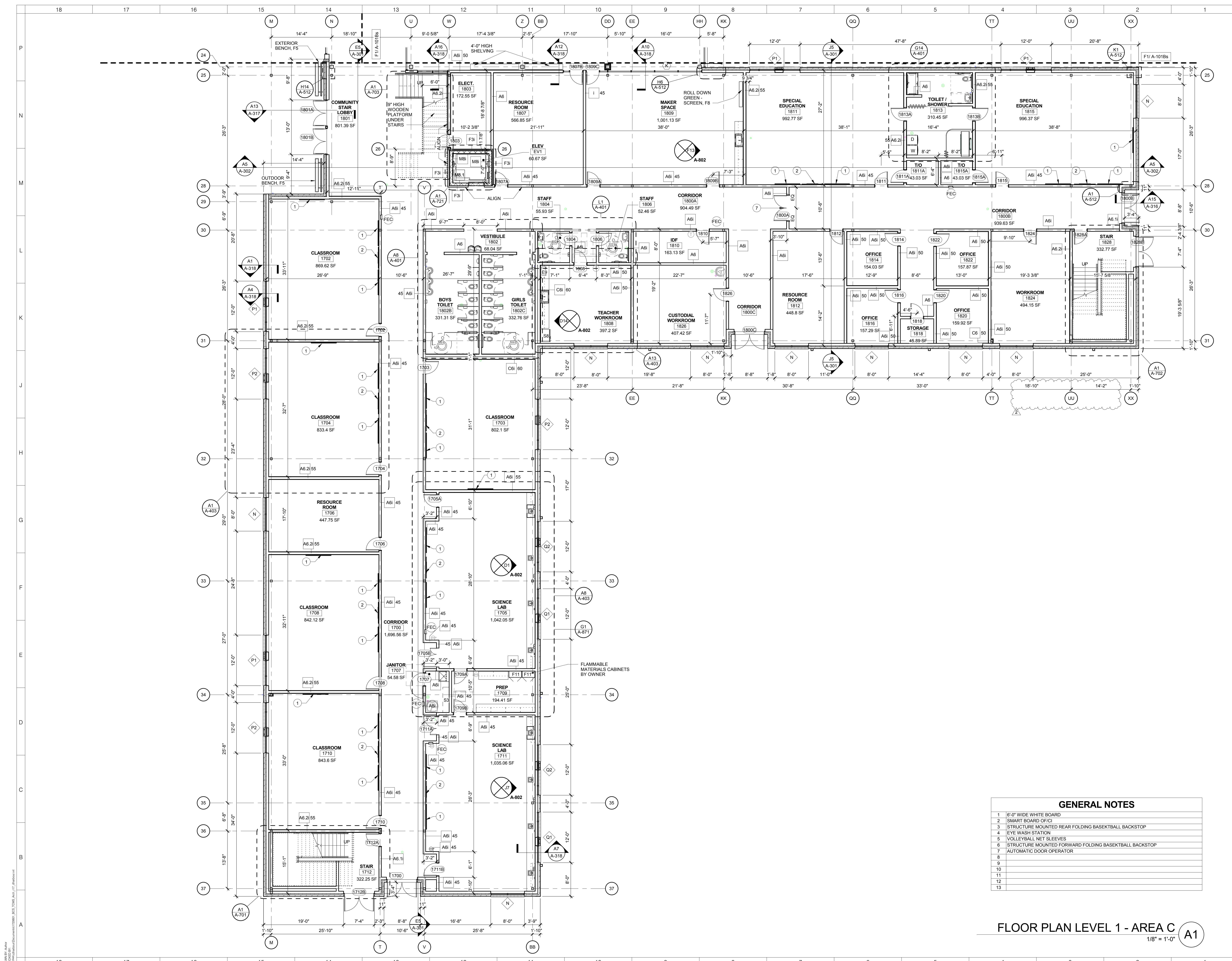
SHEET NAME:
FLOOR PLAN LEVEL 1 - AREA Bn GYM

SHEET NUMBER:
A-101Bn

GENERAL NOTES	
1	6'-0" WIDE WHITE BOARD
2	SMART BOARD OPTIC
3	STRUCTURE MOUNTED REAR FOLDING BASKETBALL BACKSTOP
4	EYE WASH STATION
5	VOLLEYBALL NET SLEEVES
6	STRUCTURE MOUNTED FORWARD FOLDING BASKETBALL BACKSTOP
7	AUTOMATIC DOOR OPERATOR
8	
9	
10	
11	
12	
13	
14	



FLOOR PLAN LEVEL 1 - AREA Bn
1/8" = 1'-0" A1



GENERAL NOTES

- 6'-0" WIDE WHITE BOARD
- SMART BOARD OF/CI
- STRUCTURE MOUNTED REAR FOLDING BASKETBALL BACKSTOP
- EYE WASH STATION
- VOLLEYBALL NET SLEEVES
- STRUCTURE MOUNTED FORWARD FOLDING BASKETBALL BACKSTOP
- AUTOMATIC DOOR OPERATOR
-
-
-
-
-
-

FLOOR PLAN LEVEL 1 - AREA C
 1/8" = 1'-0" **A1**

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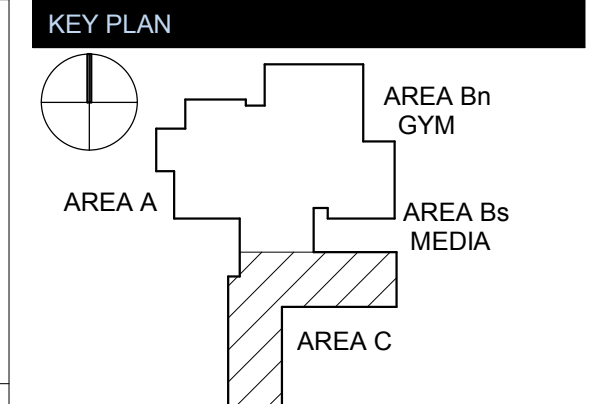
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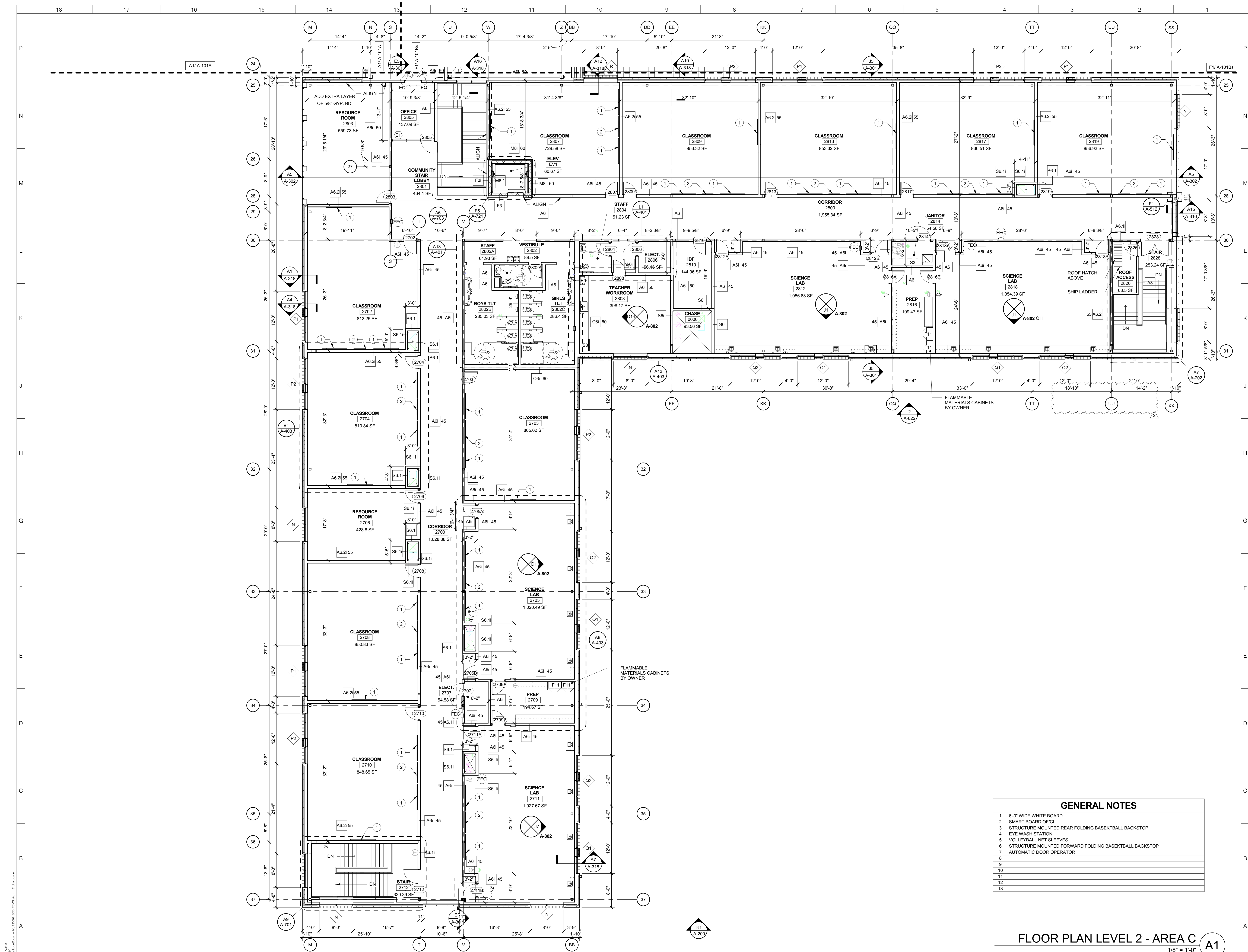
REVISIONS

No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1/8" = 1'-0"
SHEET NAME:
FLOOR PLAN LEVEL 1 - AREA C

SHEET NUMBER:
A-101C



GENERAL NOTES

- 6'-0" WIDE WHITE BOARD
- SMART BOARD OF CI
- STRUCTURE MOUNTED REAR FOLDING BASKETBALL BACKSTOP
- EYE WASH STATION
- VOLLEYBALL NET SLEEVES
- STRUCTURE MOUNTED FORWARD FOLDING BASKETBALL BACKSTOP
- AUTOMATIC DOOR OPERATOR
-
-
-
-
-
-

FLOOR PLAN LEVEL 2 - AREA C
1/8" = 1'-0" A1

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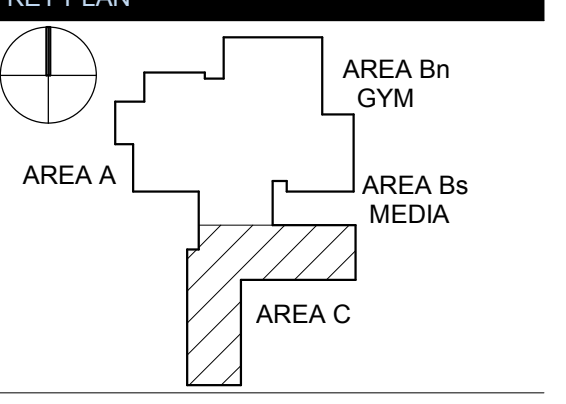
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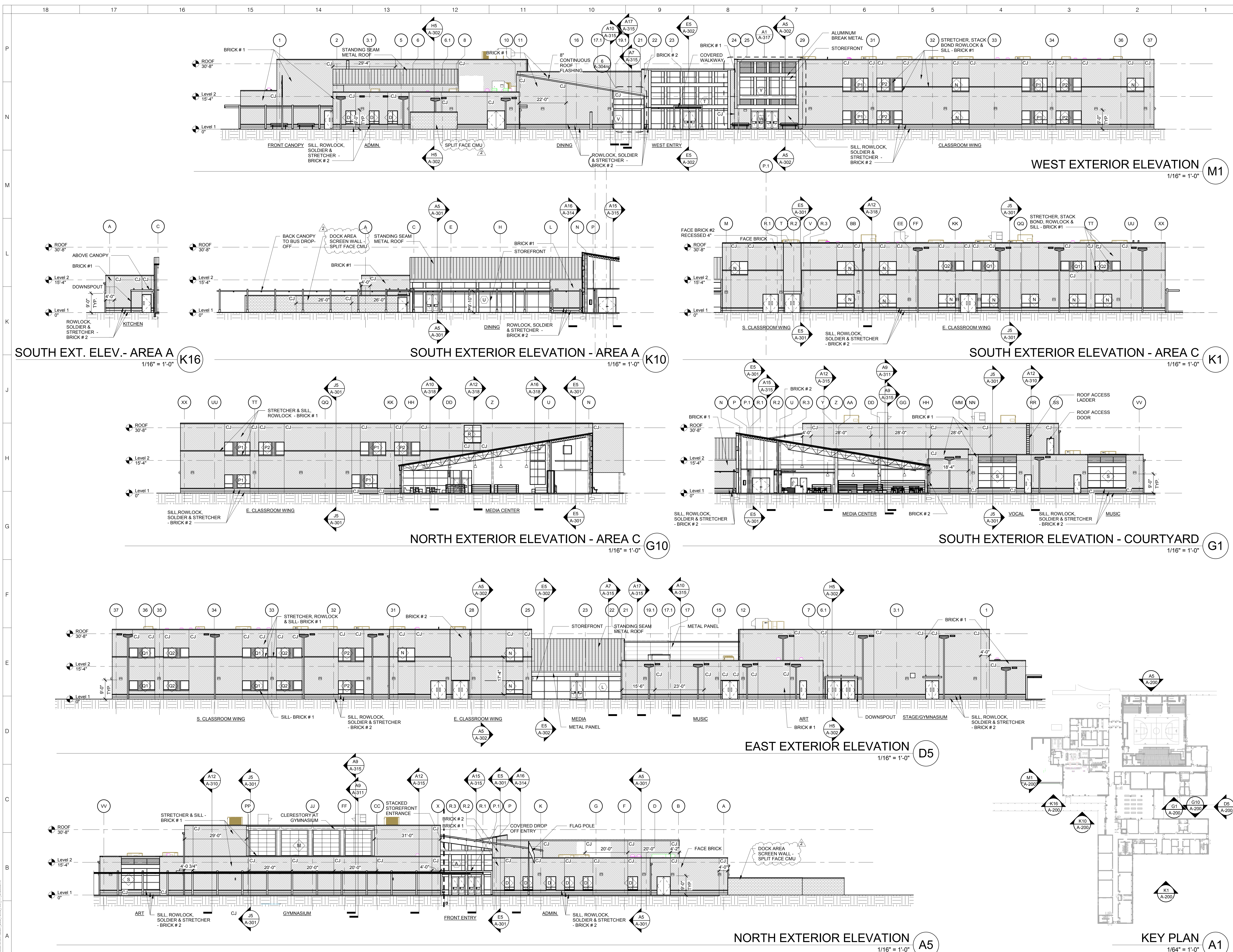


REVISIONS

No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1/8" = 1'-0"
SHEET NAME: FLOOR PLAN LEVEL 2 - AREA C
SHEET NUMBER:



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KEY PLAN

AREA A
AREA Bn
GYM
AREA Bs
MEDIA
AREA C

REVISIONS

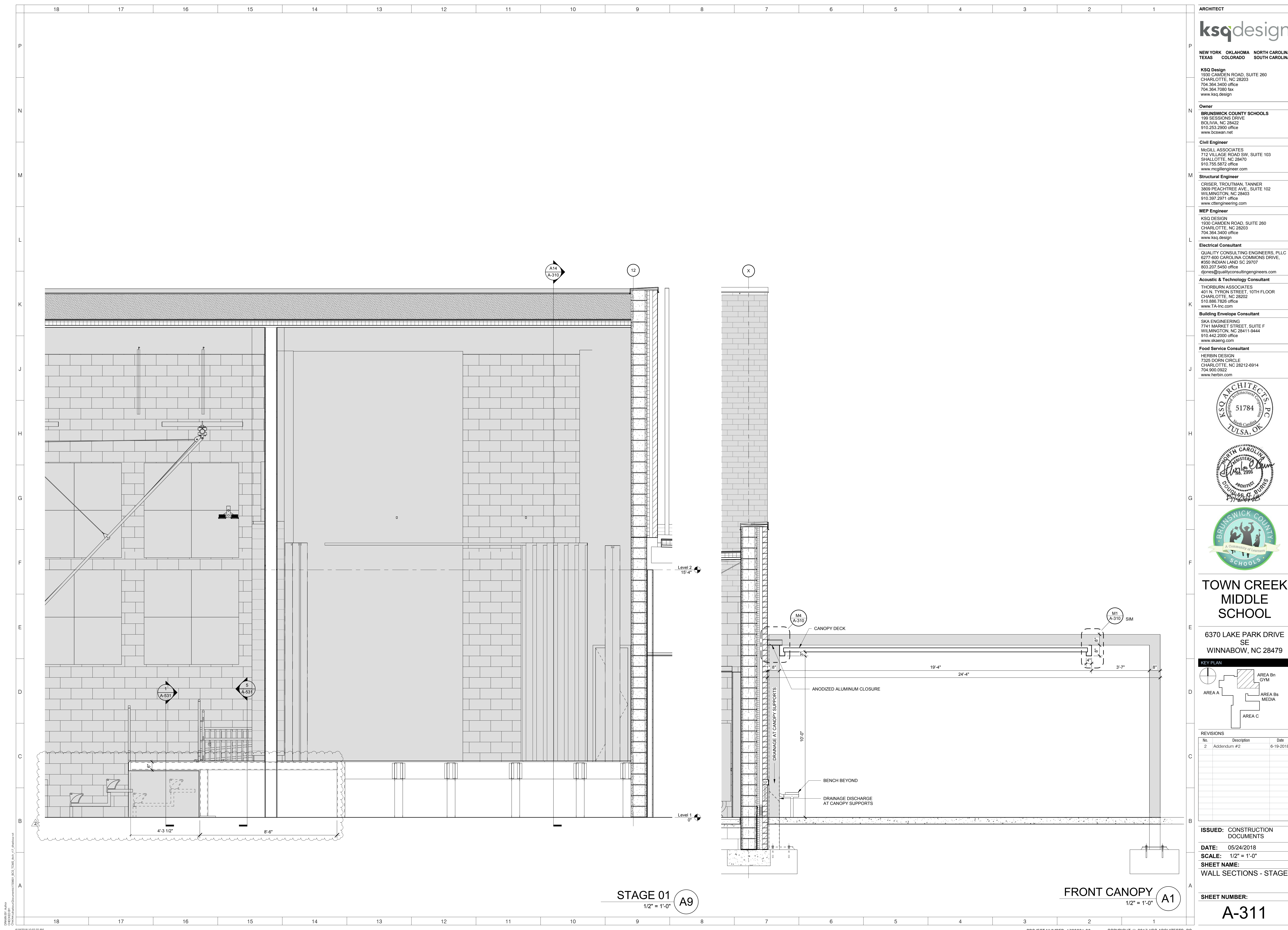
No.	Description	Date
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: As indicated
SHEET NAME: EXTERIOR BUILDING ELEVATIONS
SHEET NUMBER:

A-200

PROJECT NUMBER: 1720601.00 COPYRIGHT © 2017 KSQ ARCHITECTS, PC



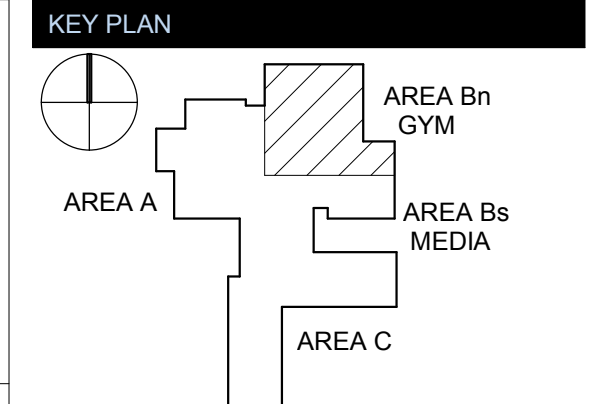
STAGE 01
1/2" = 1'-0" A9

FRONT CANOPY
1/2" = 1'-0" A1

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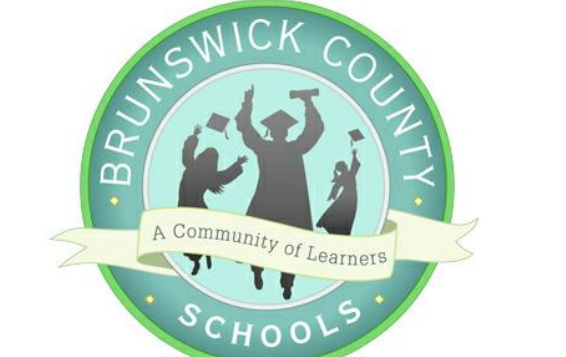


REVISIONS

No.	Description	Date
2	Addendum #2	6-19-2018

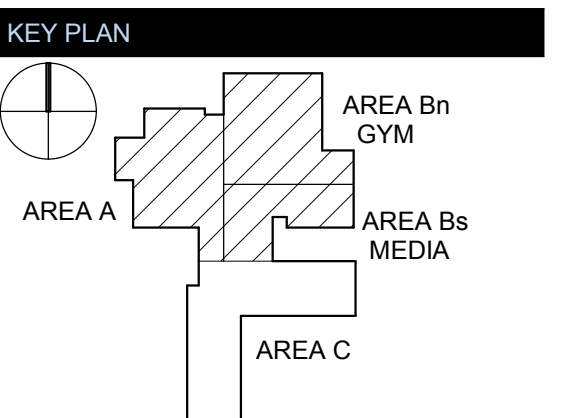
ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE: 1/2" = 1'-0"
SHEET NAME: WALL SECTIONS - STAGE
SHEET NUMBER:

A-311



TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479



No.	Description	Date
2	Addendum #2	6-19-2018

No.	Description	Date

ISSUED: CONSTRUCTION DOCUMENTS

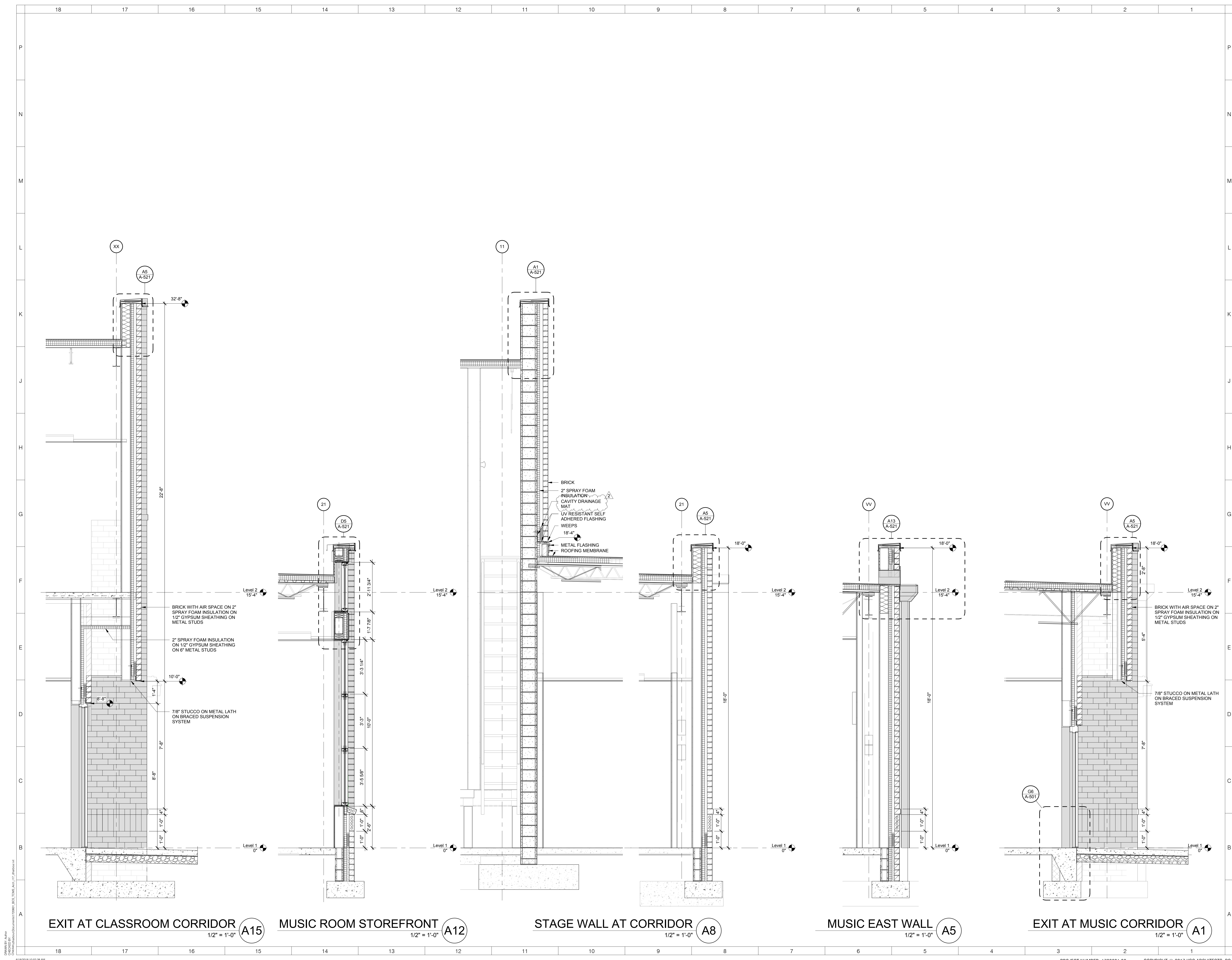
DATE: 05/24/2018

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

SHEET NAME:
WALL SECTIONS - MUSIC WING

SHEET NUMBER:

A-316



EXIT AT CLASSROOM CORRIDOR A15
1/2" = 1'-0"

MUSIC ROOM STOREFRONT A12
1/2" = 1'-0"

STAGE WALL AT CORRIDOR A8
1/2" = 1'-0"

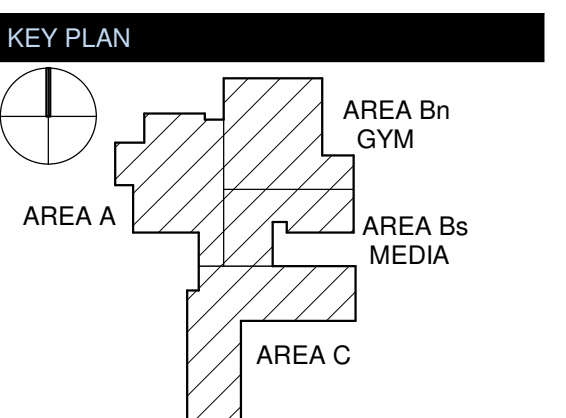
MUSIC EAST WALL A5
1/2" = 1'-0"

EXIT AT MUSIC CORRIDOR A1
1/2" = 1'-0"



TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479



REVISIONS

No.	Description	Date
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS

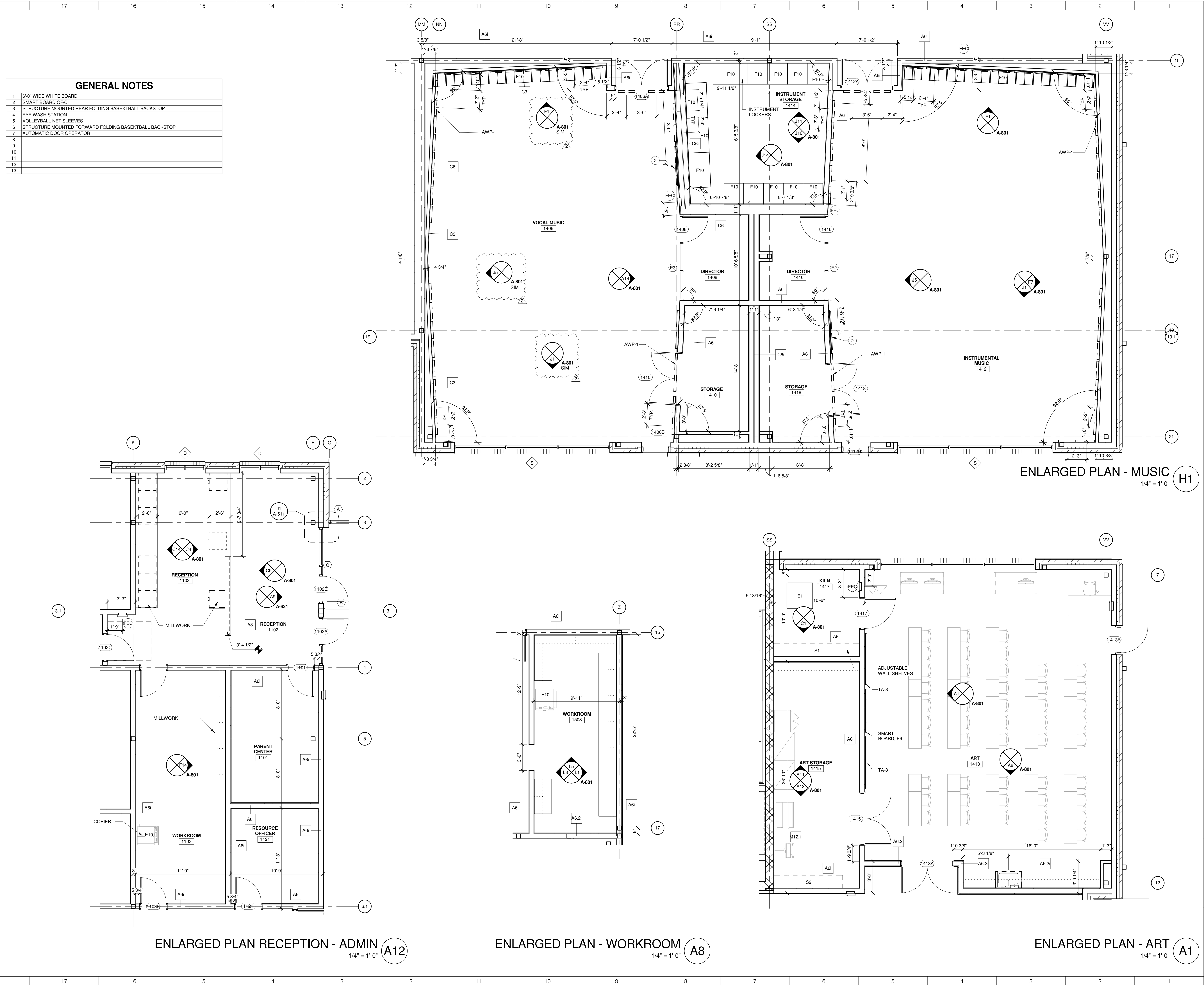
DATE: 05/24/2018

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

SHEET NAME: ENLARGED FLOOR PLANS

SHEET NUMBER:

A-402



GENERAL NOTES

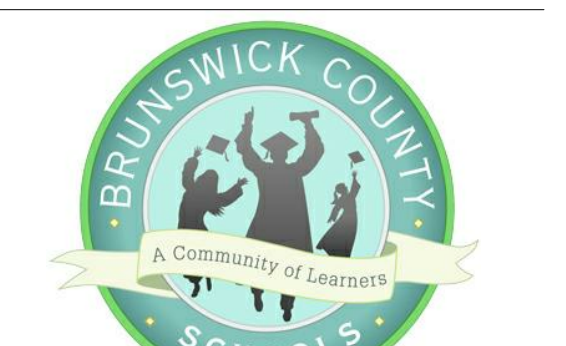
1	6'-0" WIDE WHITE BOARD
2	SMART BOARD (FCI)
3	STRUCTURE MOUNTED REAR FOLDING BASKETBALL BACKSTOP
4	EYE WASH STATION
5	VOLLEYBALL NET SLEEVES
6	STRUCTURE MOUNTED FORWARD FOLDING BASKETBALL BACKSTOP
7	AUTOMATIC DOOR OPERATOR
8	
9	
10	
11	
12	
13	

ENLARGED PLAN RECEPTION - ADMIN 1/4" = 1'-0" A12

ENLARGED PLAN - WORKROOM 1/4" = 1'-0" A8

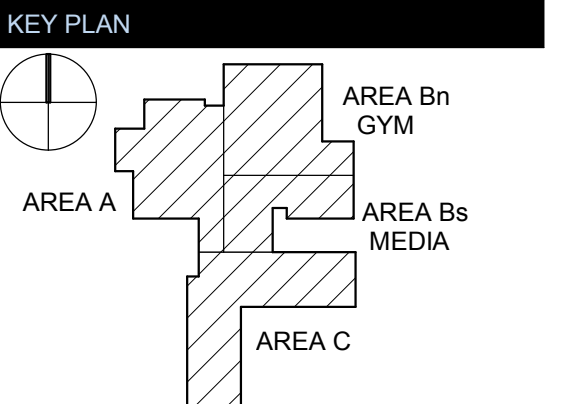
ENLARGED PLAN - ART 1/4" = 1'-0" A1

ENLARGED PLAN - MUSIC 1/4" = 1'-0" H1



TOWN CREEK MIDDLE SCHOOL

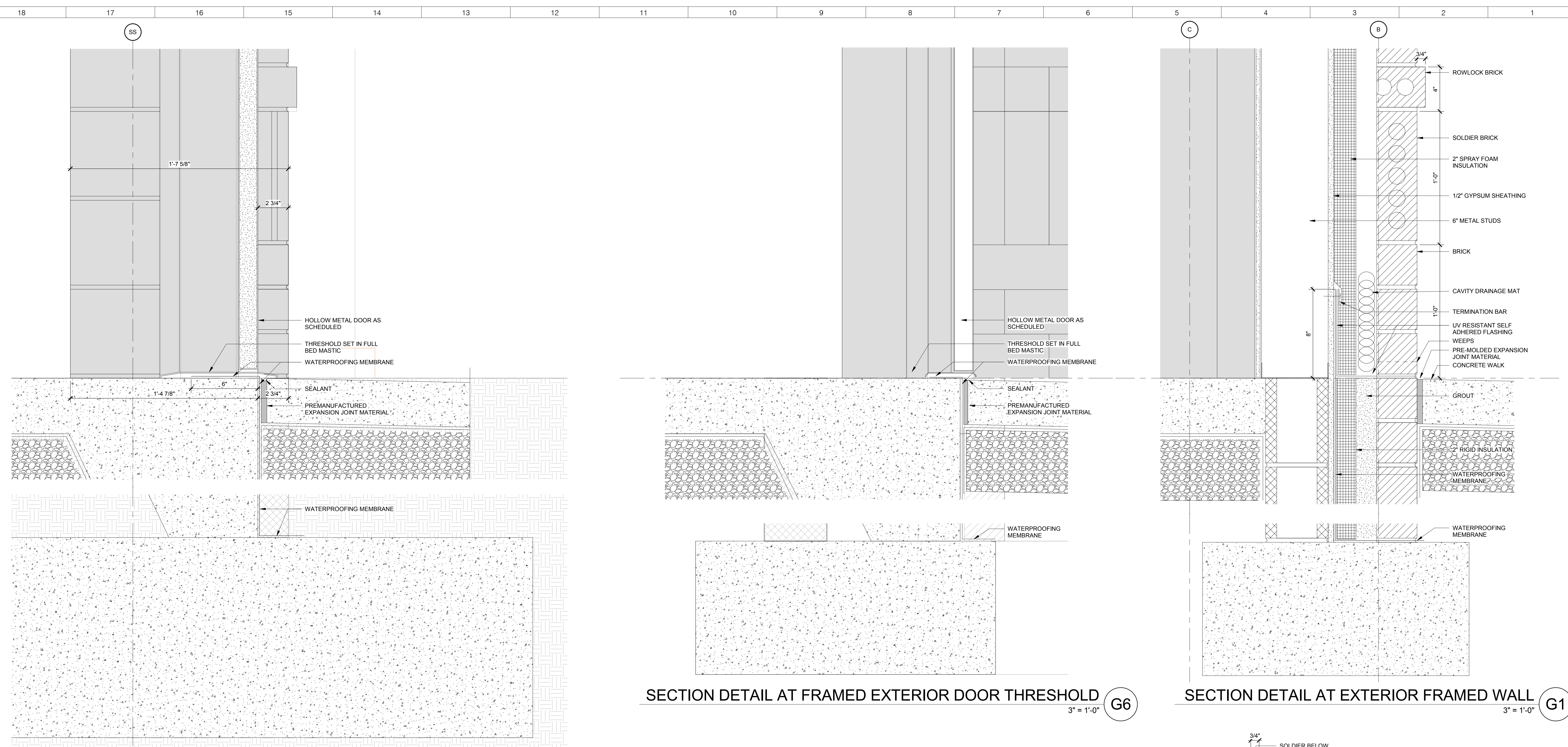
6370 LAKE PARK DRIVE SE
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No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE: 3" = 1'-0"
SHEET NAME: EXTERIOR SECTION DETAILS

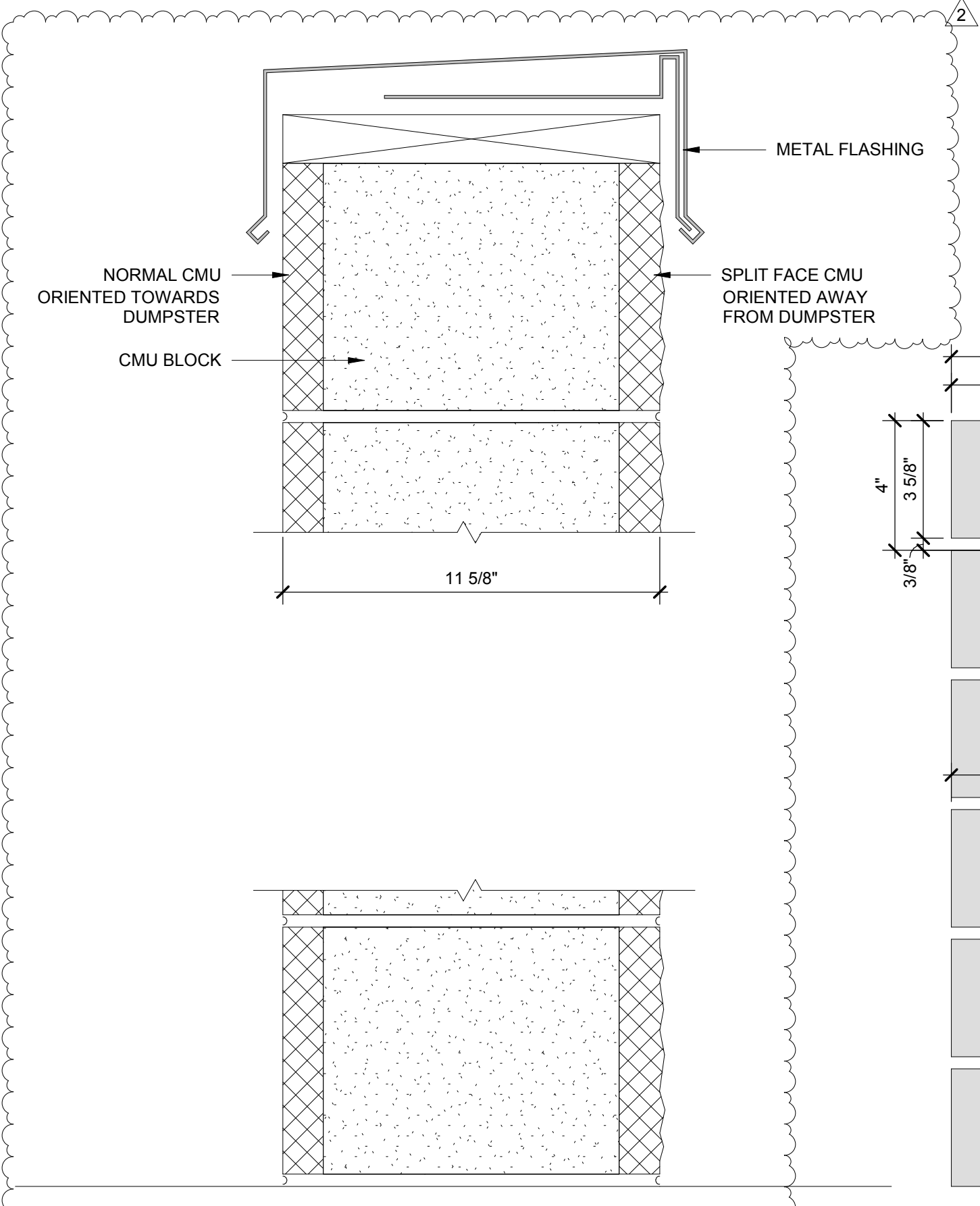
SHEET NUMBER:



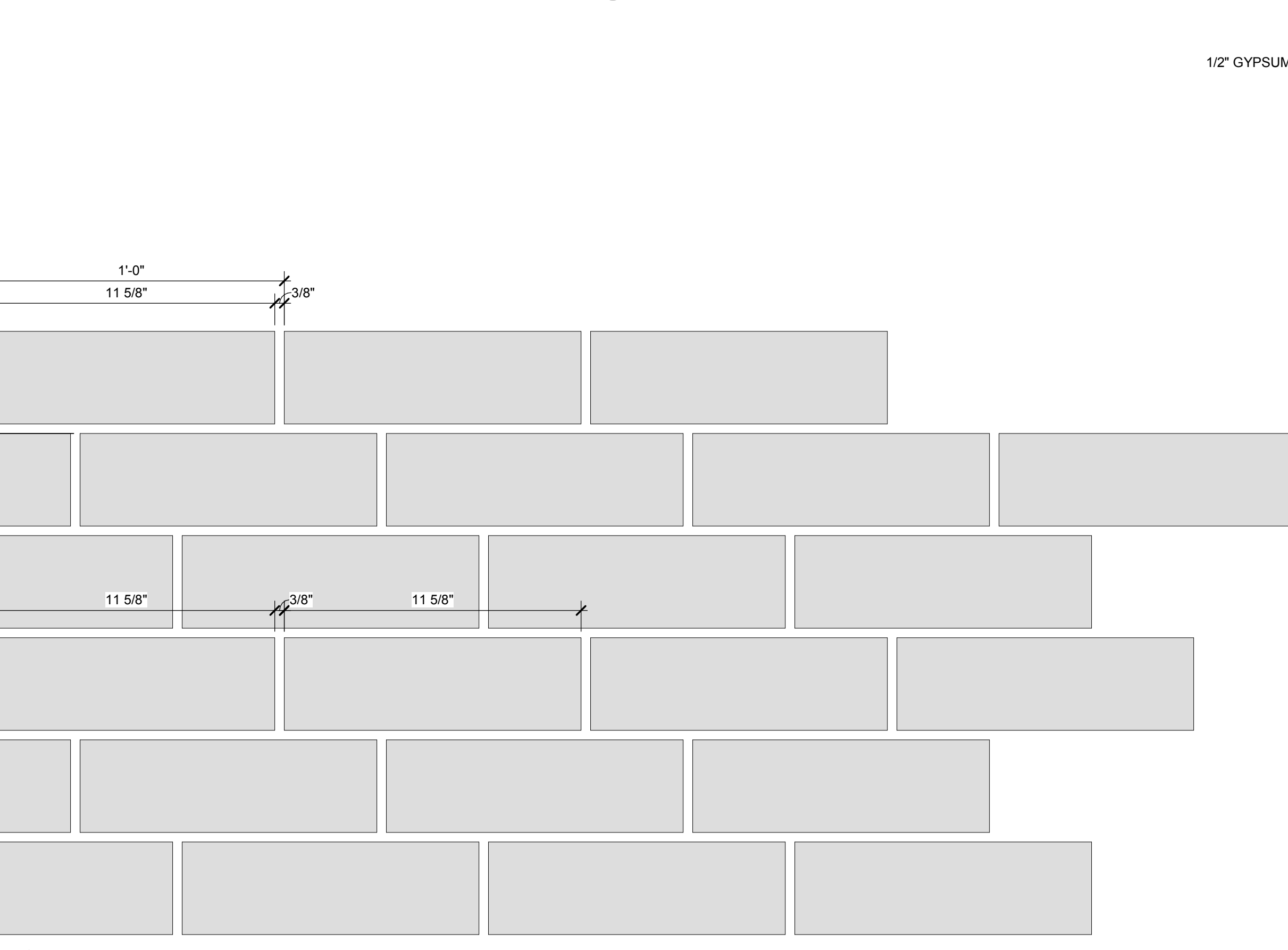
SECTION DETAIL AT CMU EXTERIOR DOOR THRESHOLD 3" = 1'-0" F12

SECTION DETAIL AT FRAMED EXTERIOR DOOR THRESHOLD 3" = 1'-0" G6

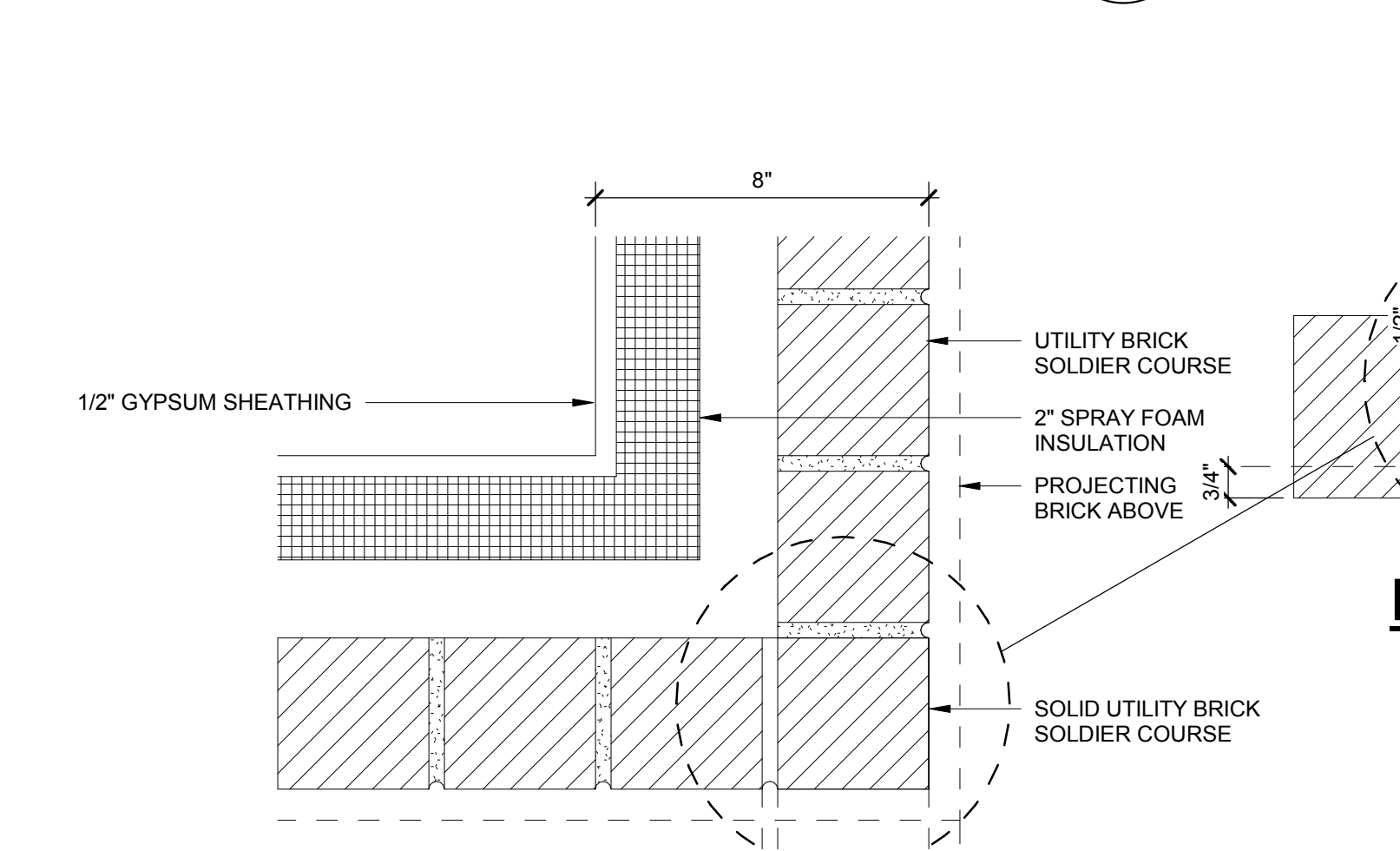
SECTION DETAIL AT EXTERIOR FRAMED WALL 3" = 1'-0" G1



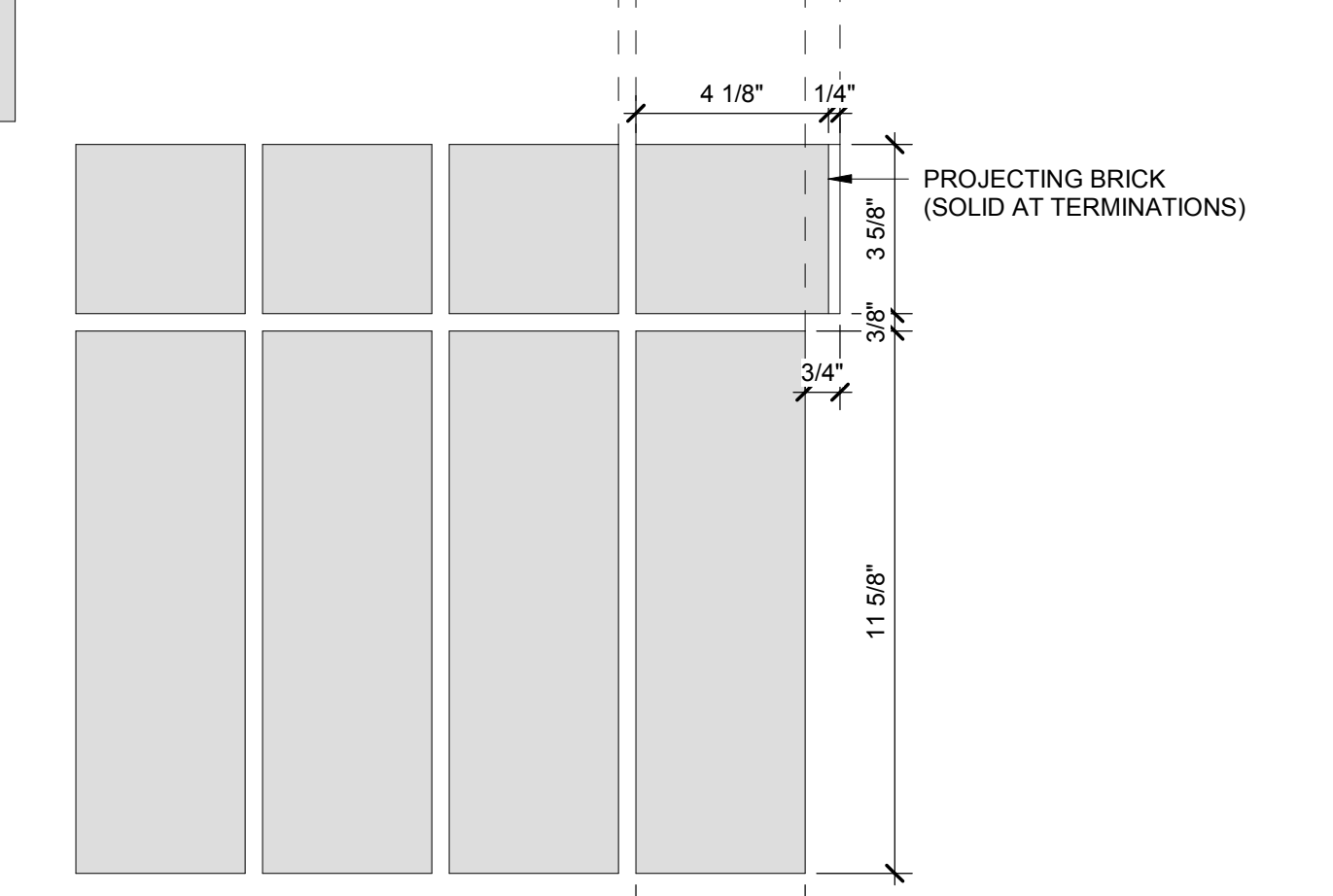
METAL CAP DETAIL AT SCREEN WALL 3" = 1'-0" A15



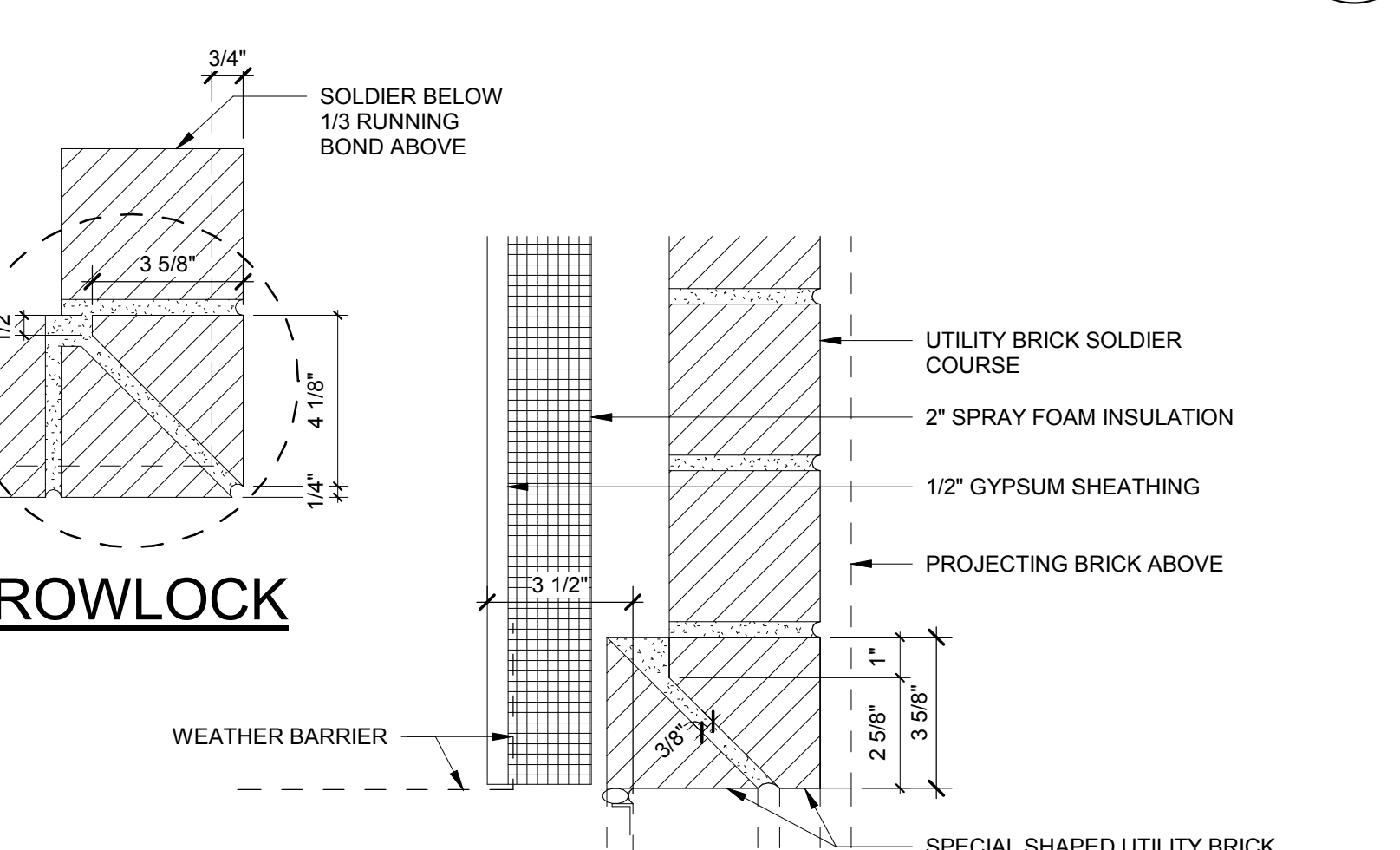
1/3 BRICK RUNNING BOND 3" = 1'-0" A10



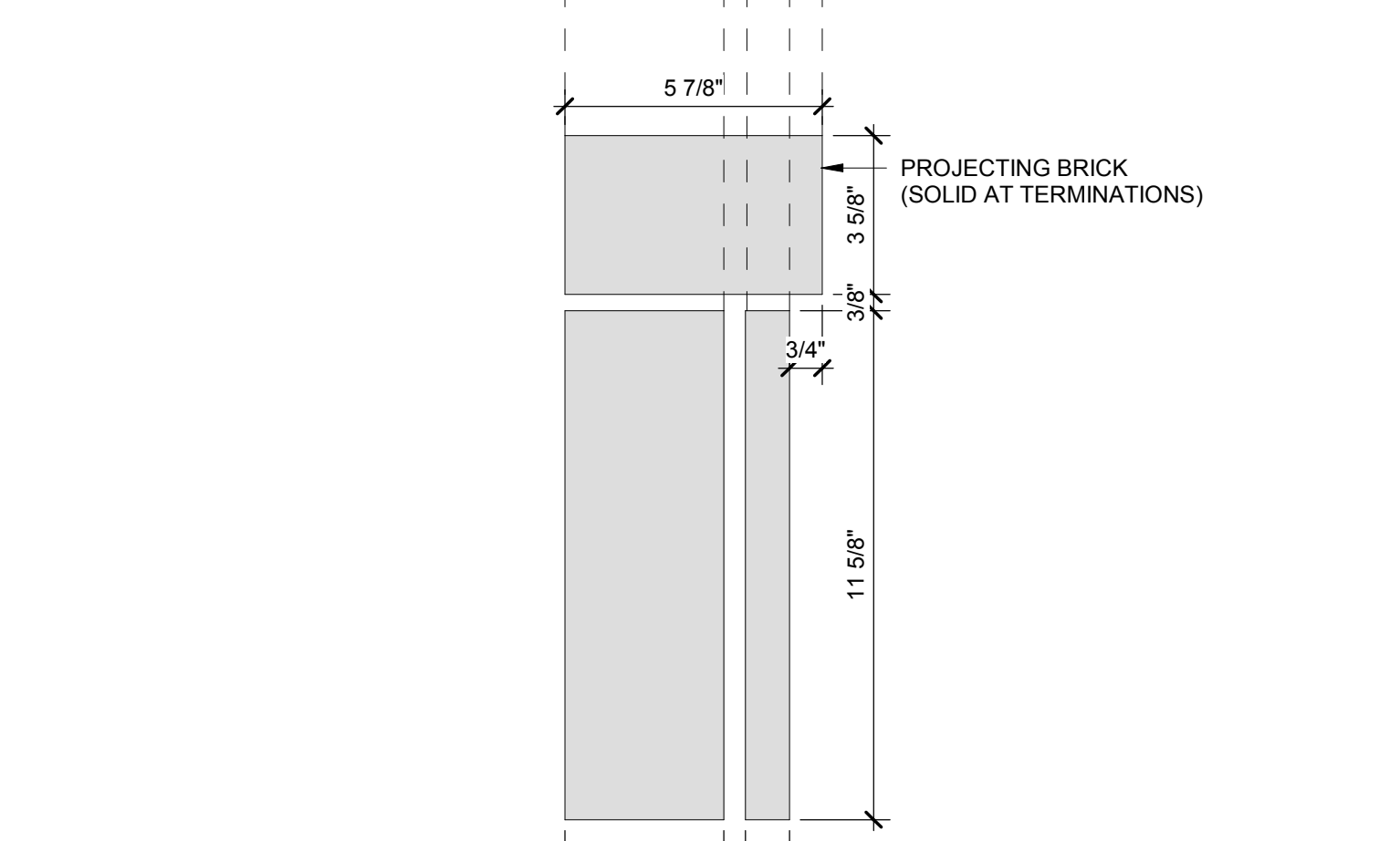
CORNER PLAN AT SOLDIER COURSE



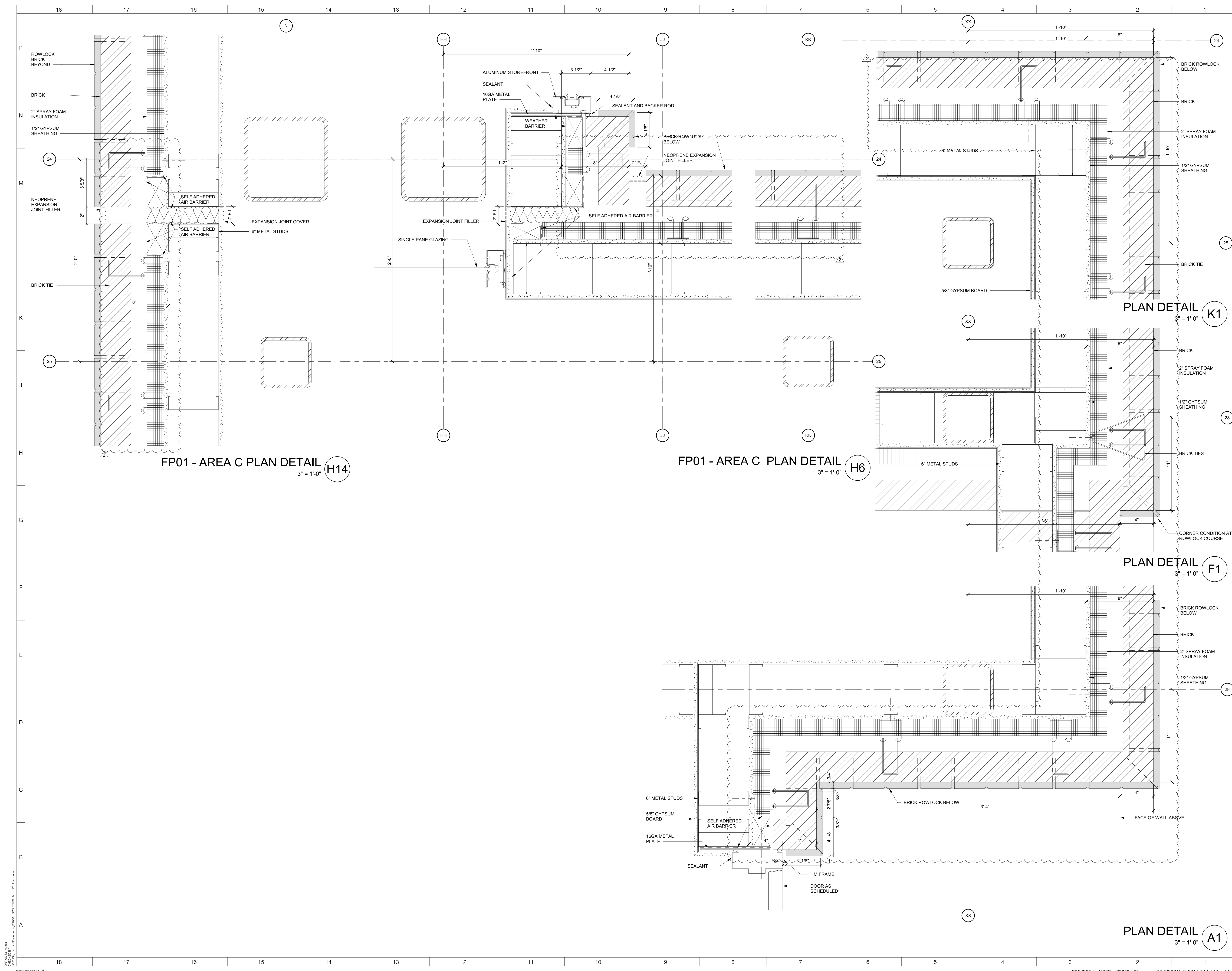
CORNER ELEVATION AT SOLDIER COURSE



OPENING PLAN AT SOLDIER COURSE



OPENING ELEVATION AT SOLDIER COURSE



FP01 - AREA C PLAN DETAIL H14
3" = 1'-0"

FP01 - AREA C PLAN DETAIL H6
3" = 1'-0"

PLAN DETAIL K1
3" = 1'-0"

PLAN DETAIL F1
3" = 1'-0"

PLAN DETAIL A1
3" = 1'-0"

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BRUNSWICK COUNTY SCHOOLS
 Community of Learners

TOWN CREEK MIDDLE SCHOOL
 6370 LAKE PARK DRIVE SE
 WINNABOW, NC 28479

KEY PLAN
 AREA A
 AREA Bn GYM
 AREA Bs MEDIA
 AREA C

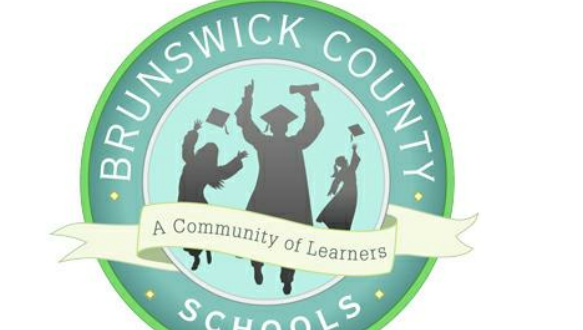
REVISIONS

No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS

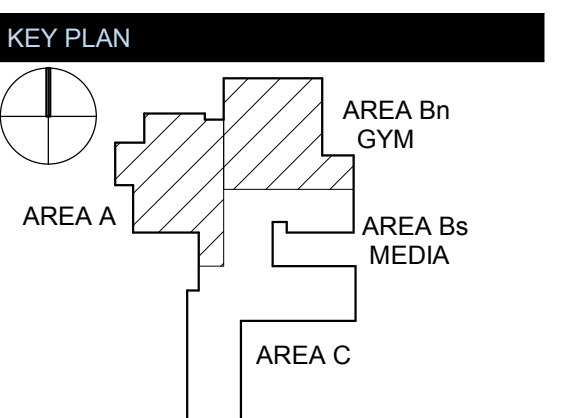
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SHEET NUMBER: A-512

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TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479



No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

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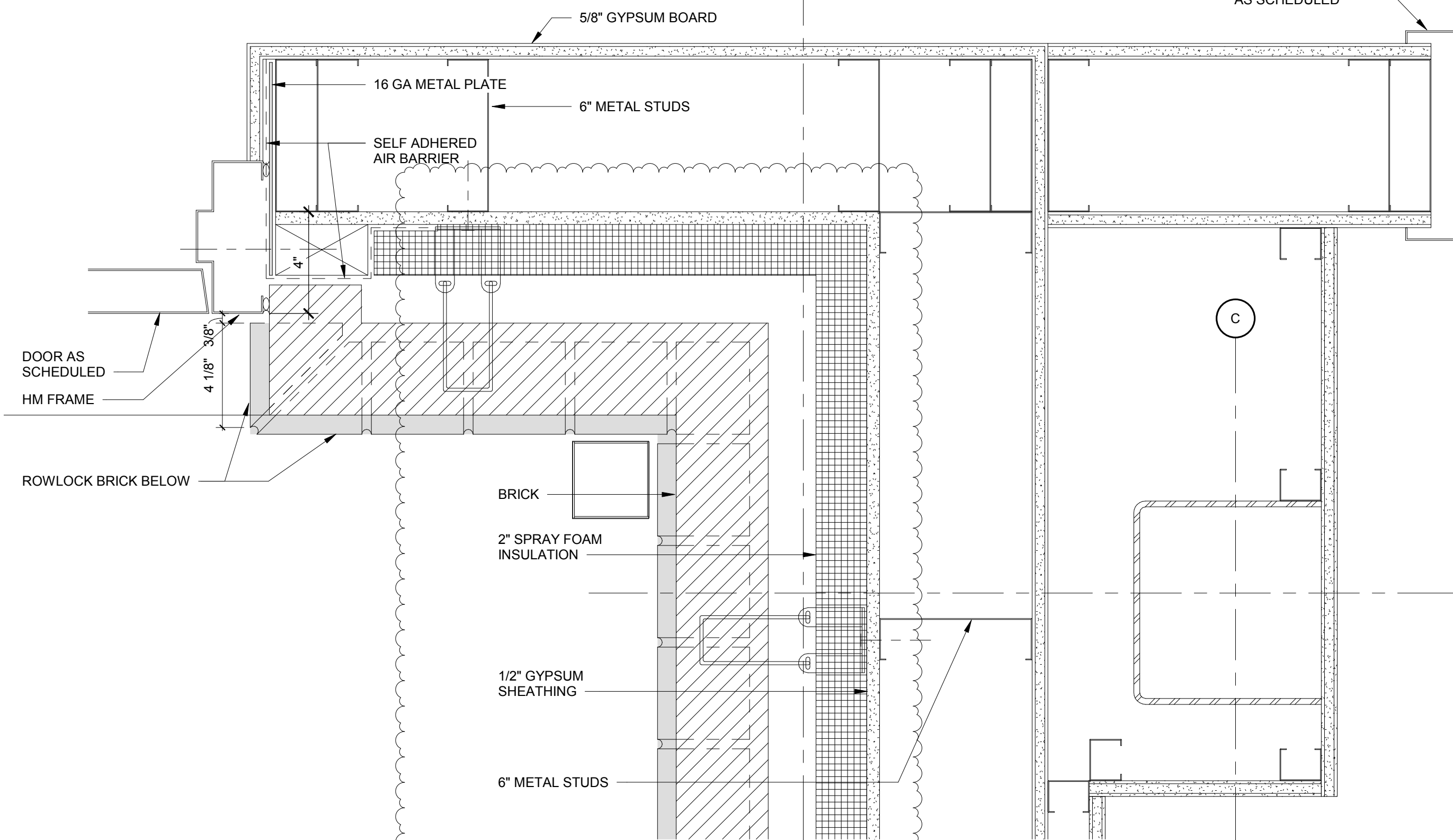
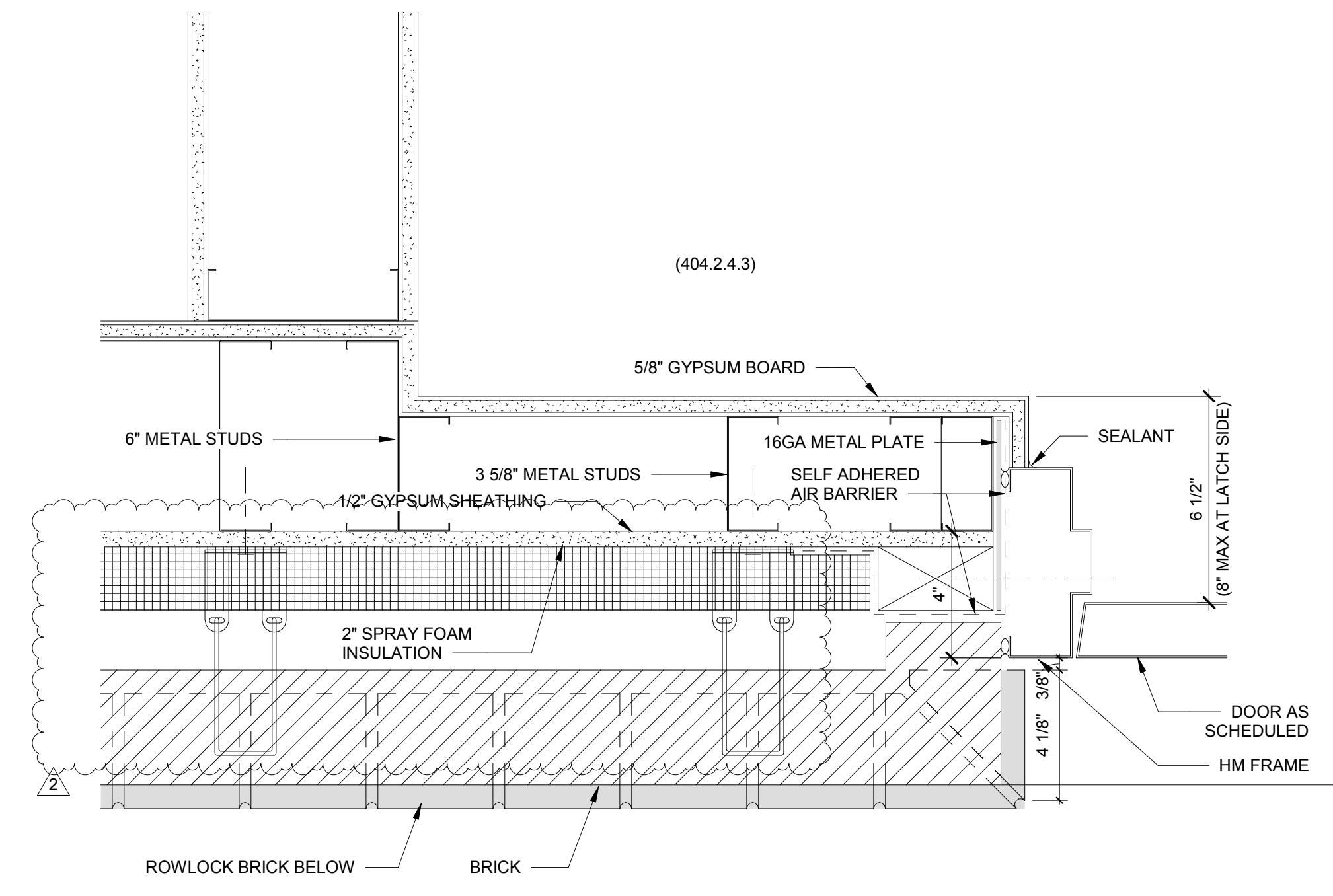
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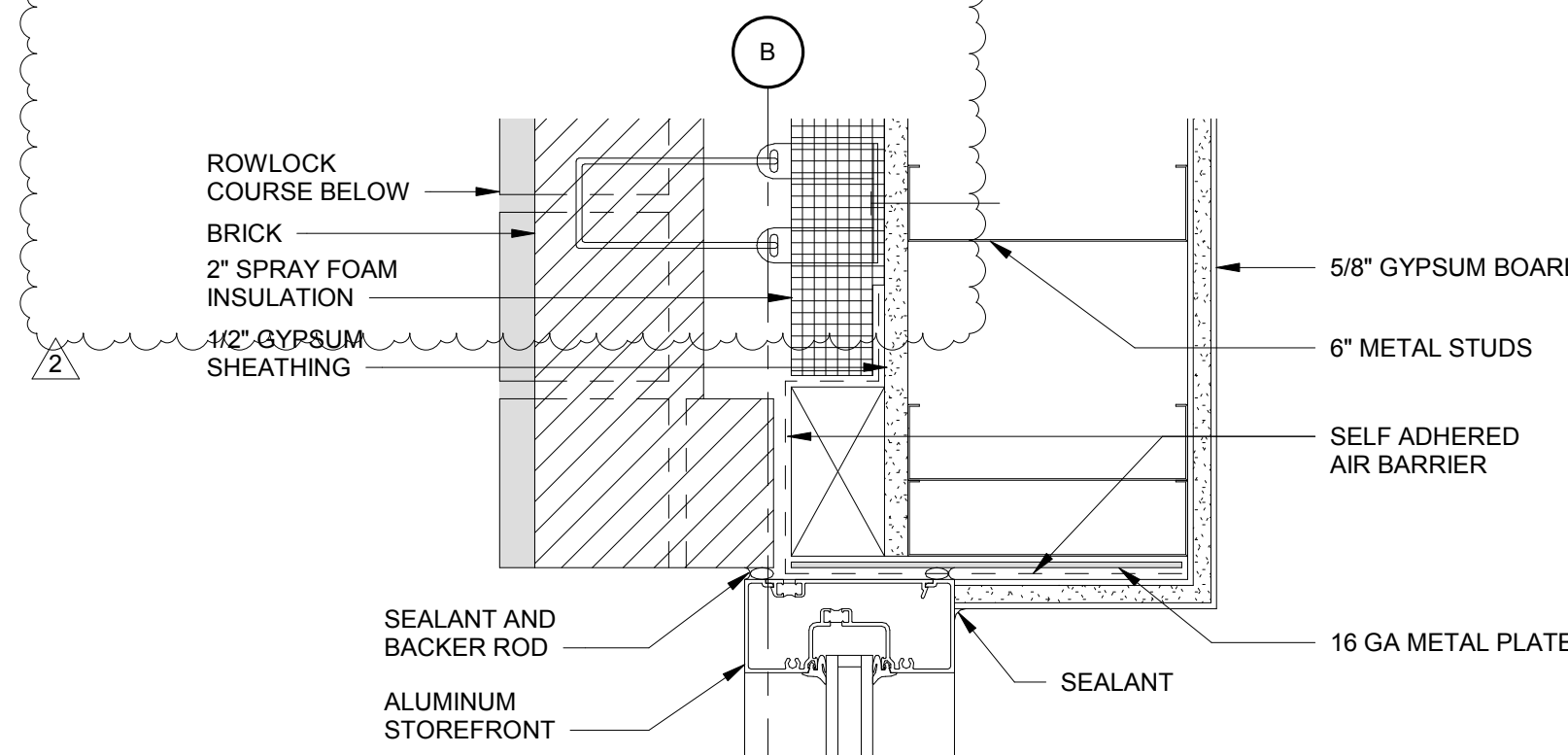
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SHEET NUMBER:

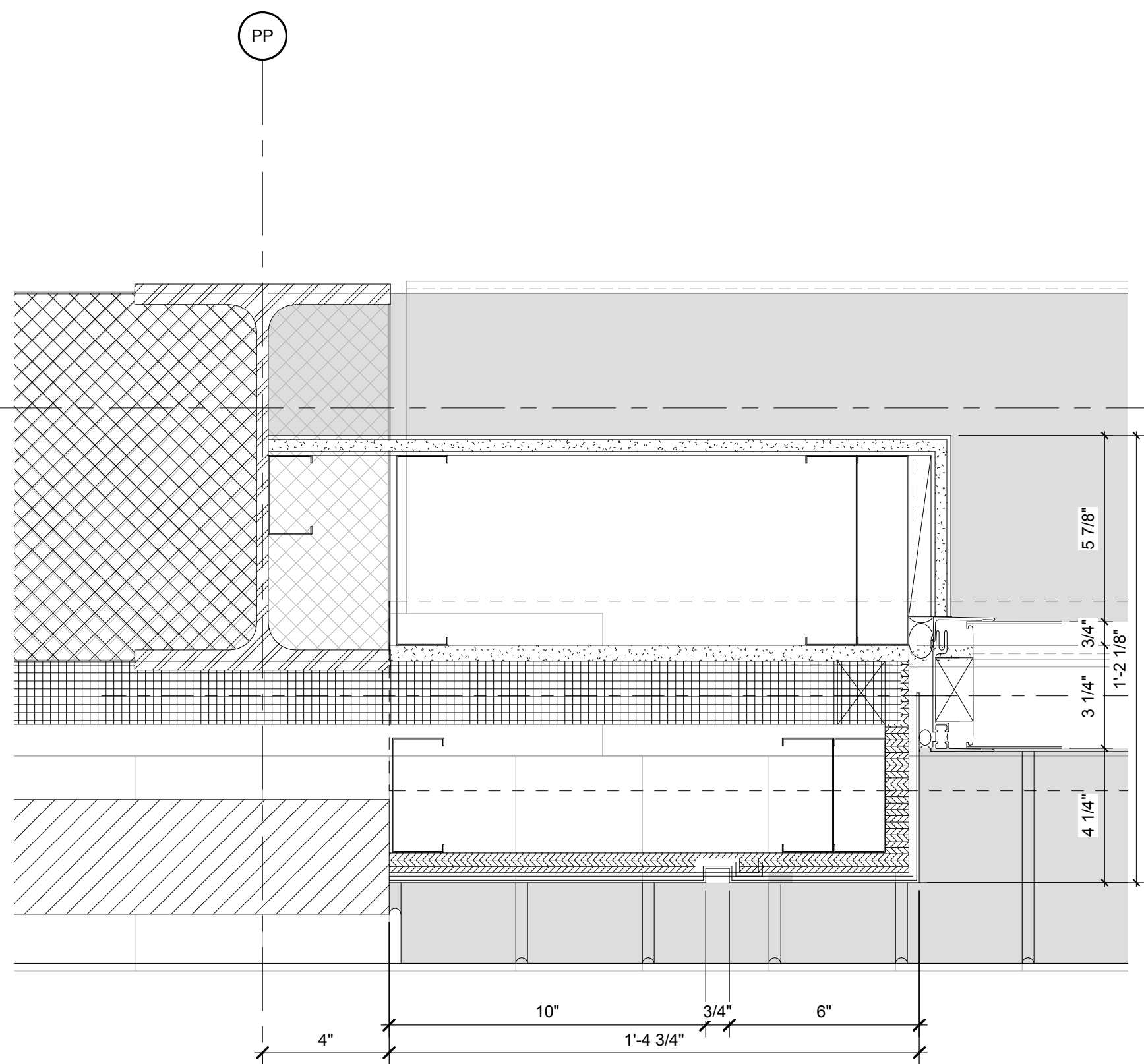
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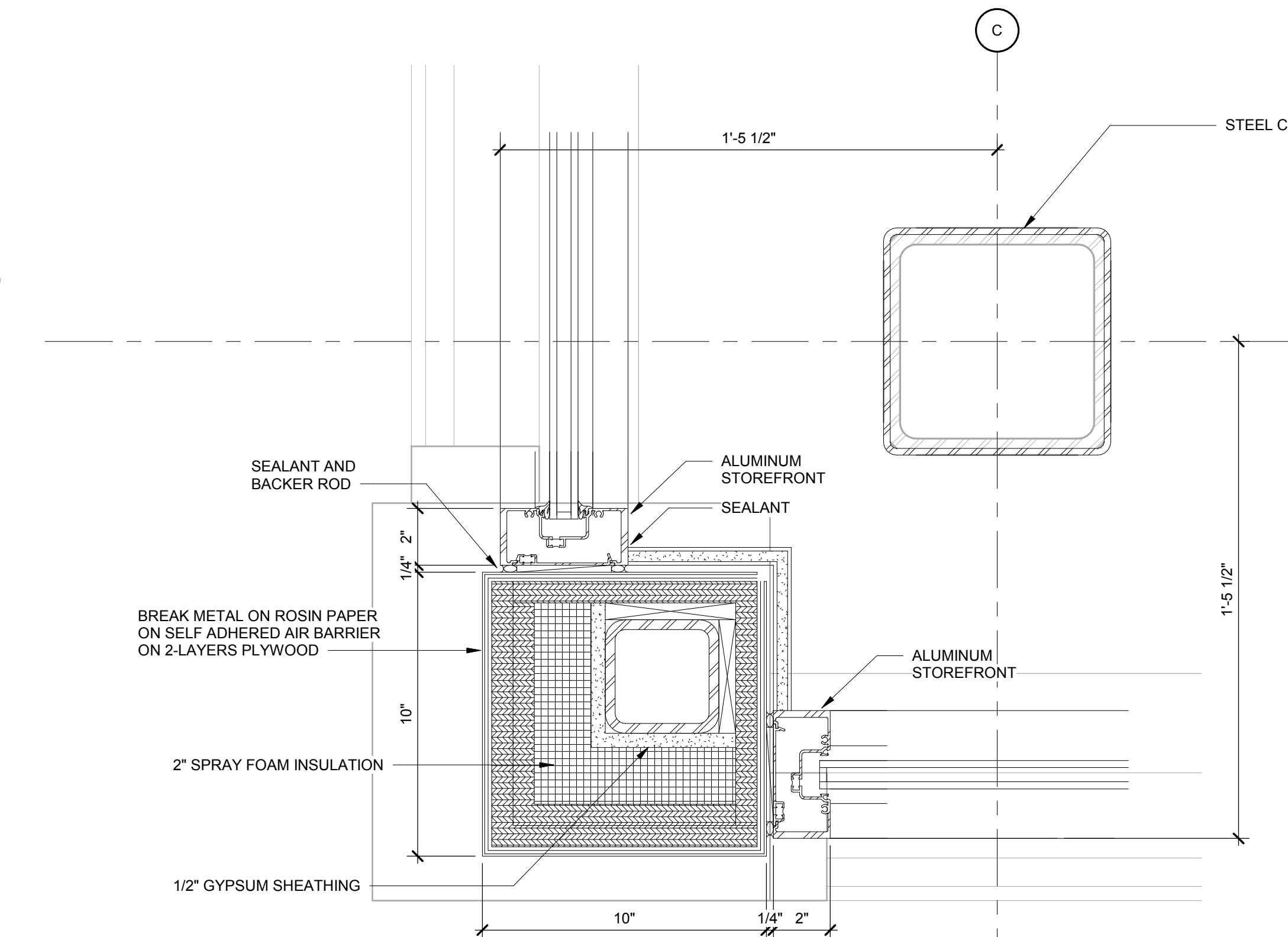
PLAN DETAIL AT B-11 (J1)
3" = 1'-0"



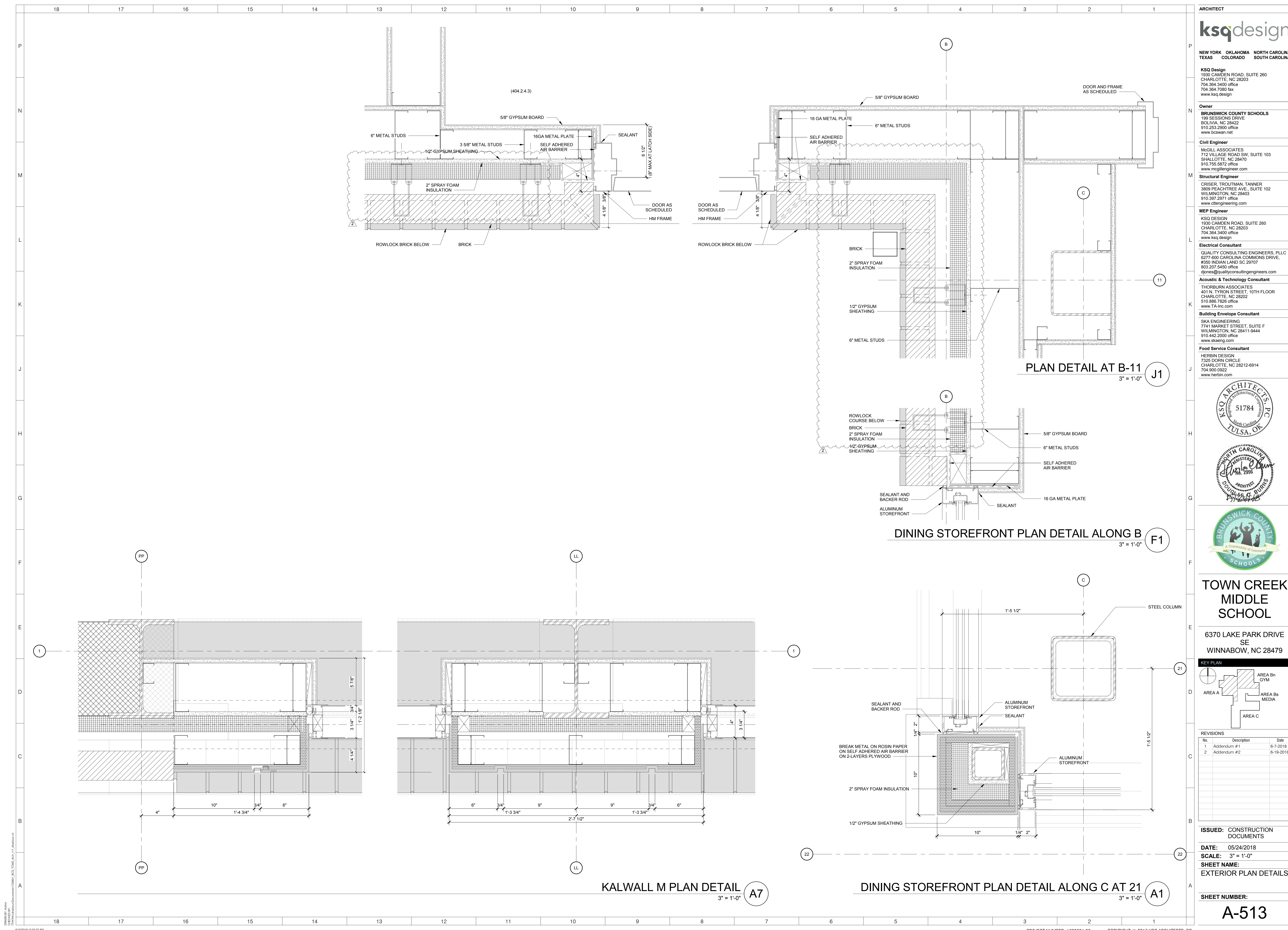
DINING STOREFRONT PLAN DETAIL ALONG B (F1)
3" = 1'-0"

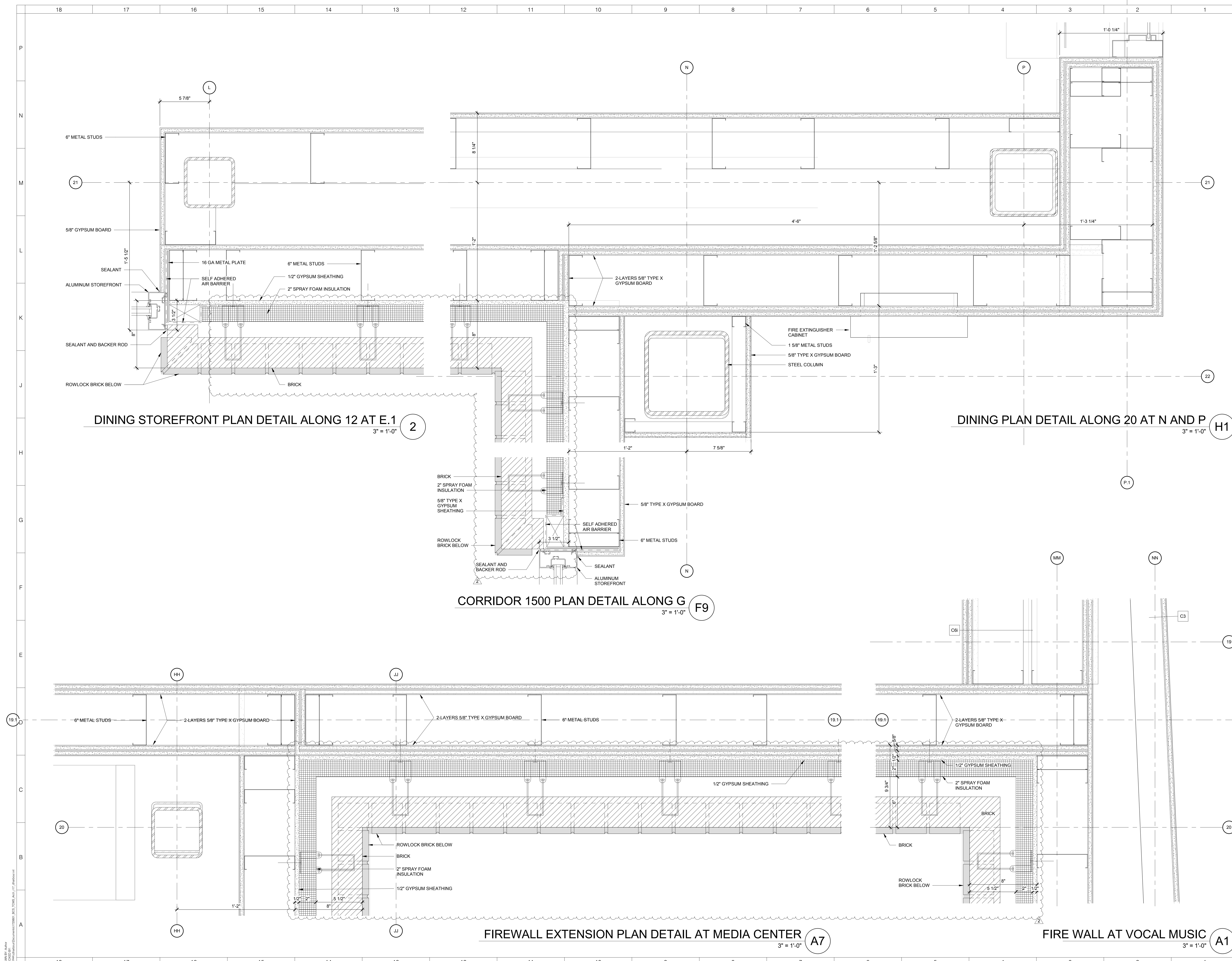


KALWALL M PLAN DETAIL (A7)
3" = 1'-0"



DINING STOREFRONT PLAN DETAIL ALONG C AT 21 (A1)
3" = 1'-0"





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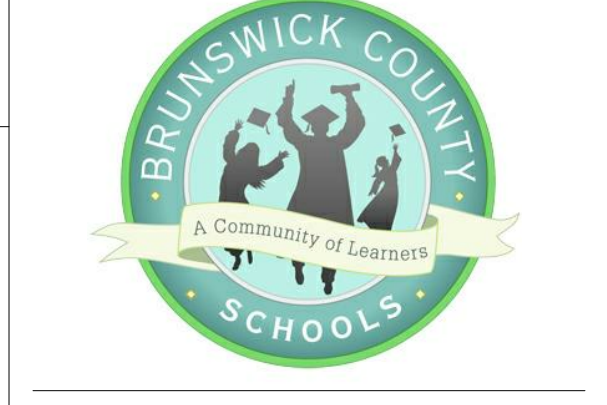
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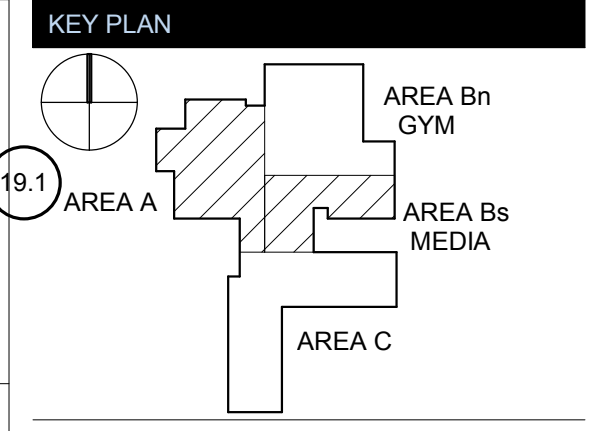
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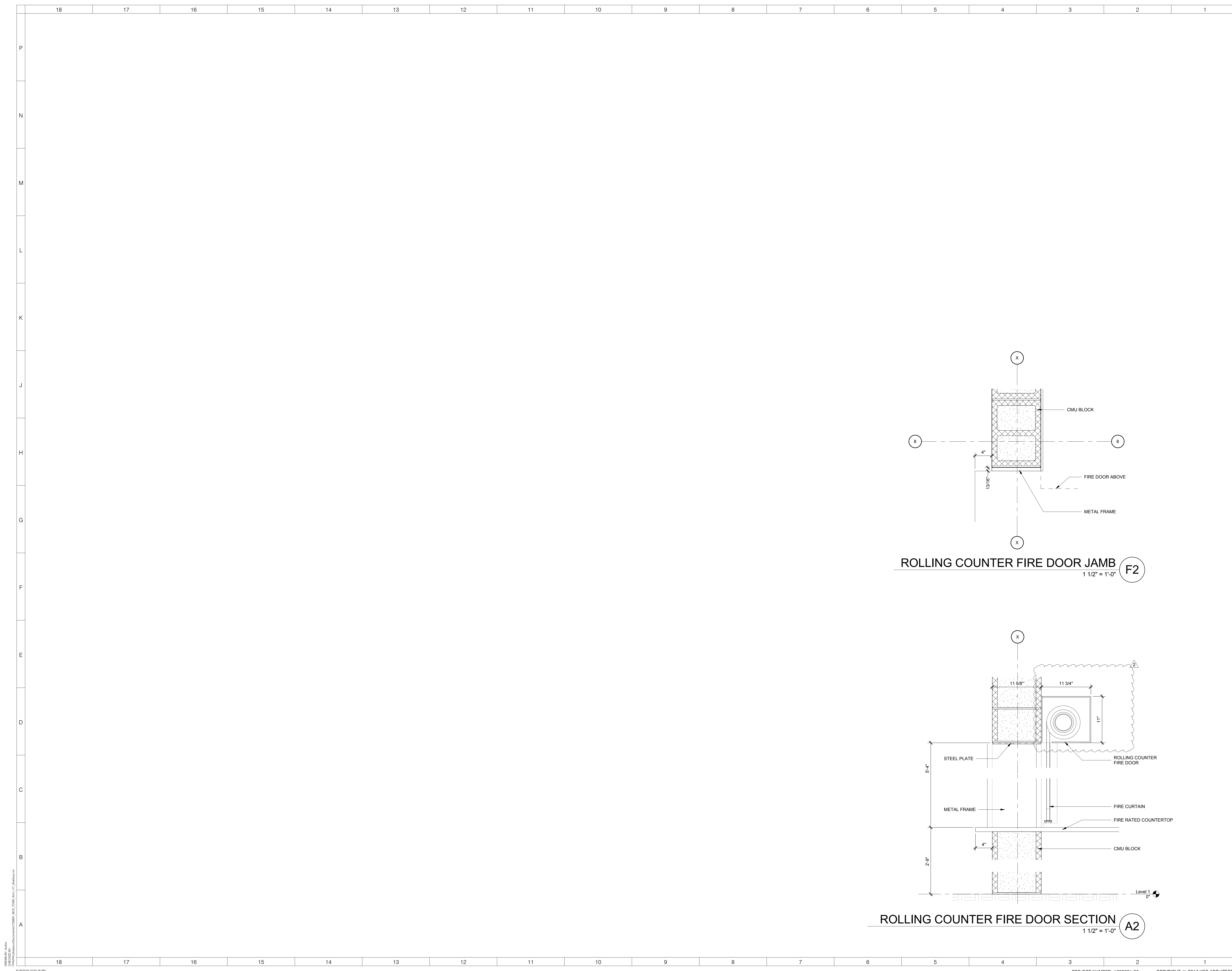
REVISIONS

No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE: 3" = 1'-0"
SHEET NAME: EXTERIOR PLAN DETAILS

SHEET NUMBER:
A-514

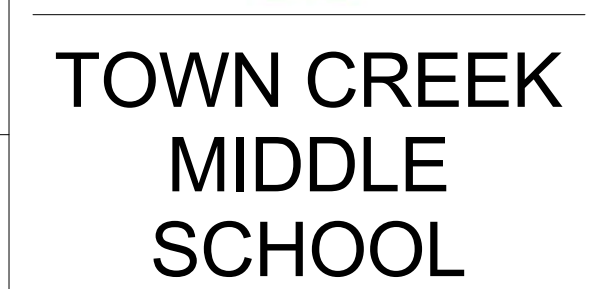
DOOR NO	ROOM NAME	DOOR			FRAME			DETAIL			FIRE RATING	PH	HARDWARE GROUP	COMMENTS								
		Sheet	PAIR	TYPE	SIZE			GLASS TYPE	MATERIAL	FINISH					TYPE	MATERIAL	FINISH	HEAD	JAMB	SILL	EXT	
					WIDTH	HEIGHT	THICKNESS															
1001A	VESTIBULE	A-101Bn	---	SF	3'-0"	8'-6"	---	ALUM	CLR	A	ALUM	CLR	G4/A-631	A1/A-611	C4/A-631	---	YES	01	AUTO DOOR OPERATOR			
1001B	VESTIBULE	A-101Bn	---	SF	3'-0"	8'-6"	---	ALUM	CLR	A	ALUM	CLR	G4/A-631	A1/A-611	C4/A-631	---	YES	02				
1001C	VESTIBULE	A-101Bn	---	SF	3'-0"	8'-6"	---	ALUM	CLR	A	ALUM	CLR	G4/A-631	A1/A-611	C4/A-631	---	YES	02				
1001D	VESTIBULE	A-101Bn	---	SF	3'-0"	8'-6"	---	ALUM	CLR	A	ALUM	CLR	G4/A-631	A1/A-611	C4/A-631	---	YES	02				
1001E	VESTIBULE	A-101Bn	---	SF	3'-0"	8'-6"	---	ALUM	CLR	A	ALUM	CLR	G4/A-631	A1/A-611	C4/A-631	---	YES	03				
1001F	VESTIBULE	A-101Bn	---	SF	3'-0"	8'-6"	---	ALUM	CLR	A	ALUM	CLR	G4/A-631	A1/A-611	C4/A-631	---	YES	04				
1001G	VESTIBULE	A-101Bn	---	SF	3'-0"	8'-6"	---	ALUM	CLR	A	ALUM	CLR	G4/A-631	A1/A-611	C4/A-631	---	YES	04				
1001H	VESTIBULE	A-101Bn	---	SF	3'-0"	8'-6"	---	ALUM	CLR	A	ALUM	CLR	G4/A-631	A1/A-611	C4/A-631	---	YES	04				
1002A	TOILET	A-101A	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	43				
1100C	COMMONS CORRIDOR	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	56				
1101	PARENT CENTER	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1102A	RECEPTION	A-101A	---	SF	3'-0"	8'-6"	---	ALUM	CLR	A	ALUM	CLR	G4/A-631	C15/H15/A-511	C4/A-631	---	06					
1102B	RECEPTION	A-101A	---	SF	3'-0"	8'-6"	---	ALUM	CLR	A	ALUM	CLR	G4/A-631	C15/A-511	C4/A-631	---	05					
1102C	CORRIDOR	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	55				
1103A	WORKROOM	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	56				
1103B	WORKROOM	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	33				
1104	OFFICE	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1105	SECURED RECORDS	A-101A	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	22				
1106	OFFICE	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1107	STORAGE	A-101A	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	49				
1108	ASSIST. PRINCIPAL	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1110	STORAGE	A-101A	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	49				
1112	PRINCIPAL OFFICE	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1114	CONF. RM 1	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1115	STAFF	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	12				
1116	GUIDANCE	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1117	STAFF	A-101A	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	12				
1118	NURSE	A-101A	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	12				
1118B	TOILET / SHOWER	A-101A	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	22				
1119	BOOK STORAGE	A-101A	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	49				
1120	IN-SCHOOL SUSPENSION	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1121	RESOURCE OFFICER	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1122	IT M/D	A-101A	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	53				
1201A	GYM	A-101Bn	---	YES	NL	6'-0"	8'-6"	1'-3/4"	---	SCW	WDST-1	B	HM	PT-2	G4/A-611	C4/A-611	---	45 MIN	YES	47	WIRE GLASS IN GLAZING	
1201B	GYM	A-101Bn	---	YES	NL	6'-0"	8'-6"	1'-3/4"	---	SCW	WDST-1	B	HM	PT-2	G4/A-611	C4/A-611	---	45 MIN	YES	47	WIRE GLASS IN GLAZING	
1201C	GYM	A-101Bn	---	NO	6'-0"	8'-6"	1'-3/4"	---	HM	PT	A	HM	PT	G4/A-611	C4/A-611	A4/A-611	---	YES	10	PAINT TO MATCH BRICK TYPE 1		
1201D	GYM	A-101Bn	---	NO	6'-0"	8'-6"	1'-3/4"	---	HM	PT	A	HM	PT	G4/A-611	C4/A-611	A4/A-611	---	YES	10	PAINT TO MATCH BRICK TYPE 1		
1201E	GYM	A-101Bn	---	NO	6'-0"	8'-6"	1'-3/4"	---	HM	PT	A	HM	PT	G4/A-611	C4/A-611	A4/A-611	---	YES	41	PAINT TO MATCH BRICK TYPE 1		
1201F	GYM	A-101Bn	---	NO	6'-0"	8'-6"	1'-3/4"	---	HM	PT	A	HM	PT	G4/A-611	C4/A-611	A4/A-611	---	YES	41	PAINT TO MATCH BRICK TYPE 1		
1202	SNACK BAR	A-101Bn	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1202A	SNACK BAR	A-101Bn	---	FD	8'-0"	6'-2"	---	STEEL	---	---	---	---	A2/A-612	A1/A-612	A2/A-612	---	1 HR	---	ROLLING COUNTER FIRE DOOR			
1203A	STORAGE	A-101Bn	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G4/A-611	C4/A-611	A4/A-611	---	18				
1203B	STORAGE	A-101Bn	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G4/A-611	C4/A-611	A4/A-611	---	49				
1204A	VESTIBULE	A-101Bn	---	NL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	45 MIN	---	WIRE GLASS IN GLAZING		
1204B	VESTIBULE	A-101Bn	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1205	VESTIBULE	A-101Bn	---	LV	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	48				
1206A	GIRLS DRESSING ROOM	A-101Bn	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1206B	TOILET	A-101Bn	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	38				
1207	OFFICE	A-101Bn	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1208A	VESTIBULE	A-101Bn	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1208B	TOILET	A-101Bn	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	39				
1209A	GYM	A-101Bn	---	LV	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1209B	GYM	A-101Bn	---	LV	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1209C	GYM	A-101Bn	---	LV	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1211	OFFICE	A-101Bn	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	18				
1212A	ROOF ACCESS	A-101Bn	---	FL	2'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	B	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	51				
1212B	ROOF ACCESS	A-101Bn	---	FL	3'-0"	7'-2"	1'-3/4"	---	HM	PT	C	HM	PT	G7/A-611	C7/A-611	H7/A-521	---	YES	---	52	DOOR TO ROOF, PAINT TO MATCH BRICK TYPE 1	
1213	VESTIBULE	A-101Bn	---	LV	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	48				
1302A	DINING	A-101A	---	YES	NL	6'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	45 MIN	YES	36	WIRE GLASS IN GLAZING
1302B	DINING	A-101A	---	YES	SF	3'-0"	8'-6"	---	ALUM	CLR	B	ALUM	CLR	G4/A-631	E4/A-631	C4/A-631	---	YES	27	DOUBLE WIDTH FOR PAIR		
1302C	DINING	A-101A	---	SC	---	---	---	---	---	---	---	---	A17/A-315	A17/A-315	A17/A-315	---	2 HR	---	SMOKE GUARD CURTAIN			
1303	LOADING AREA	A-101A	---	FL	4'-0"	7'-0"	1'-3/4"	---	HM	PT	A	HM	PT	G4/A-611	C4/A-611	A4/A-611	---	YES	---	30	IN SCREEN WALL, PAINT TO MATCH BRICK TYPE 1	
1308A	KITCHEN	A-101A	---	FL	4'-0"	8'-4"	1'-3/4"	---	HM	PT	A	HM	PT	G7/A-611	J1/A-613	A7/A-611	---	YES	---	37	PAINT TO MATCH BRICK TYPE 1	
1308B	KITCHEN	A-101A	---	FL	4'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	---	---	61		
1308C	KITCHEN	A-101A	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611	---	---	---	81		
1309	OFFICE	A-101A	---	FL	3'-0"	7'-0"	1'-3/4"	---	SCW	WDST-1	A	HM	PT-2	G1/A-611	C1/A-611	A1/A-611						



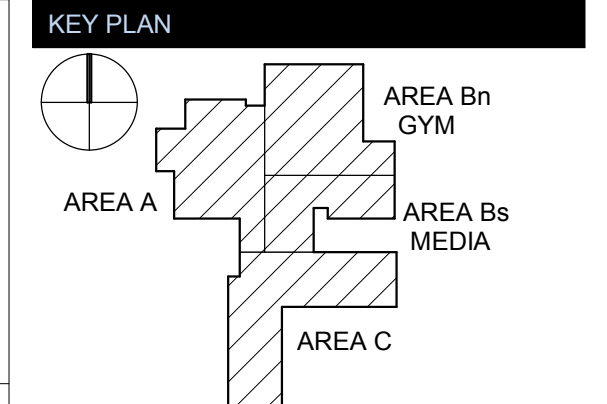
ROLLING COUNTER FIRE DOOR JAMB
1 1/2" = 1'-0" **F2**

ROLLING COUNTER FIRE DOOR SECTION
1 1/2" = 1'-0" **A2**

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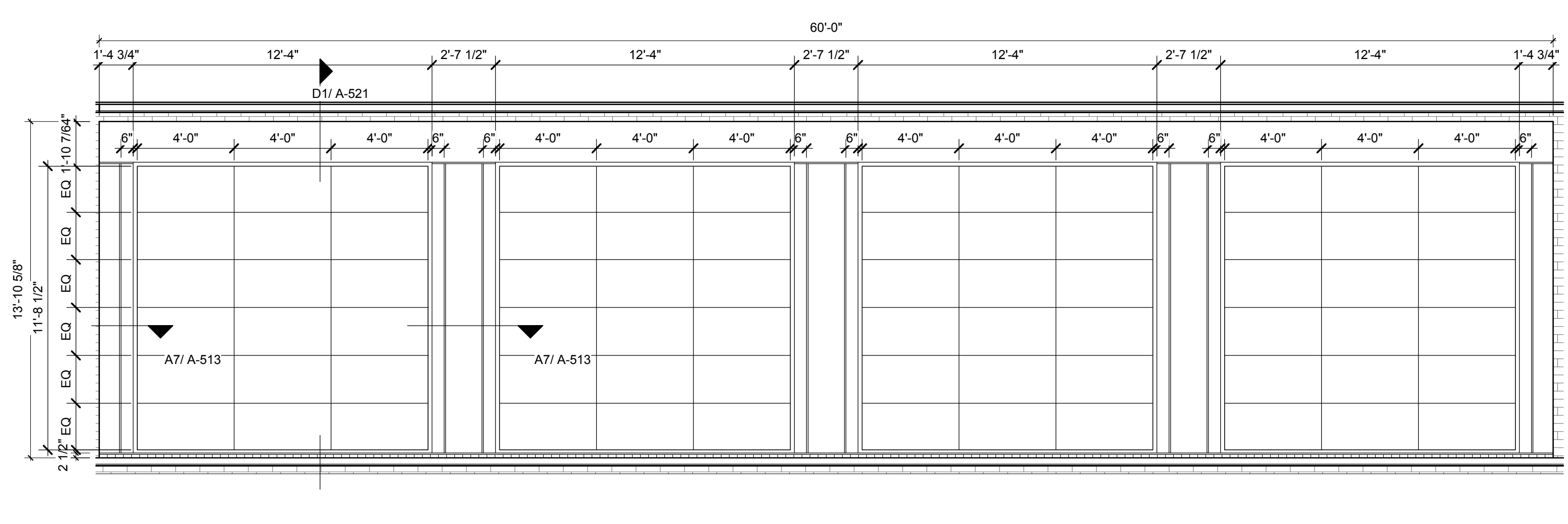
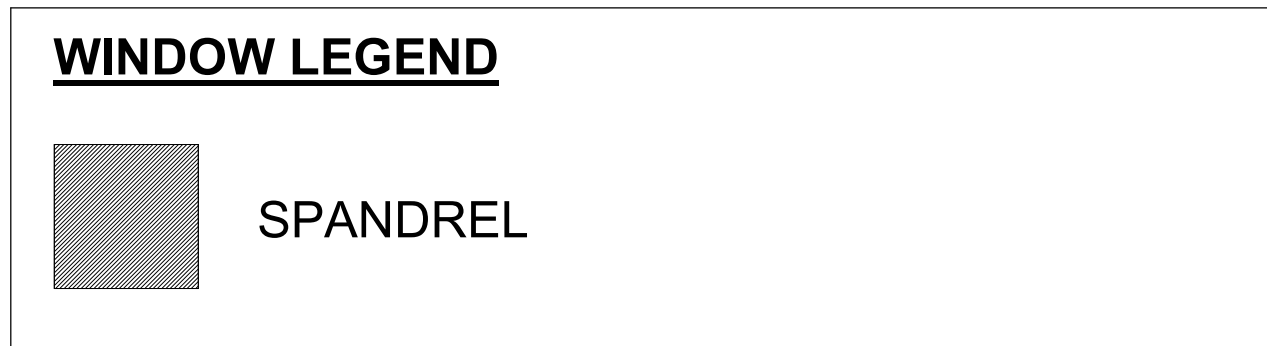
REVISIONS

No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

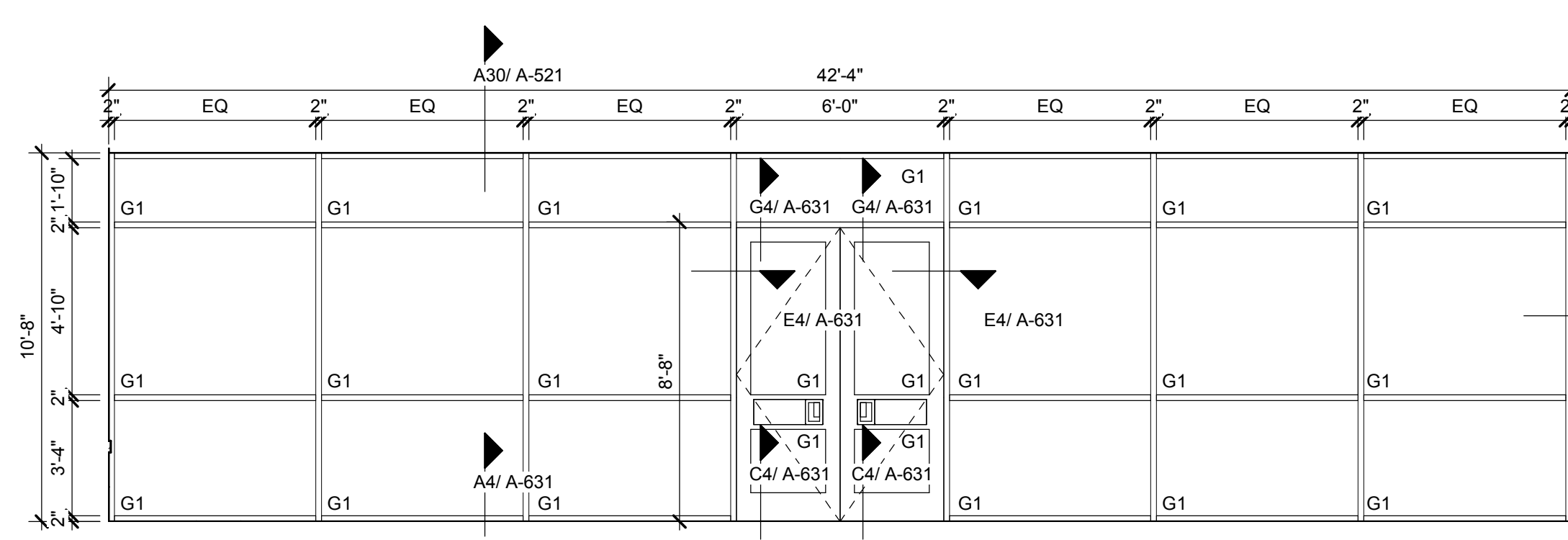
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SHEET NAME:
DOOR DETAILS
SHEET NUMBER:

A-612

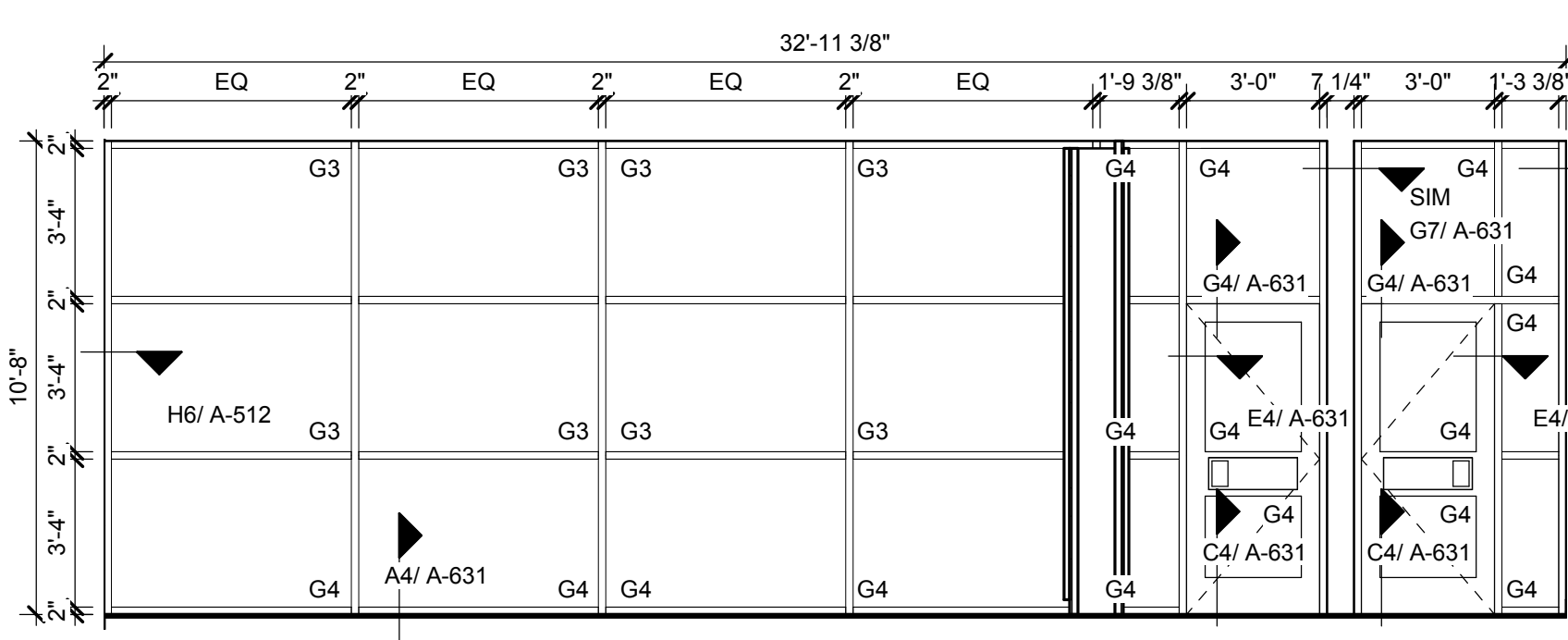
- GLASS TYPES**
- G1 - 1" INSULATING, BOTH PANES TEMPERED
 - G2 - 1" INSULATING, LAMINATED
 - G3 - 1/4" CLEAR GLASS
 - G4 - 1/4" CLEAR TEMPERED GLASS
 - G5 - 1/4" CLEAR SAFETY WIRE GLASS
 - G6 - 1" INSULATING W/ SPANDREL, BOTH PANES TEMPERED



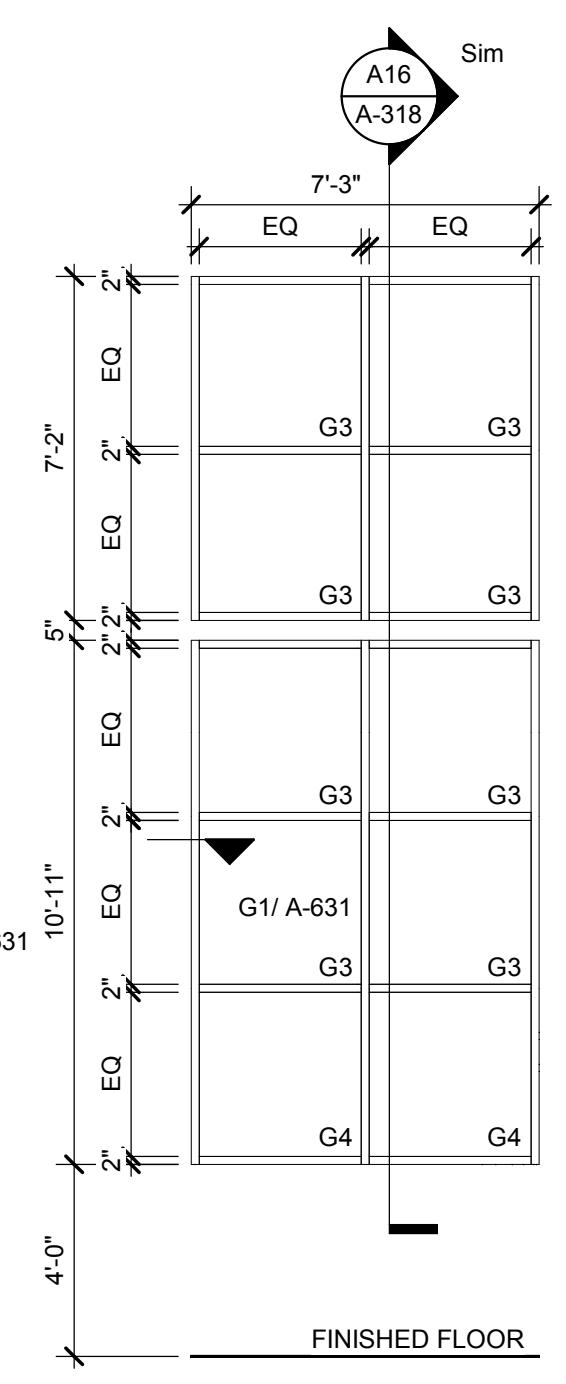
KALWALL M - GYM CLERESTORY
1/4" = 1'-0" K1



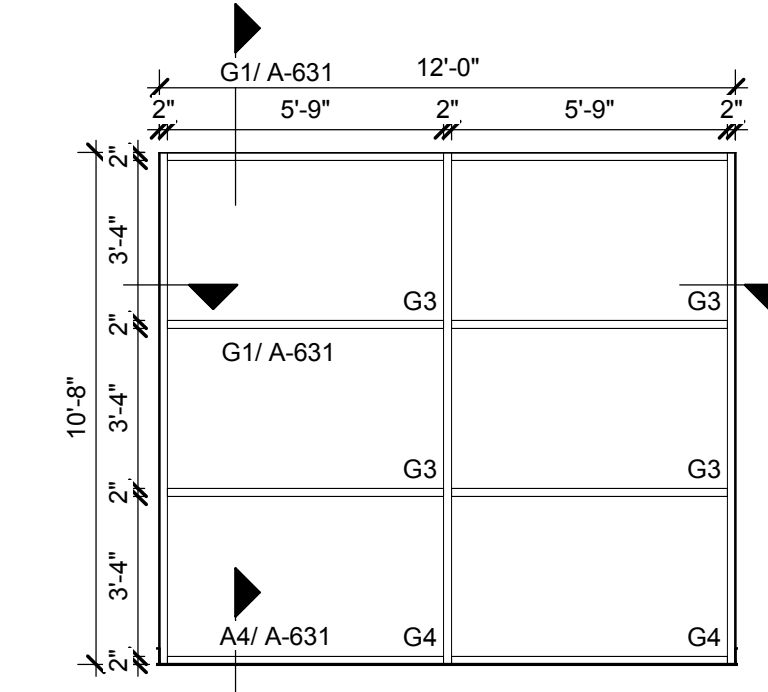
SF L - MEDIA to COURTYARD
1/4" = 1'-0" F13



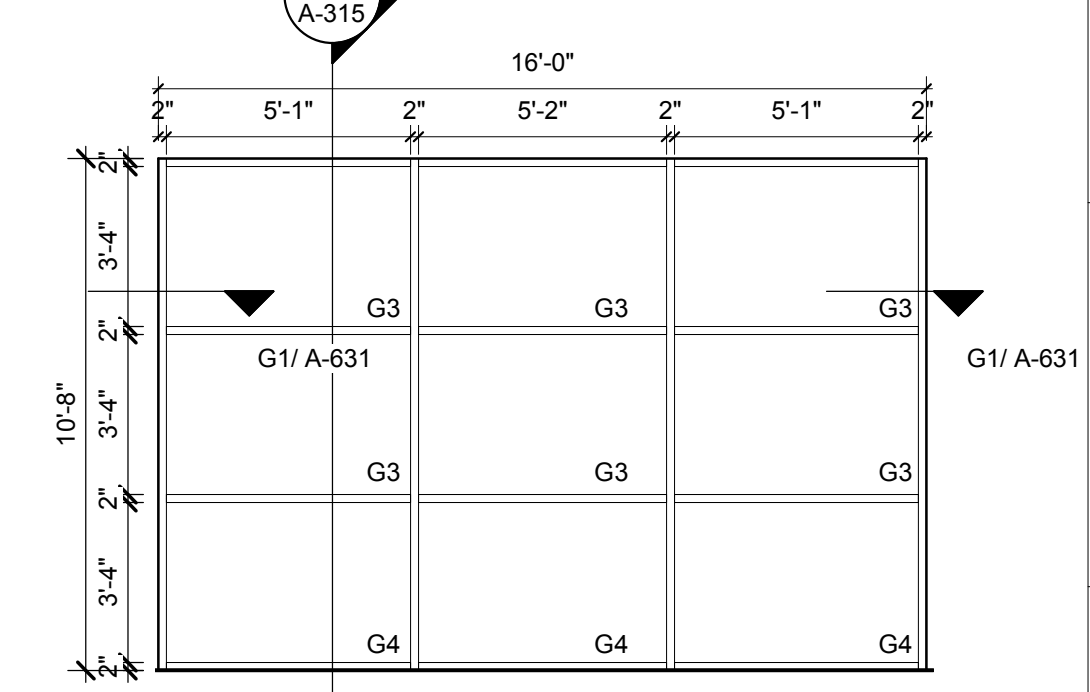
SF K - MEDIA to MAKER SPACE
1/4" = 1'-0" F8



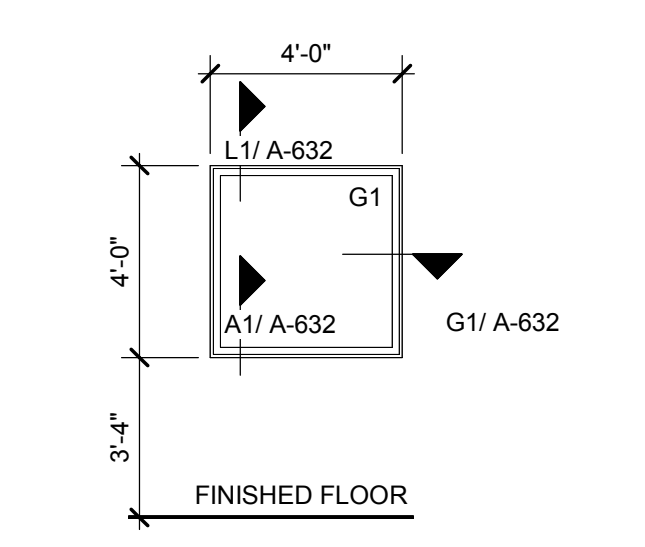
SF J - STAIRS
1/4" = 1'-0" F6



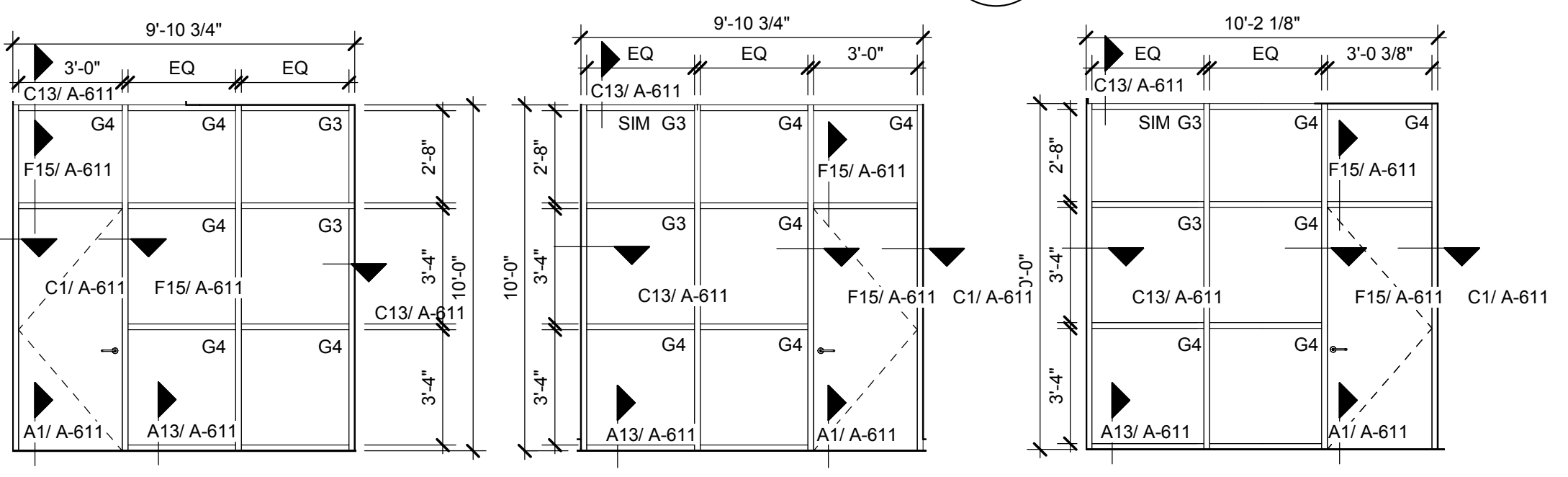
SF H - MEDIA to COOR
1/4" = 1'-0" F4



SF G - CORR to DINING
1/4" = 1'-0" F1
SMOKE GUARD CURTAIN TO COVER THE WIDTH OF THE GLAZING IN STOREFRONT G



SF F - OFFICE
1/4" = 1'-0" C15



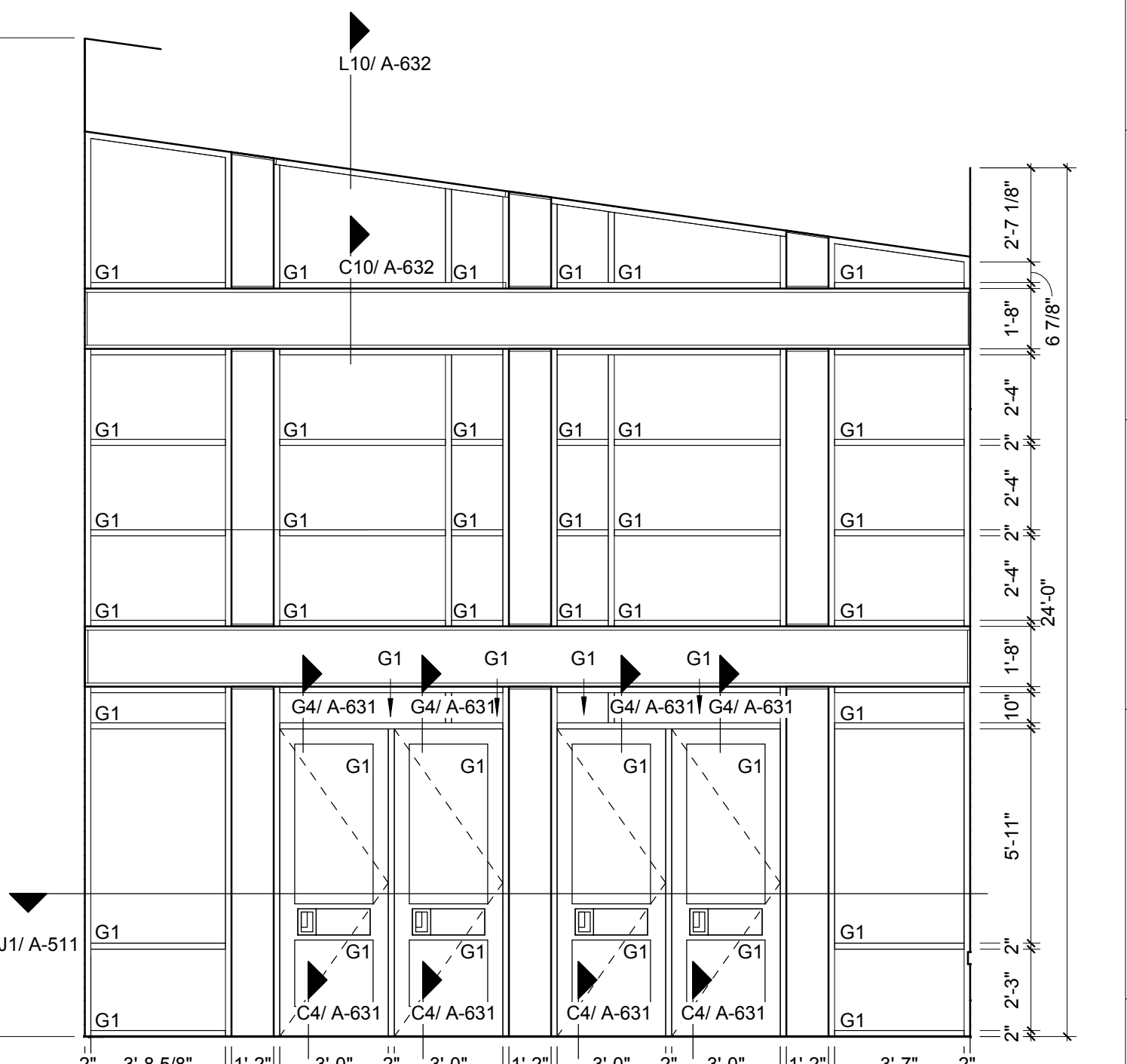
SF E - OFFICE
1/4" = 1'-0" A13

SF D - ADMIN
1/4" = 1'-0" A11

SF C - RECEPTION
1/4" = 1'-0" A9



SF B - ENTRY VESTIBULE, INT.
1/4" = 1'-0" A5



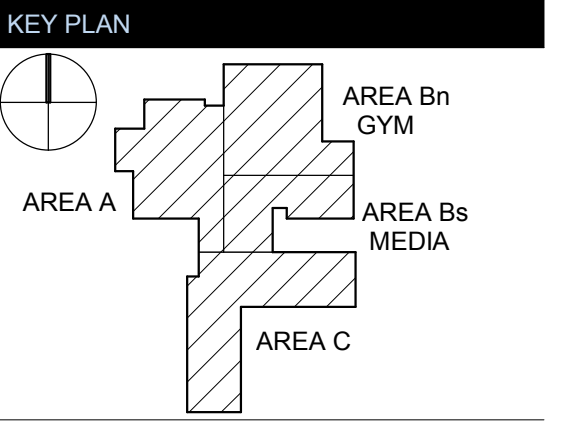
SF A - ENTRY VESTIBULE, EXT.
1/4" = 1'-0" A1

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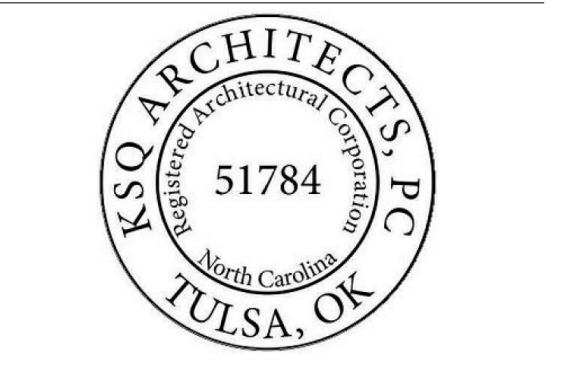
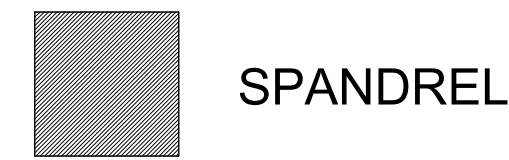
No.	Description	Date
1	Addendum #1	6-7-2018

ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE: As indicated
SHEET NAME: GLAZING SCHEDULE
SHEET NUMBER:

GLASS TYPES

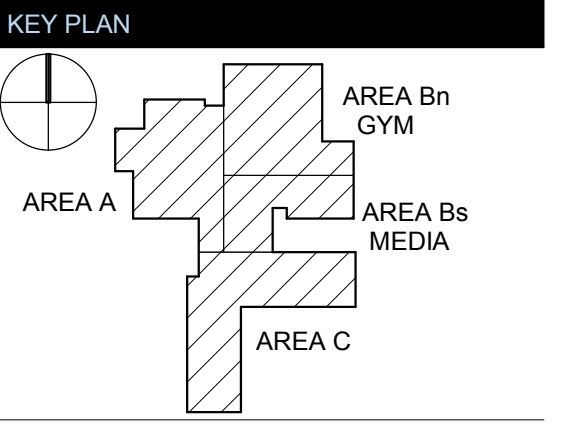
- G1 - 1" INSULATING, BOTH PANES TEMPERED
- G2 - 1" INSULATING, LAMINATED
- G3 - 1/4" CLEAR GLASS
- G4 - 1/4" CLEAR TEMPERED GLASS
- G5 - 1/4" CLEAR SAFETY WIRE GLASS
- G6 - 1" INSULATING W/ SPANDREL, BOTH PANES TEMPERED

WINDOW LEGEND



TOWN CREEK MIDDLE SCHOOL

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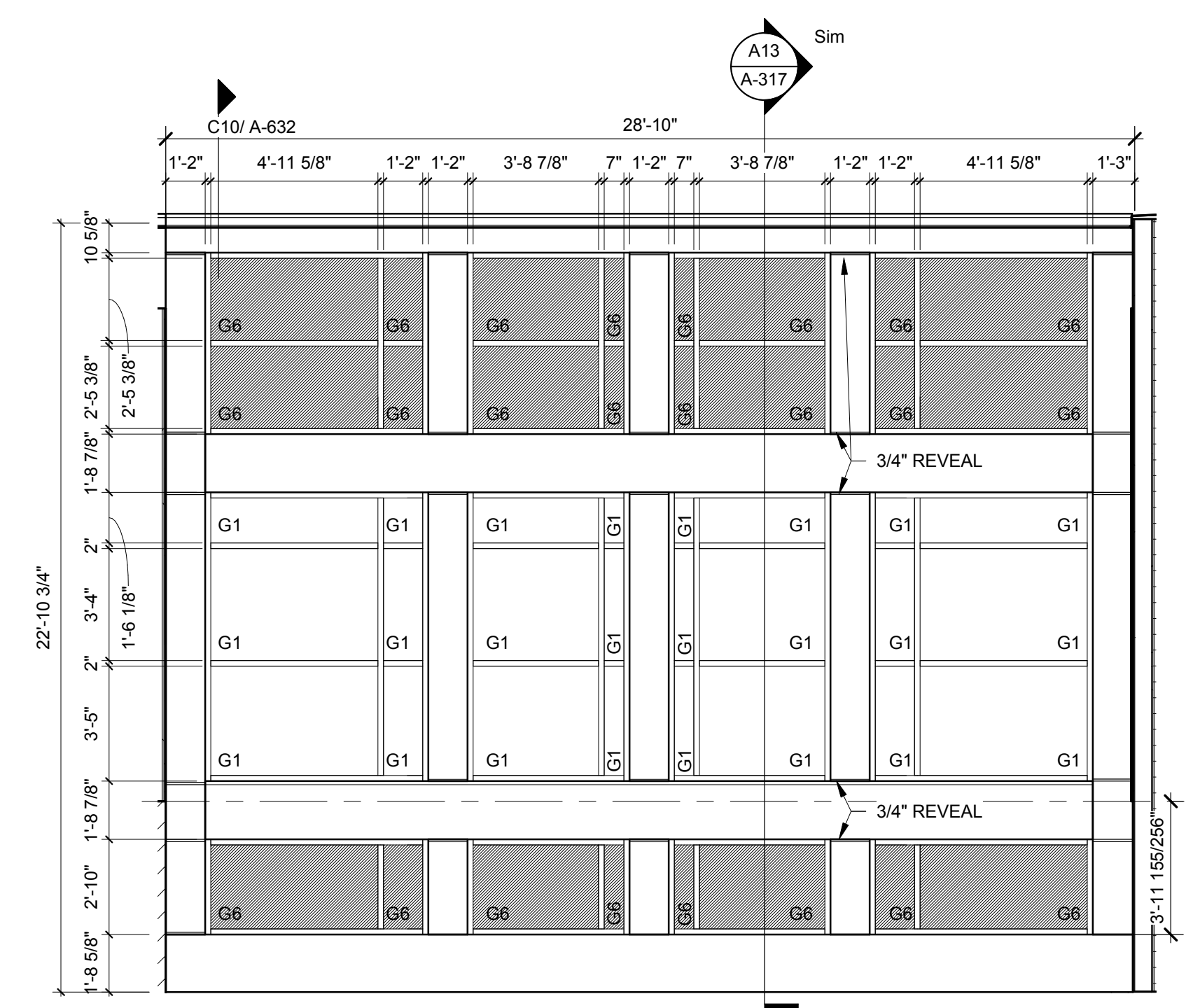
No.	Description	Date
1	Addendum #1	6-7-2018

ISSUED: CONSTRUCTION DOCUMENTS

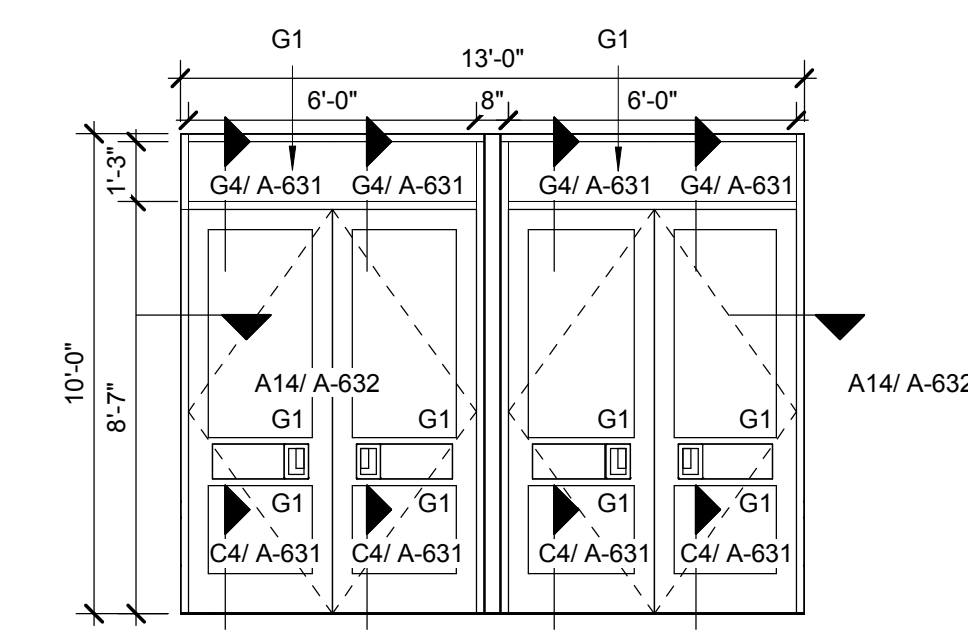
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SHEET NUMBER:

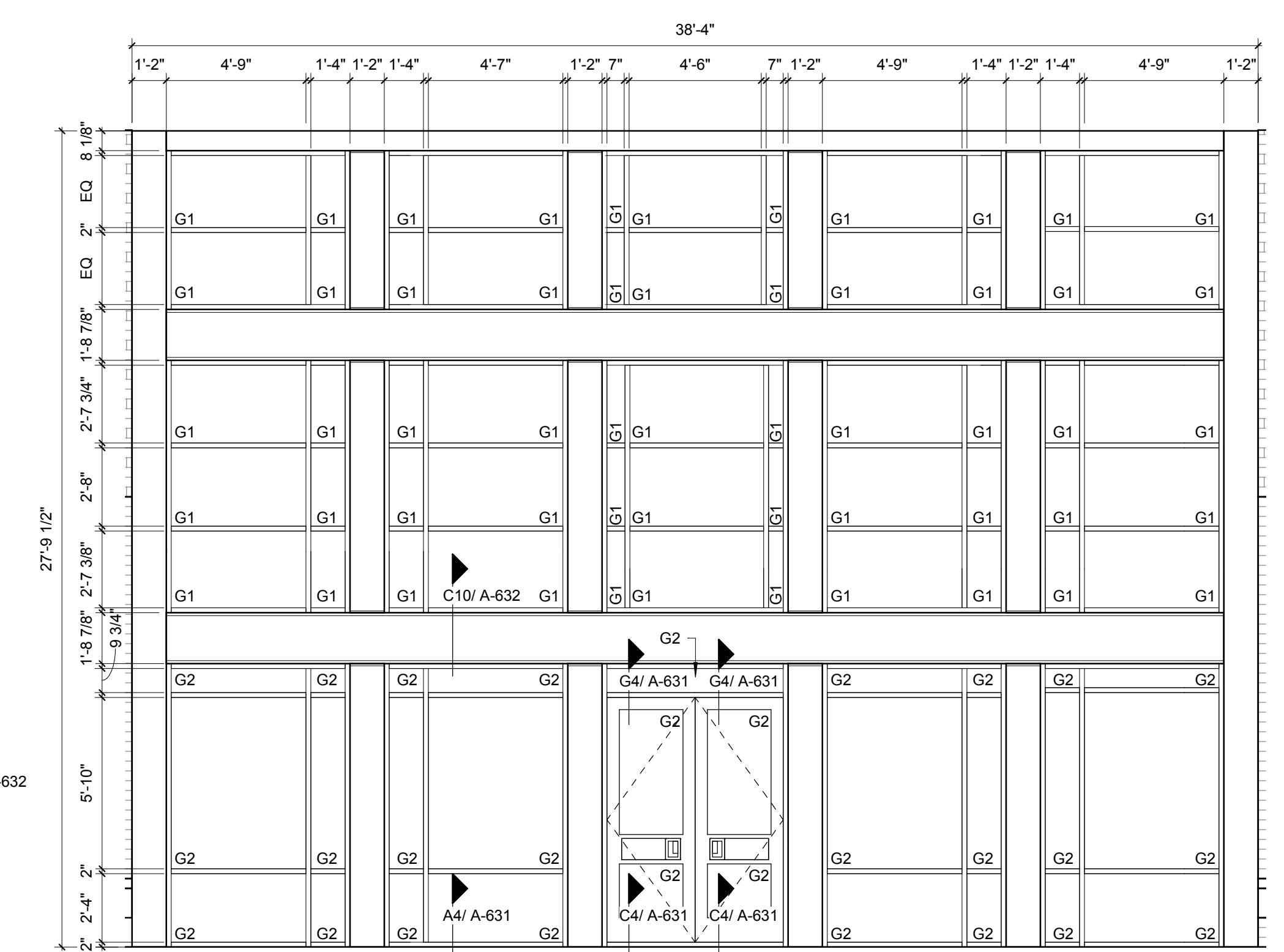
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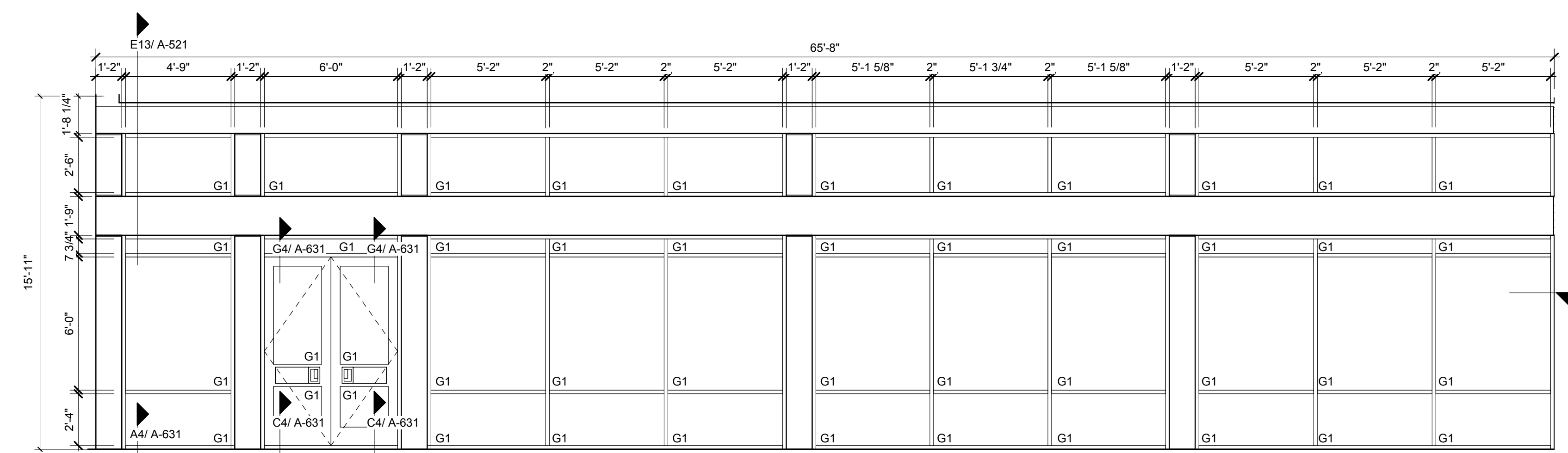
SF Y - RESOURCE ROOM
1/4" = 1'-0" **J4**



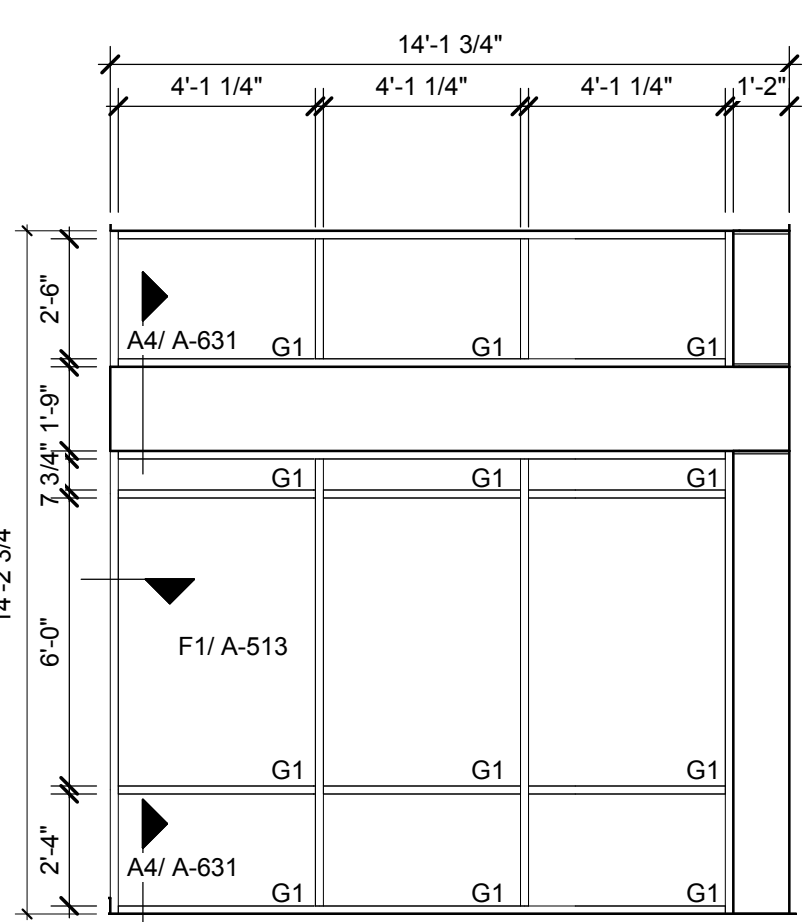
SF W COMMUNITY STAIR
1/4" = 1'-0" **J1**



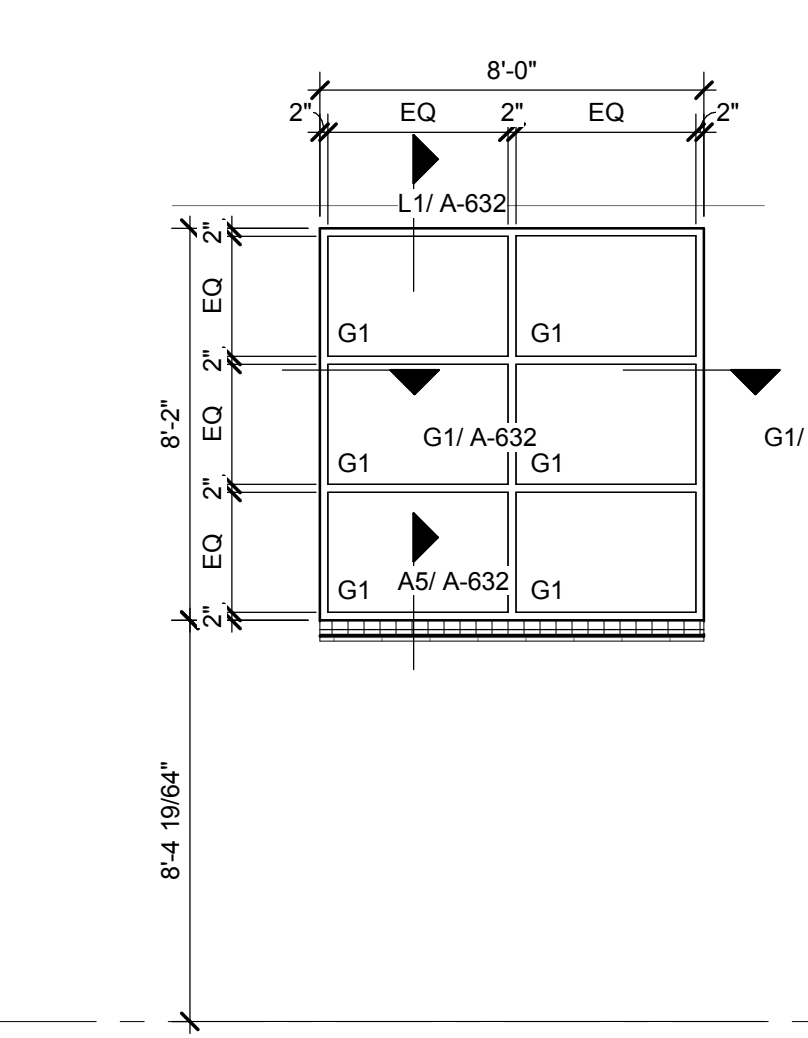
SF T - WEST ENTRY
1/4" = 1'-0" **D1**



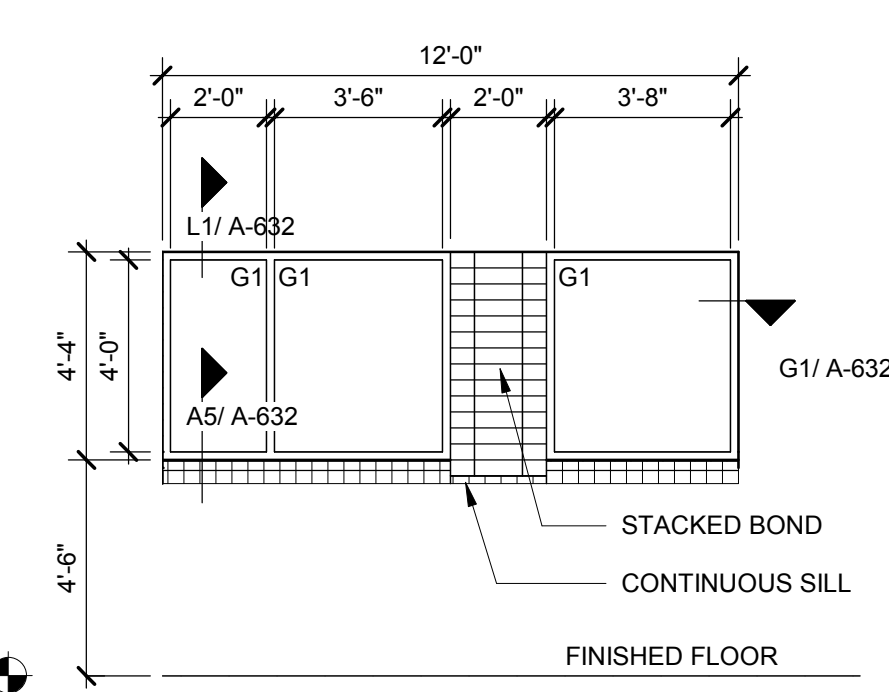
SF U - DINING, SOUTH SIDE
1/4" = 1'-0" **D7**



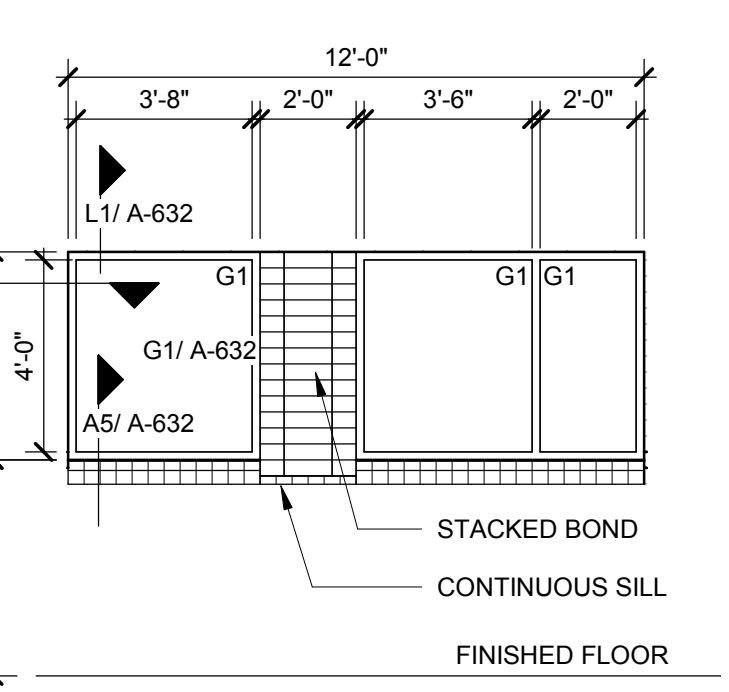
SF V - DINING, W. SIDE
1/4" = 1'-0" **D16**



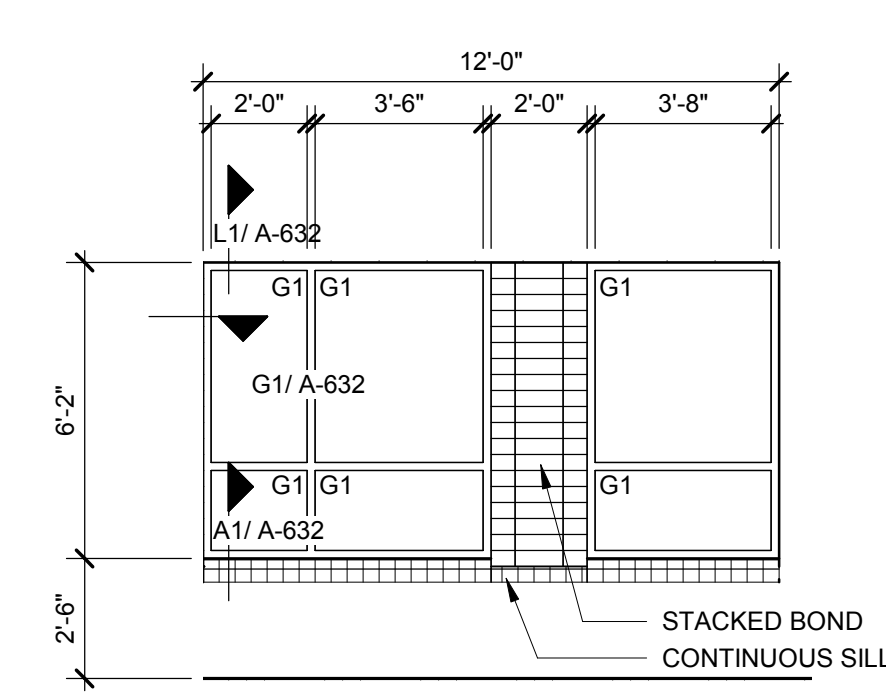
SF R - CLASS 2807
1/4" = 1'-0" **A13**



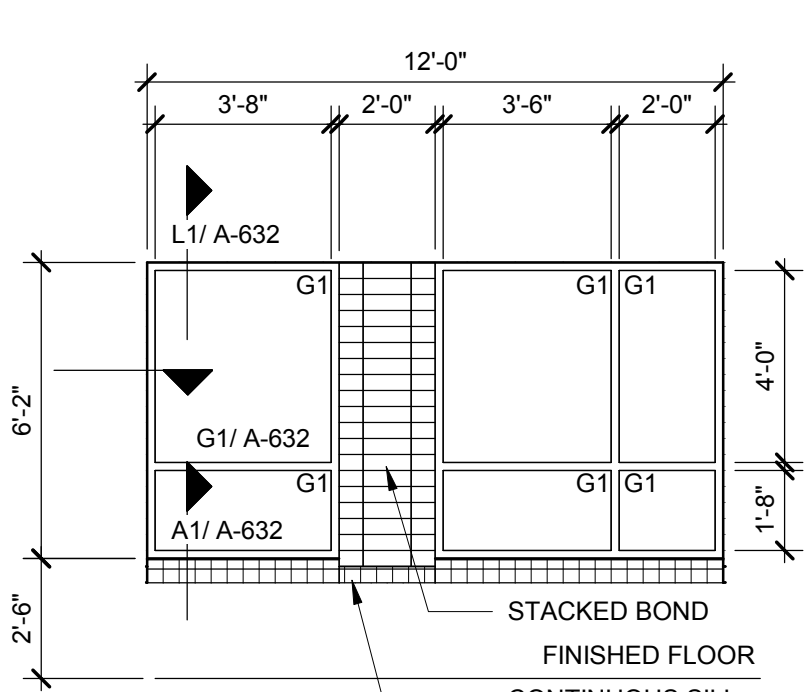
SF Q - LABS
1/4" = 1'-0" **A9**



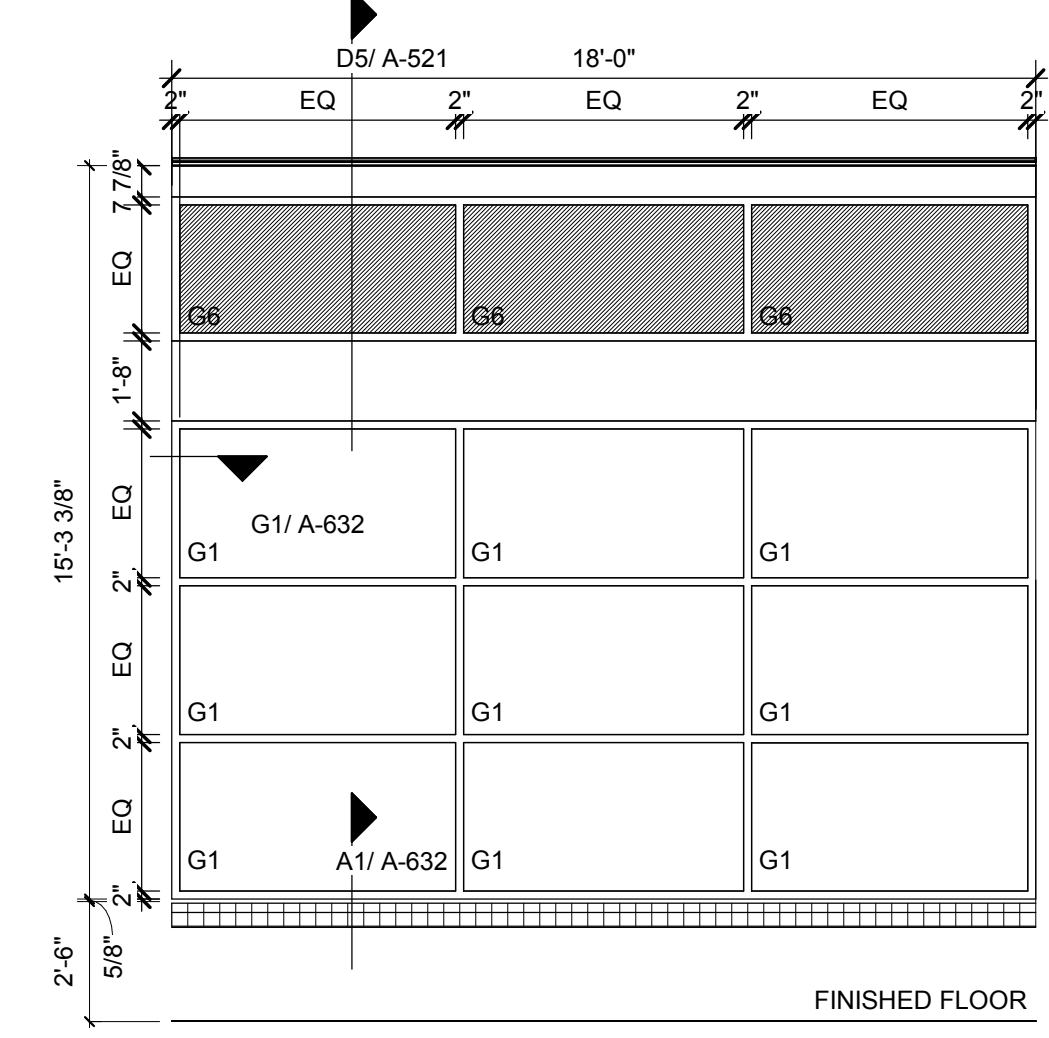
SF P - CLASS WING
1/4" = 1'-0" **A3**



SF N - CLASS WING
1/4" = 1'-0" **A1**



SF S - MUSIC, ART
1/4" = 1'-0" **A16**

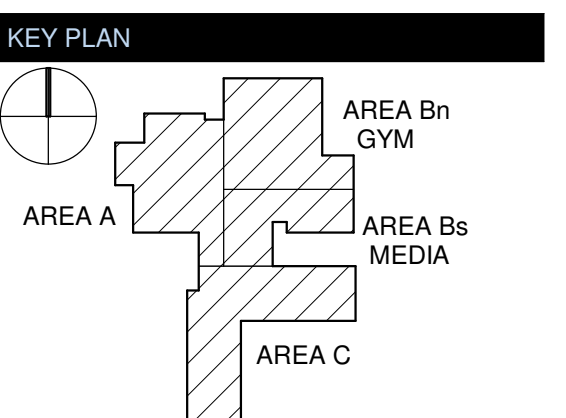


SF S - MUSIC, ART
1/4" = 1'-0" **A16**



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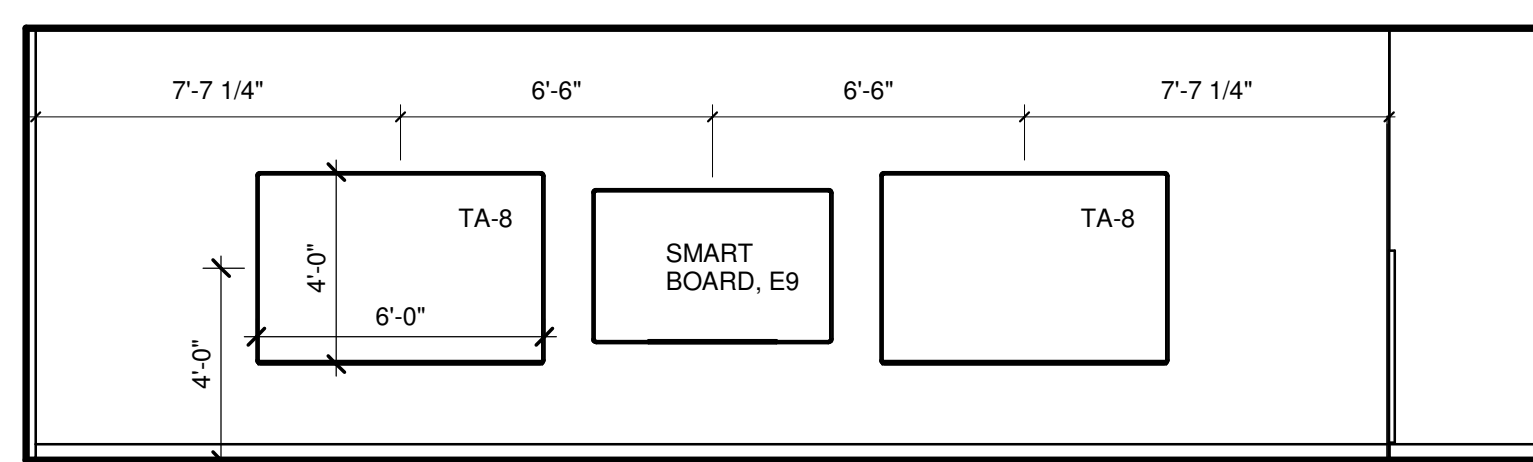


No.	Description	Date
2	Addendum #2	6-19-2018

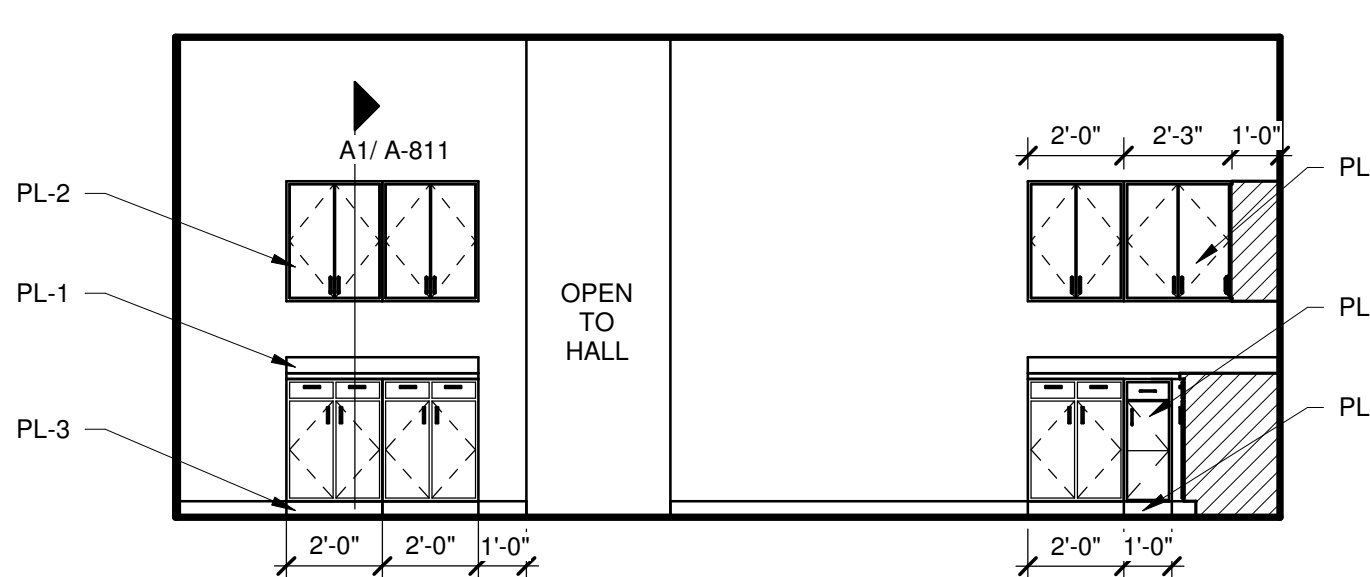
ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE: 1/4" = 1'-0"
SHEET NAME: INTERIOR ELEVATIONS

SHEET NUMBER:

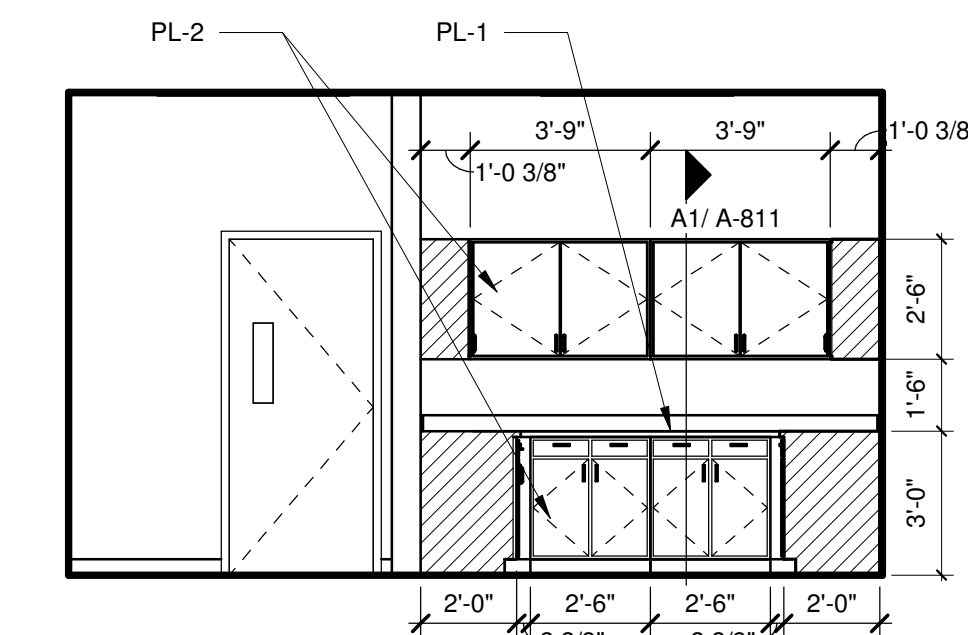
A-801



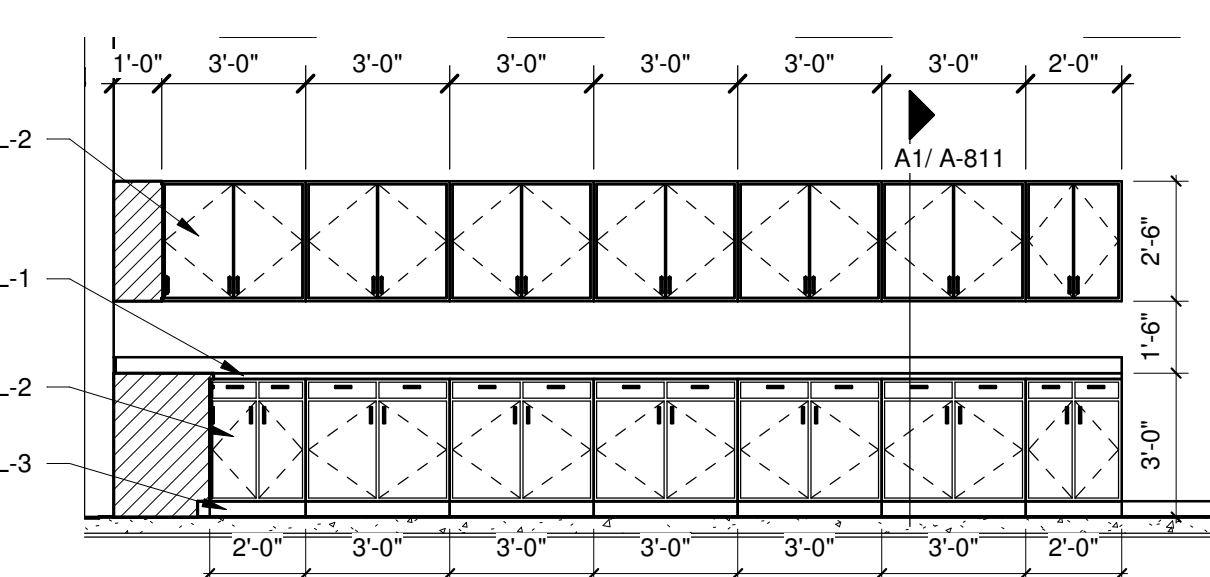
CTE L12
1/4" = 1'-0"



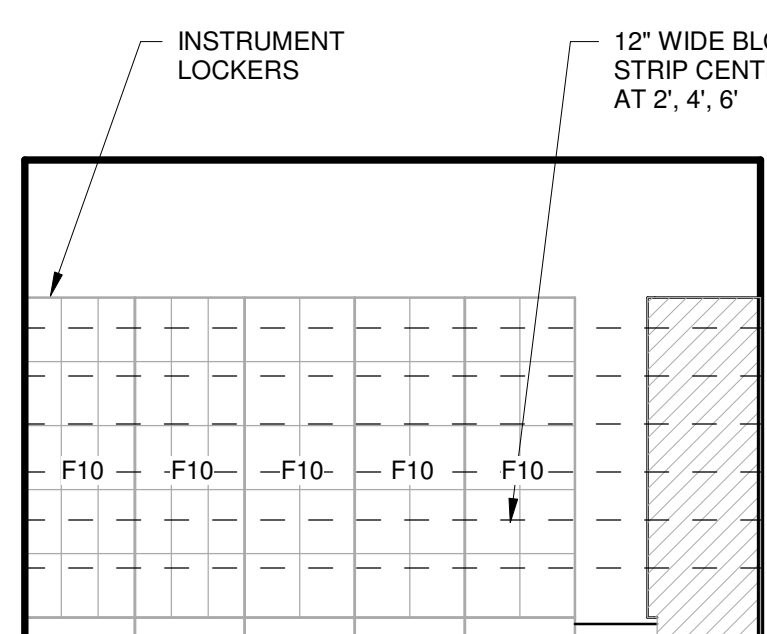
WORKROOM 1508 L8
1/4" = 1'-0"



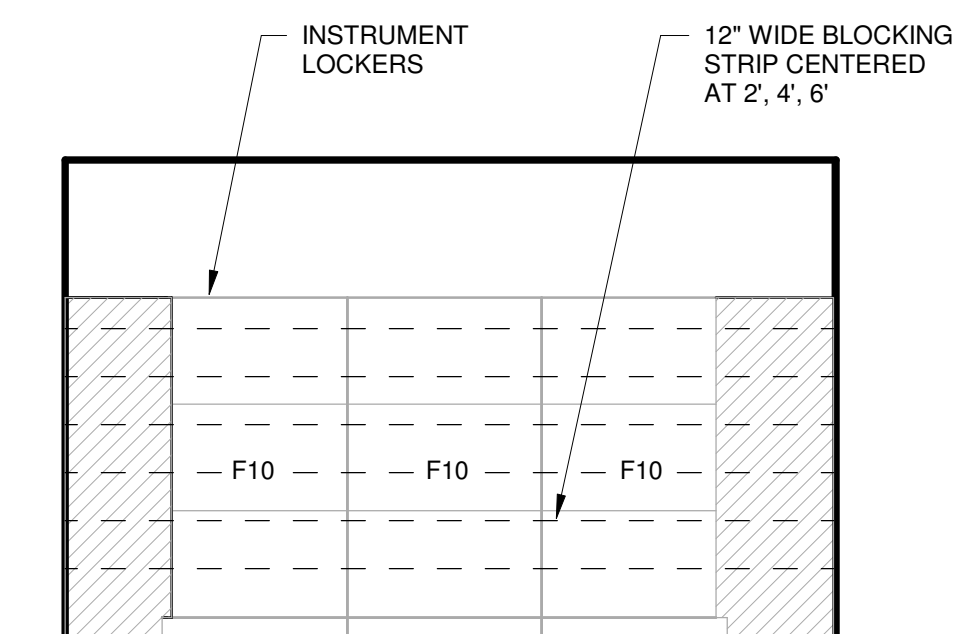
WORKROOM 1508 L5
1/4" = 1'-0"



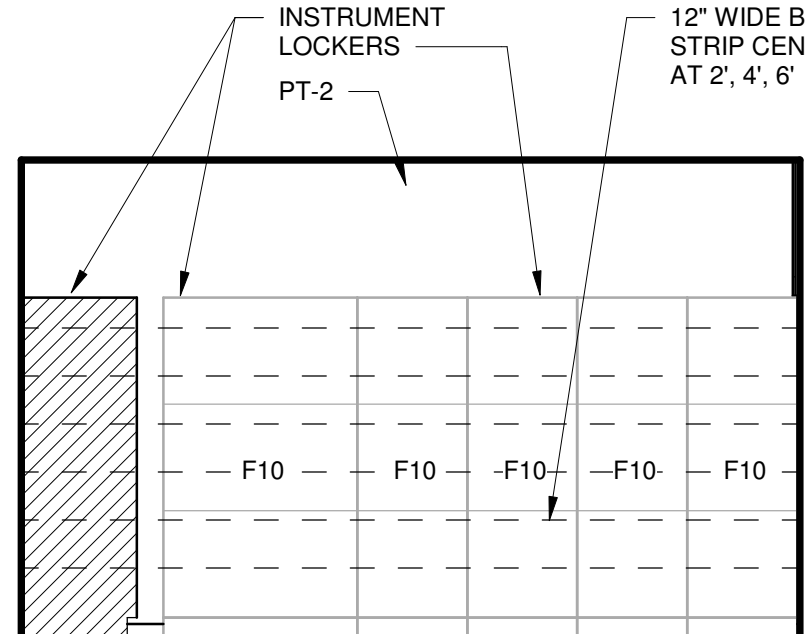
WORKROOM 1508 L1
1/4" = 1'-0"



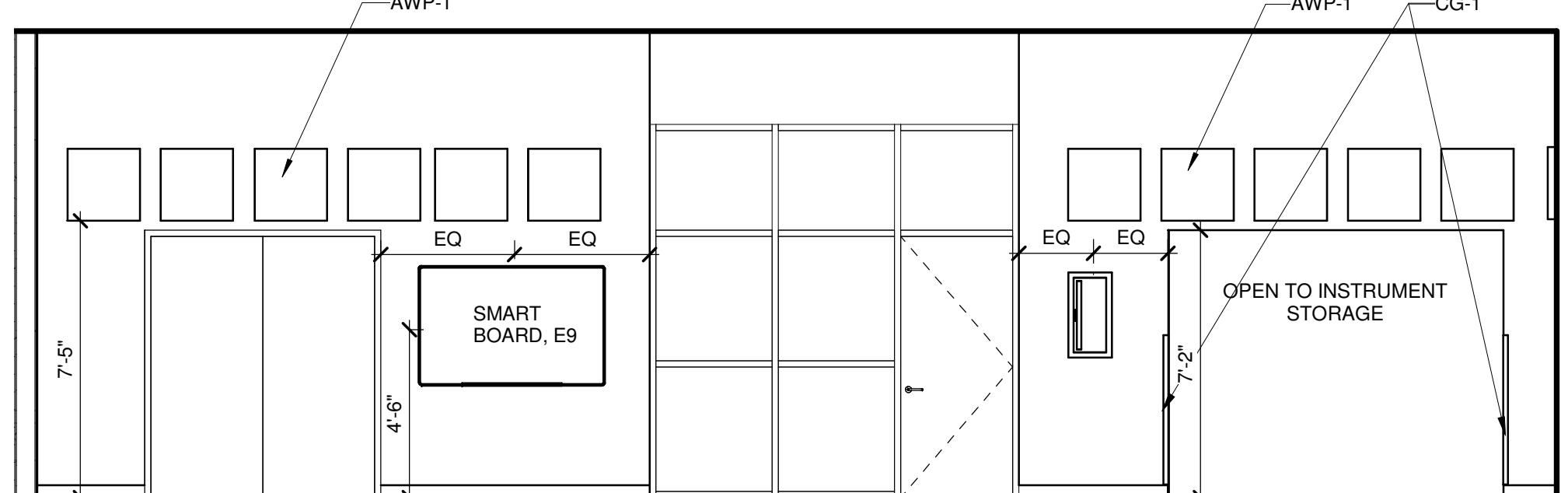
INSTRUMENT STORAGE J16
1/4" = 1'-0"



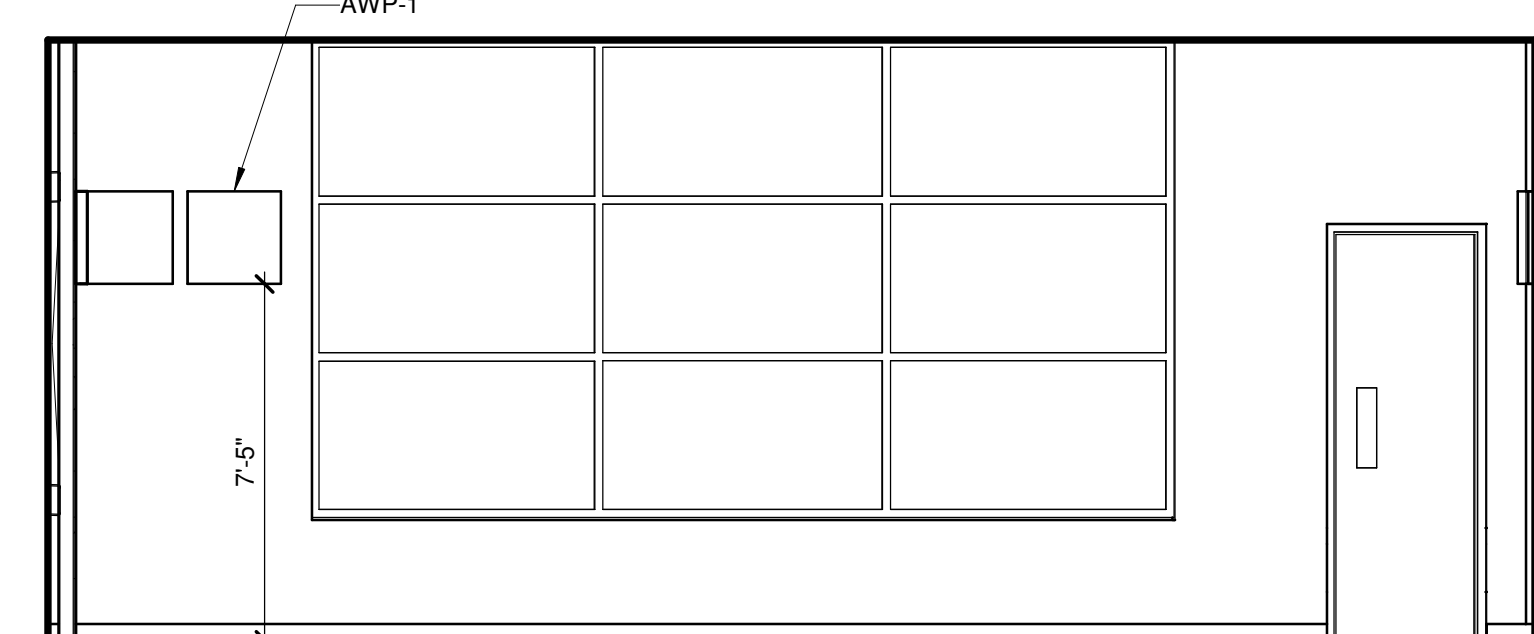
INSTRUMENT STORAGE J14
1/4" = 1'-0"



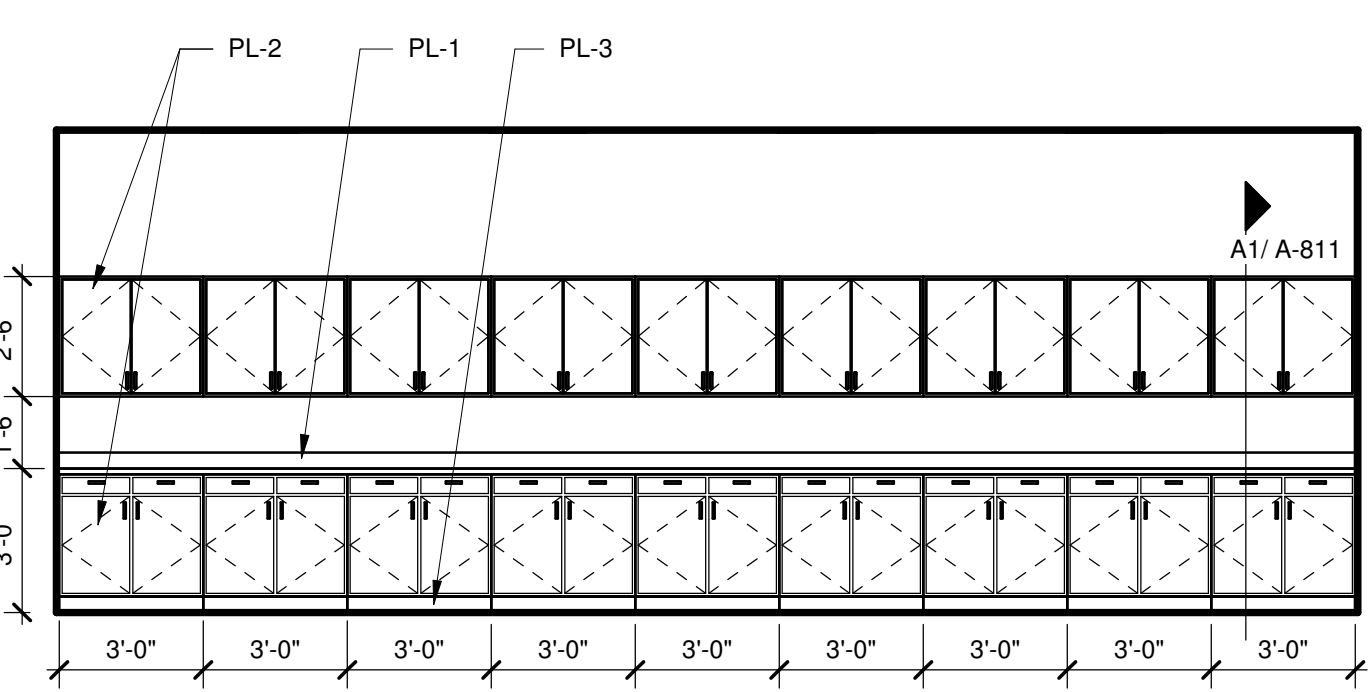
INSTRUMENT STORAGE J11
1/4" = 1'-0"



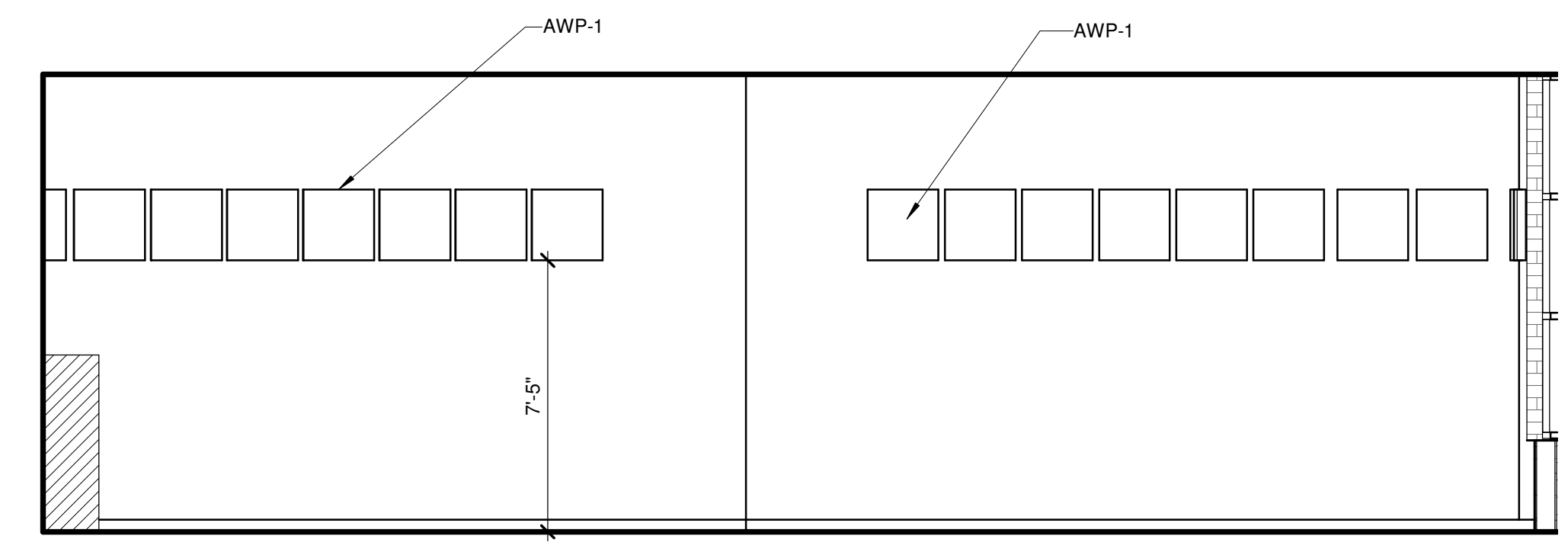
INSTRUMENTAL MUSIC J5
1/4" = 1'-0"



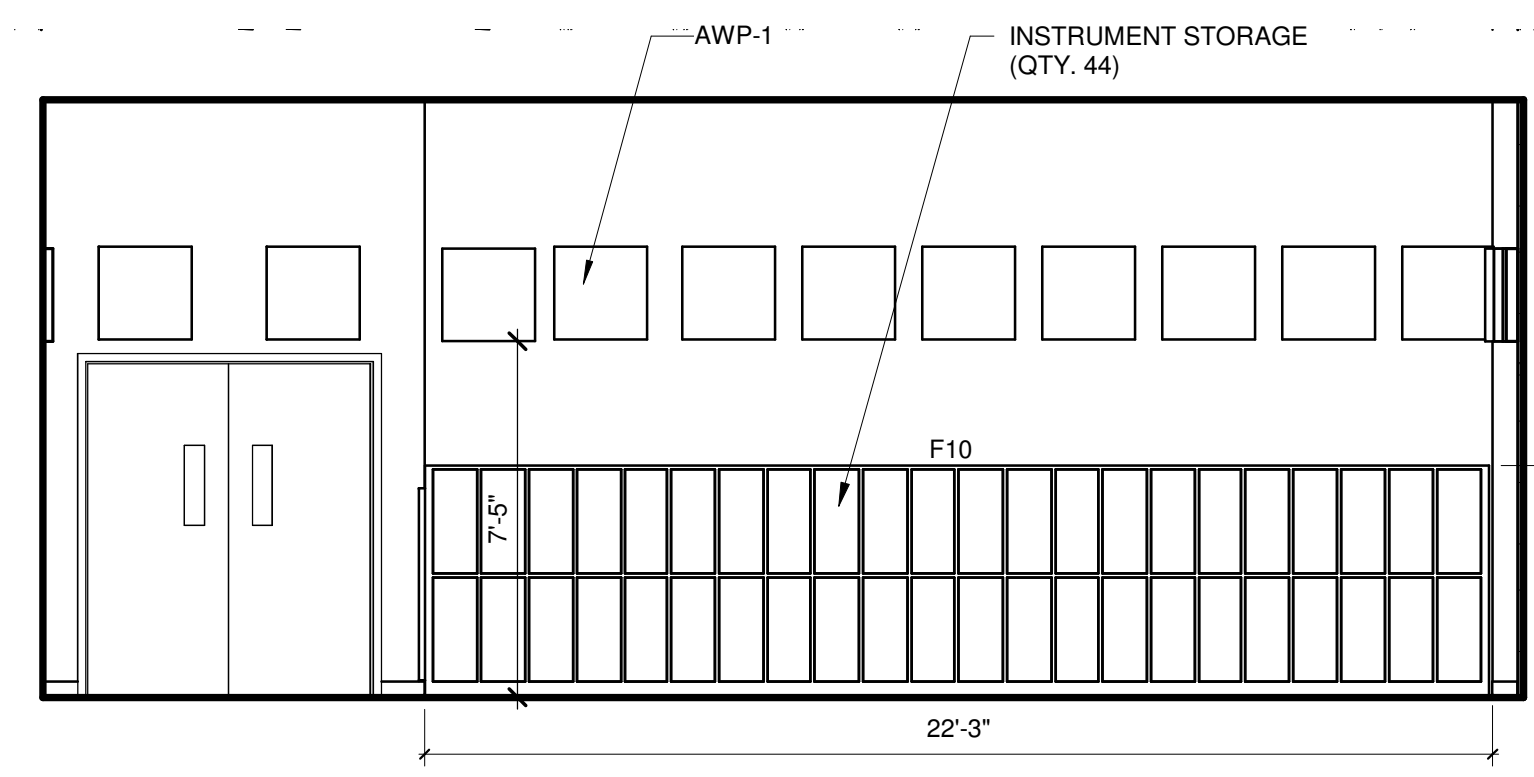
INSTRUMENTAL MUSIC J1
1/4" = 1'-0"



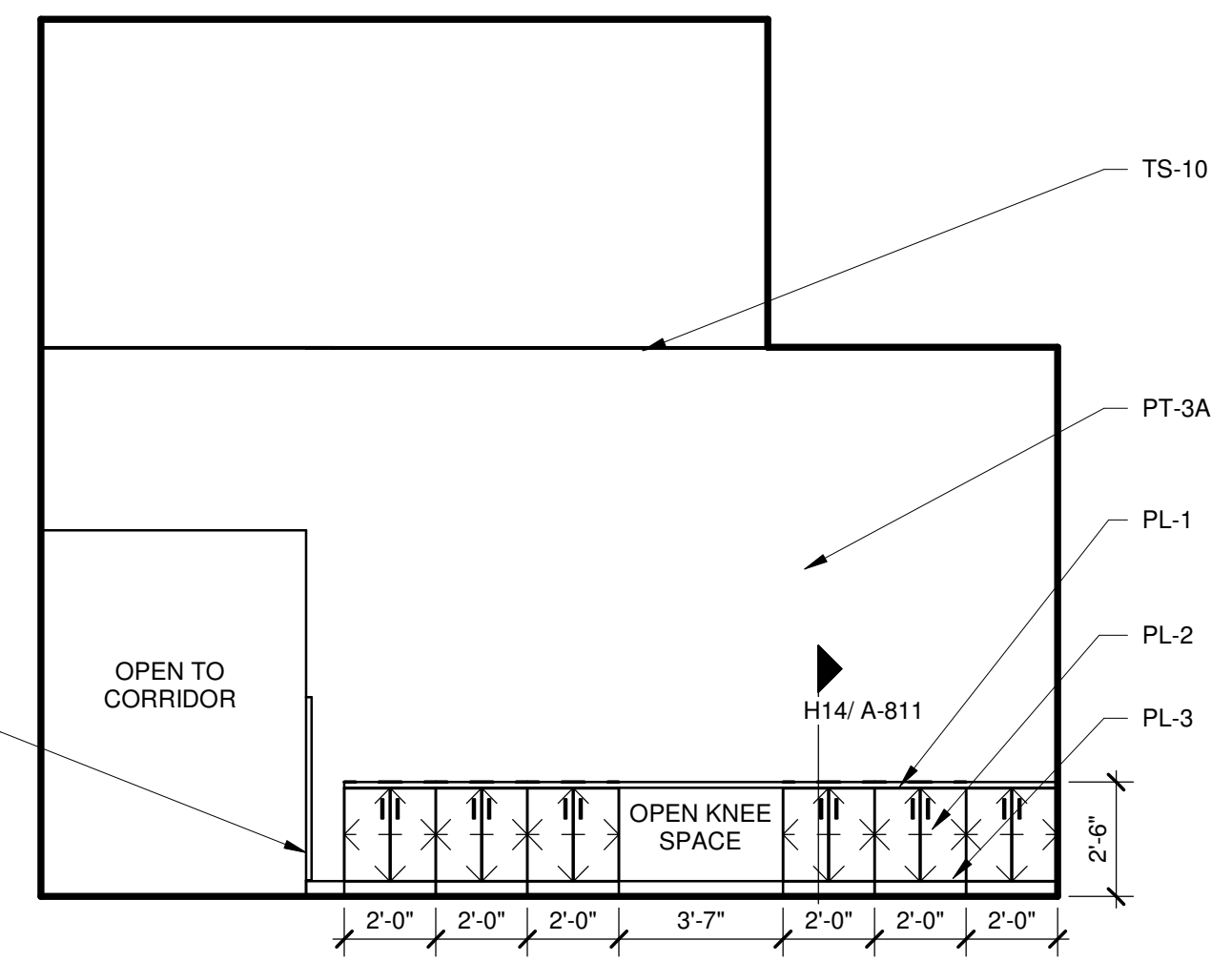
WORKROOM 1103 F14
1/4" = 1'-0"



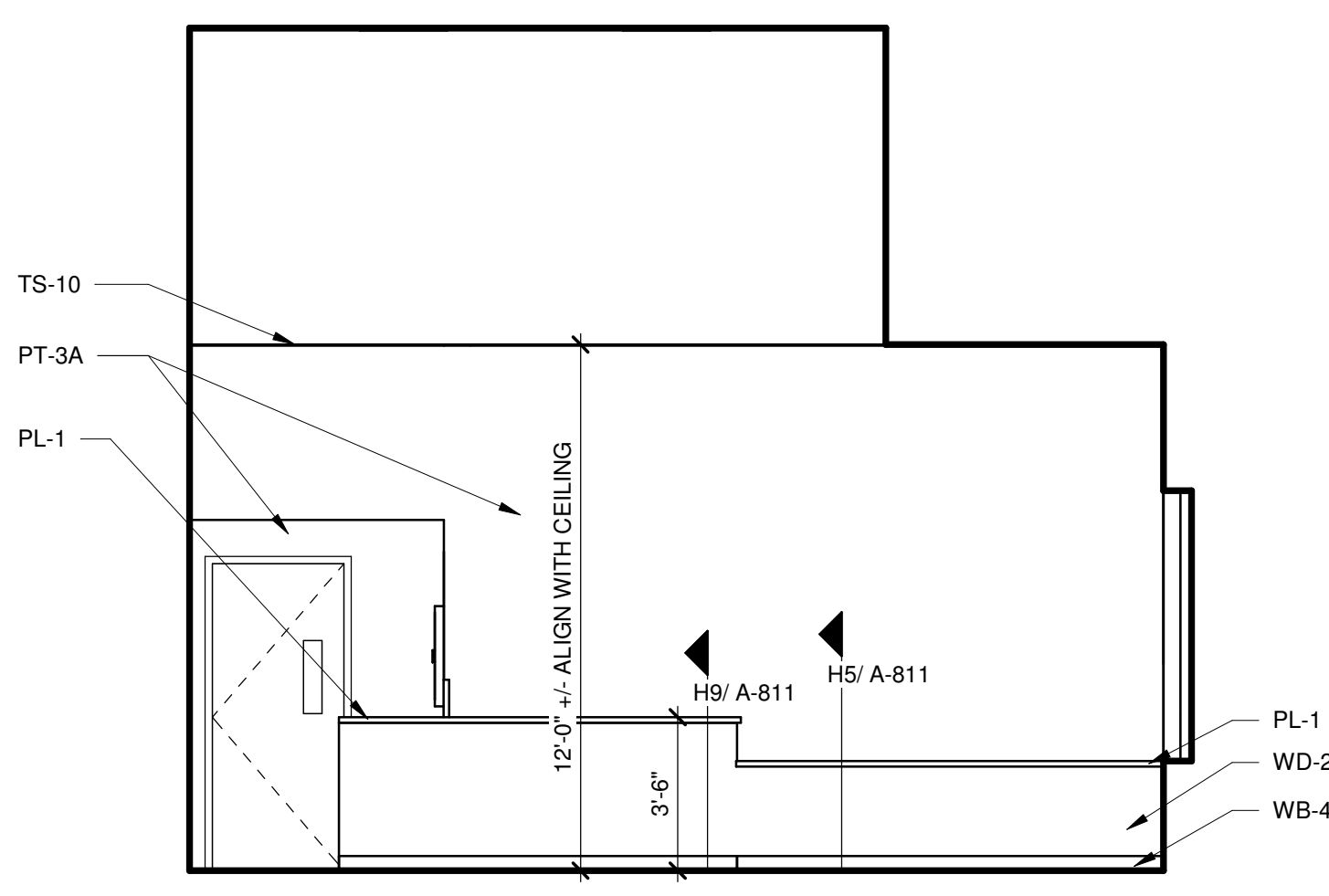
INSTRUMENTAL MUSIC F7
1/4" = 1'-0"



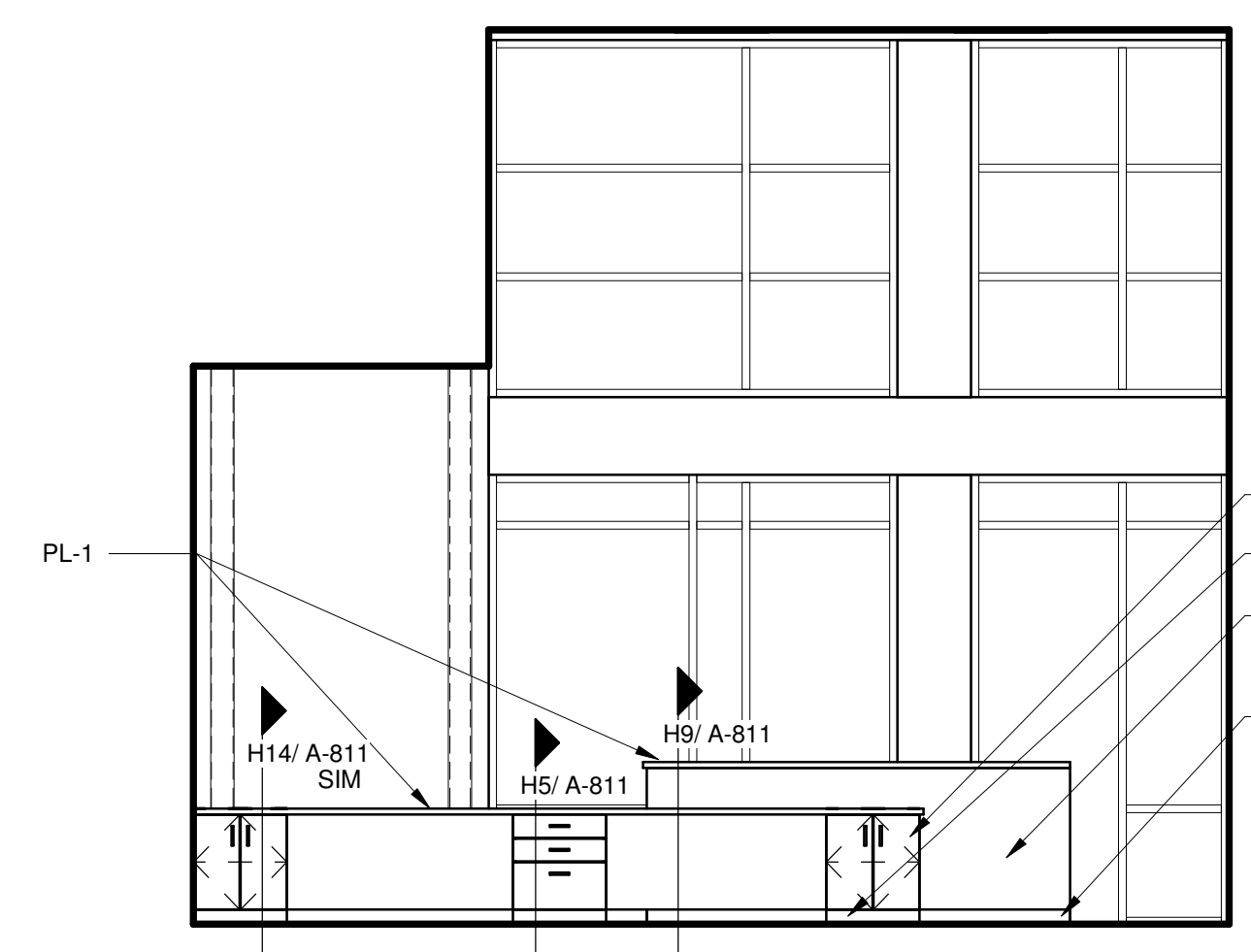
INSTRUMENTAL MUSIC F1
1/4" = 1'-0"



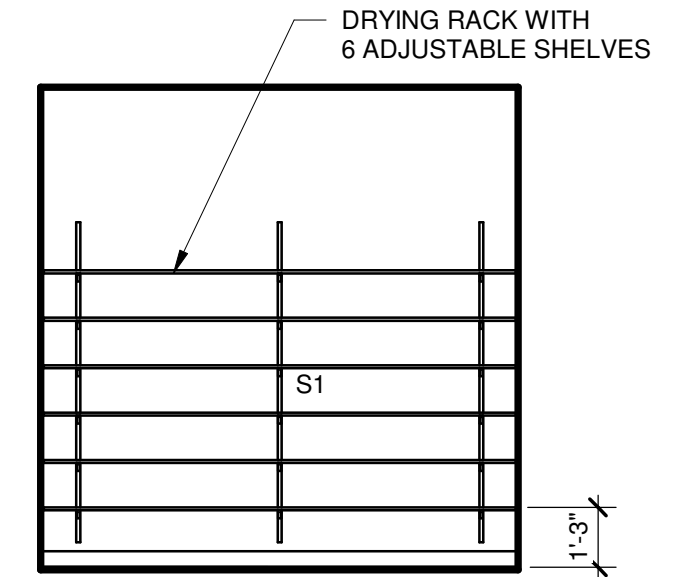
RECEPTION C14
1/4" = 1'-0"



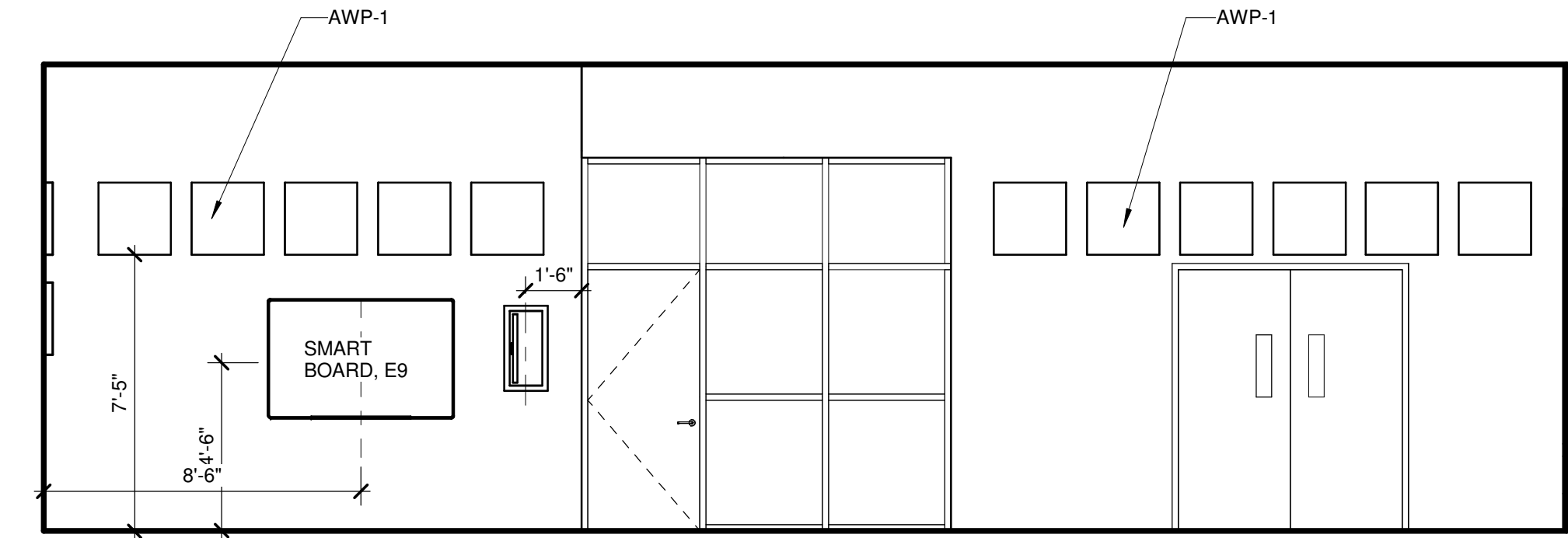
RECEPTION C9
1/4" = 1'-0"



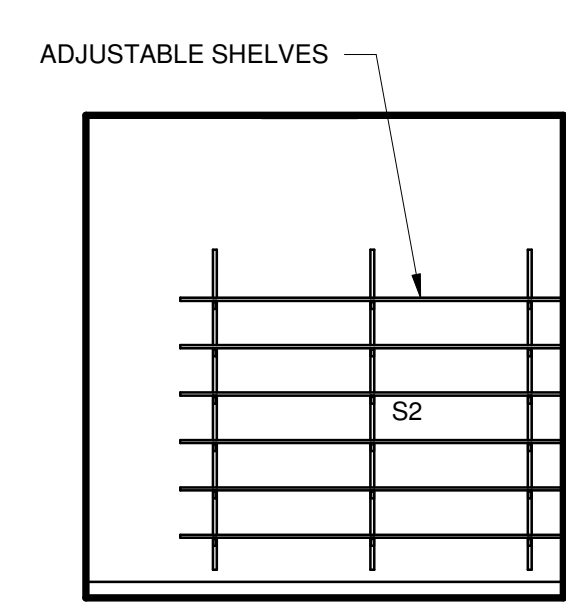
RECEPTION C4
1/4" = 1'-0"



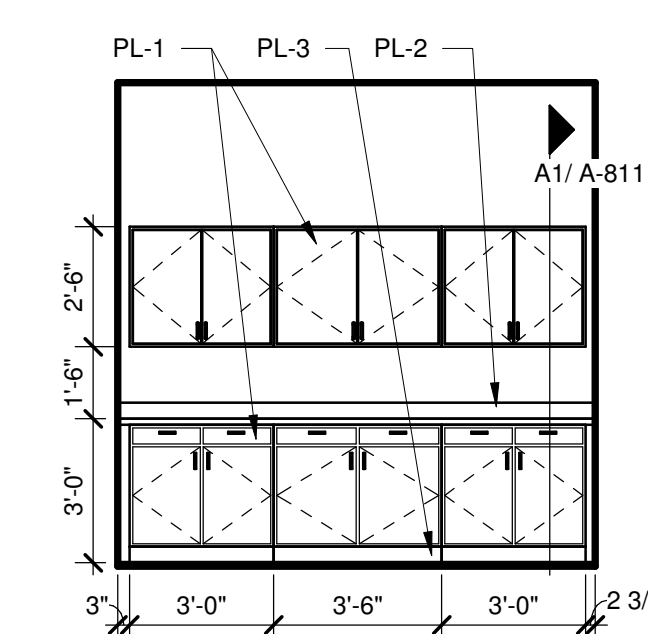
KILN C1
1/4" = 1'-0"



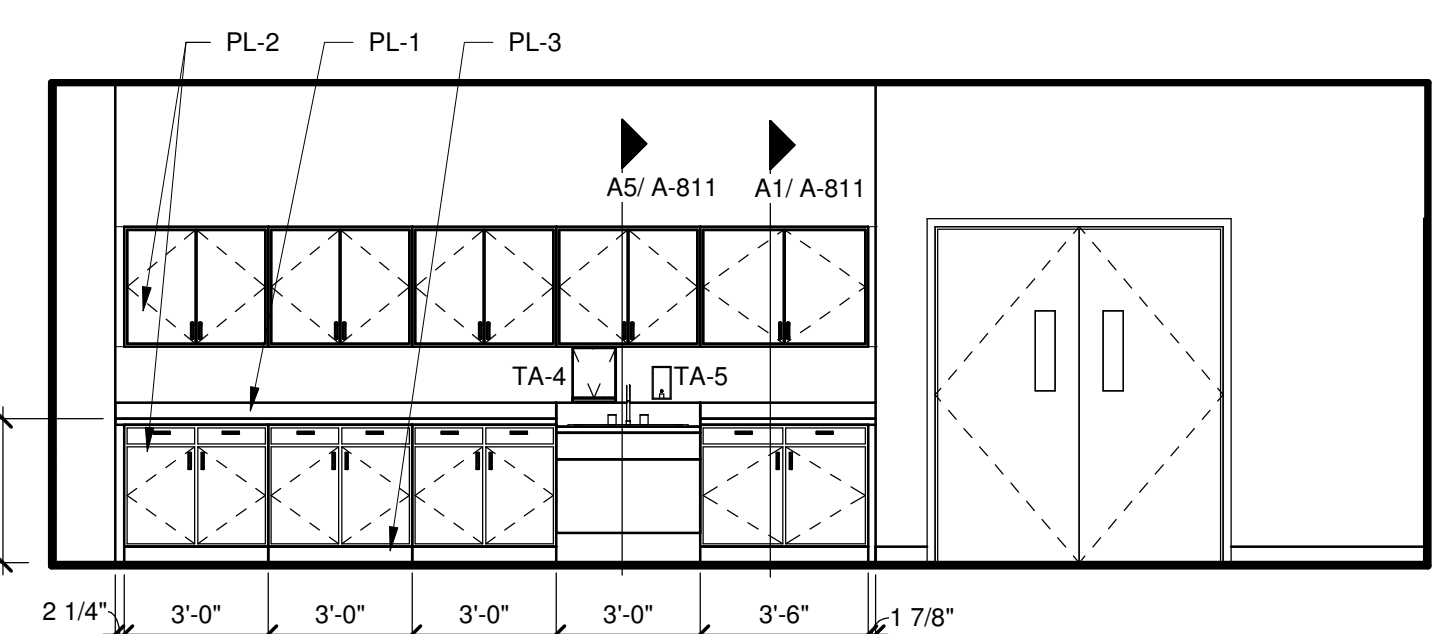
VOCAL MUSIC A14
1/4" = 1'-0"



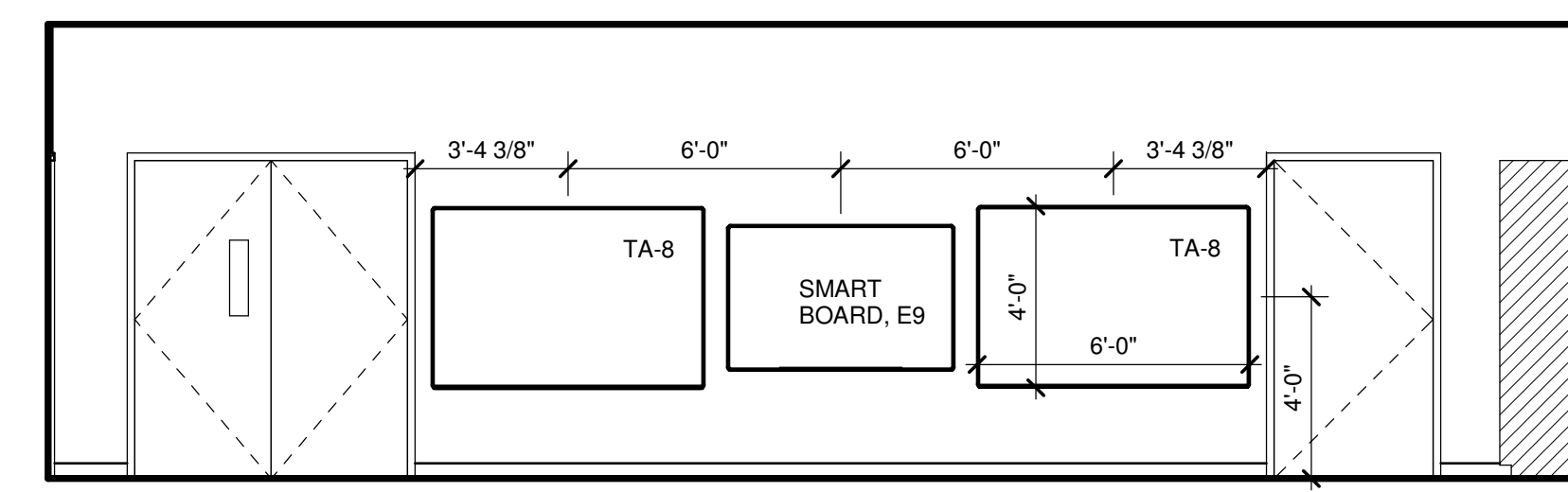
ART STORAGE A13
1/4" = 1'-0"



ART STORAGE A11
1/4" = 1'-0"



ART A6
1/4" = 1'-0"

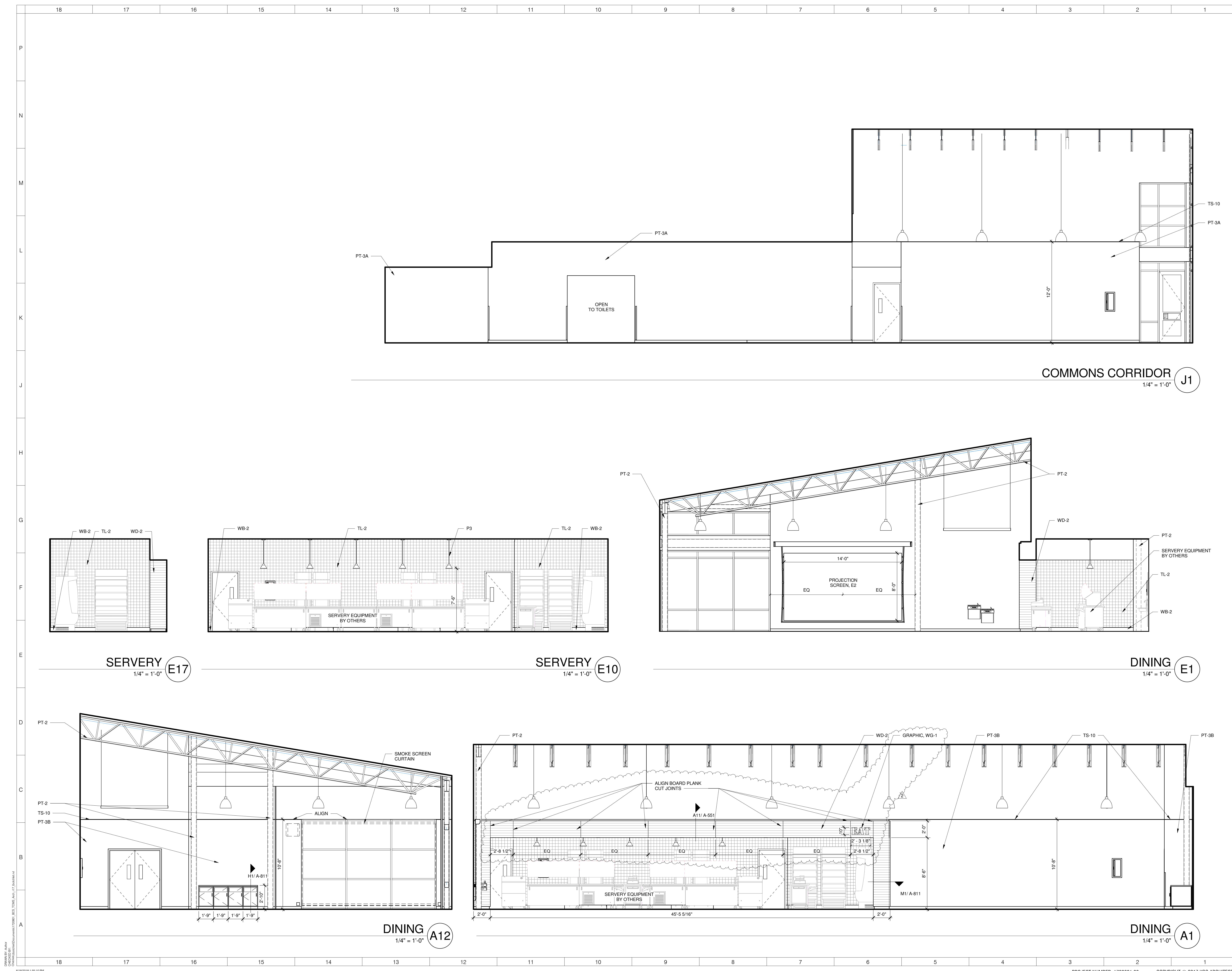


ART A1
1/4" = 1'-0"

P
N
M
L
K
J
H
G
F
E
D
C
B
A

18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1



COMMONS CORRIDOR J1
1/4" = 1'-0"

SERVERY E17
1/4" = 1'-0"

SERVERY E10
1/4" = 1'-0"

DINING E1
1/4" = 1'-0"

DINING A12
1/4" = 1'-0"

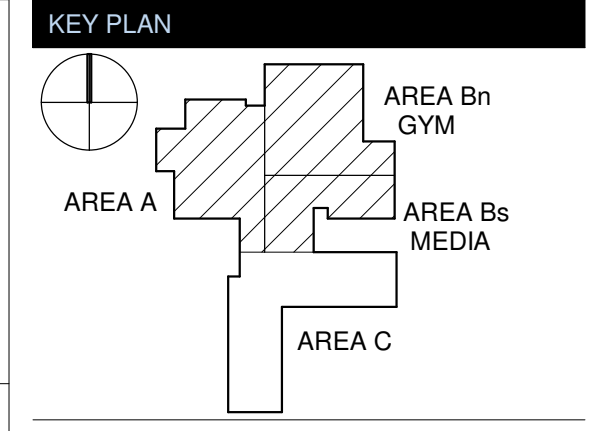
DINING A1
1/4" = 1'-0"

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TOWN CREEK MIDDLE SCHOOL

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REVISIONS

No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

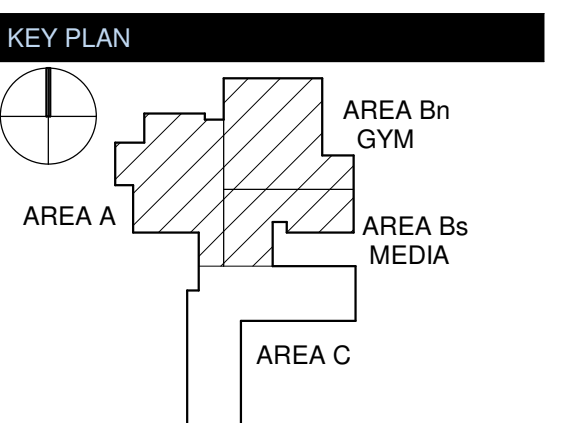
ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE: 1/4" = 1'-0"
SHEET NAME: INTERIOR ELEVATIONS
SHEET NUMBER:

A-804



TOWN CREEK MIDDLE SCHOOL

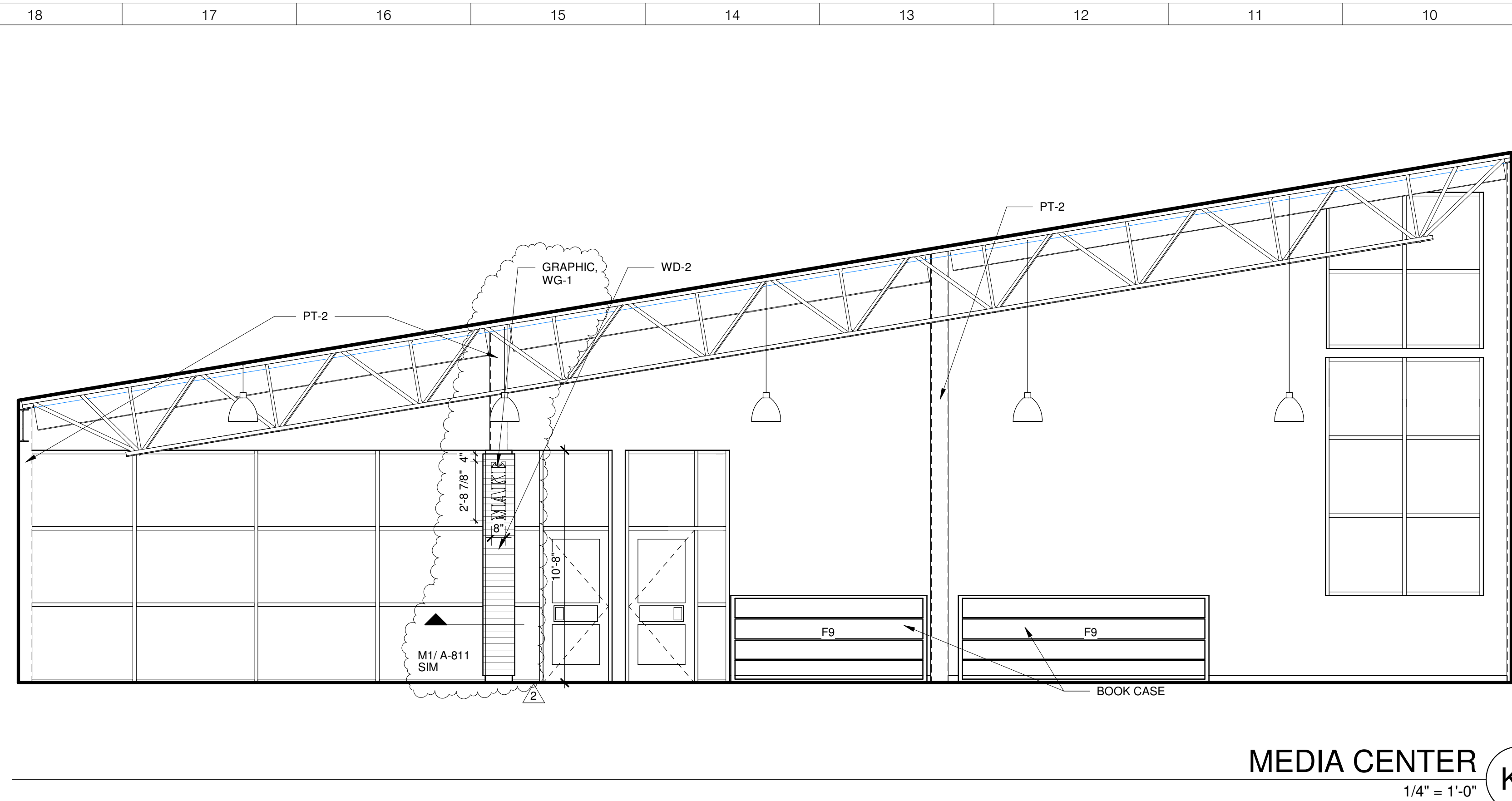
6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479



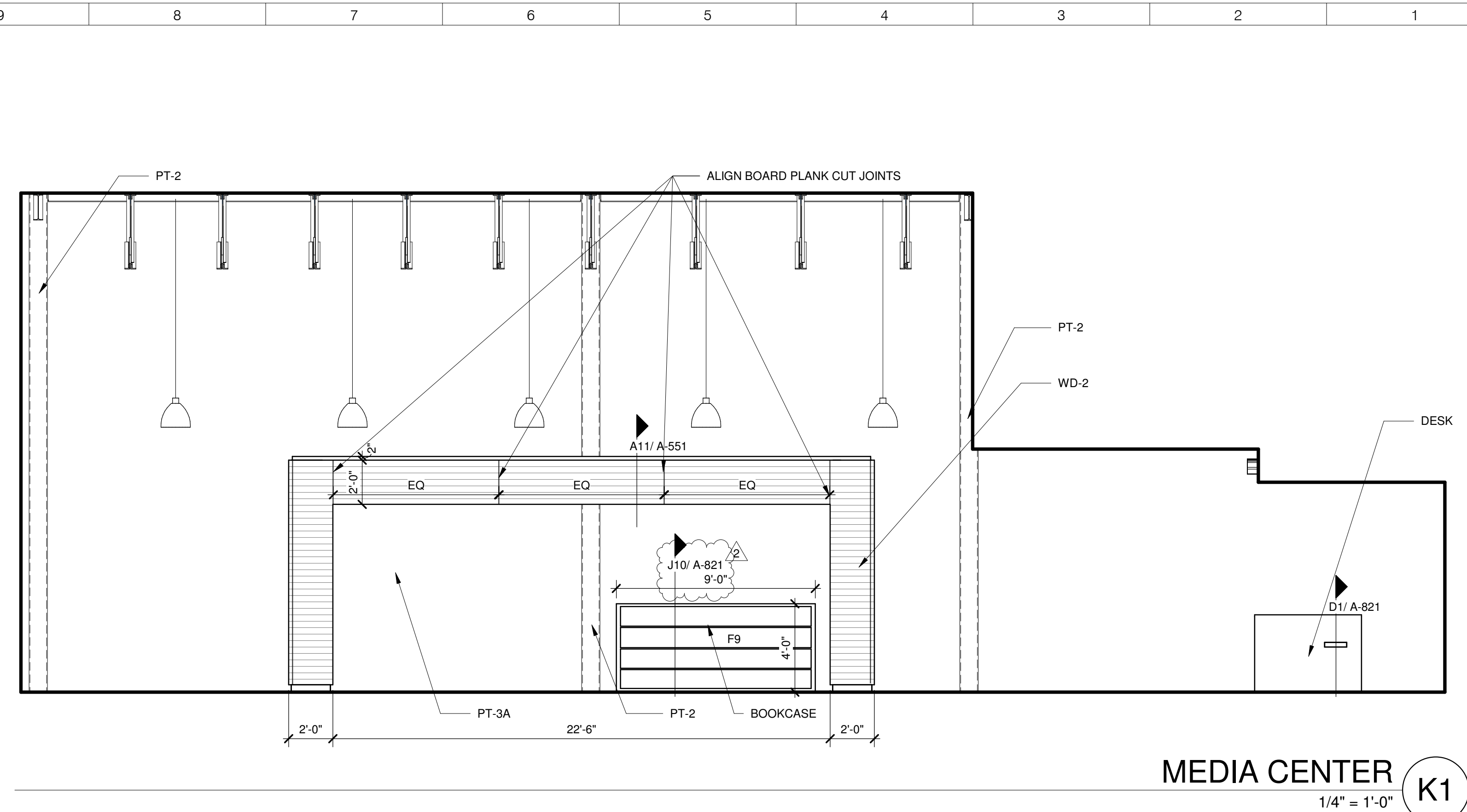
No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS

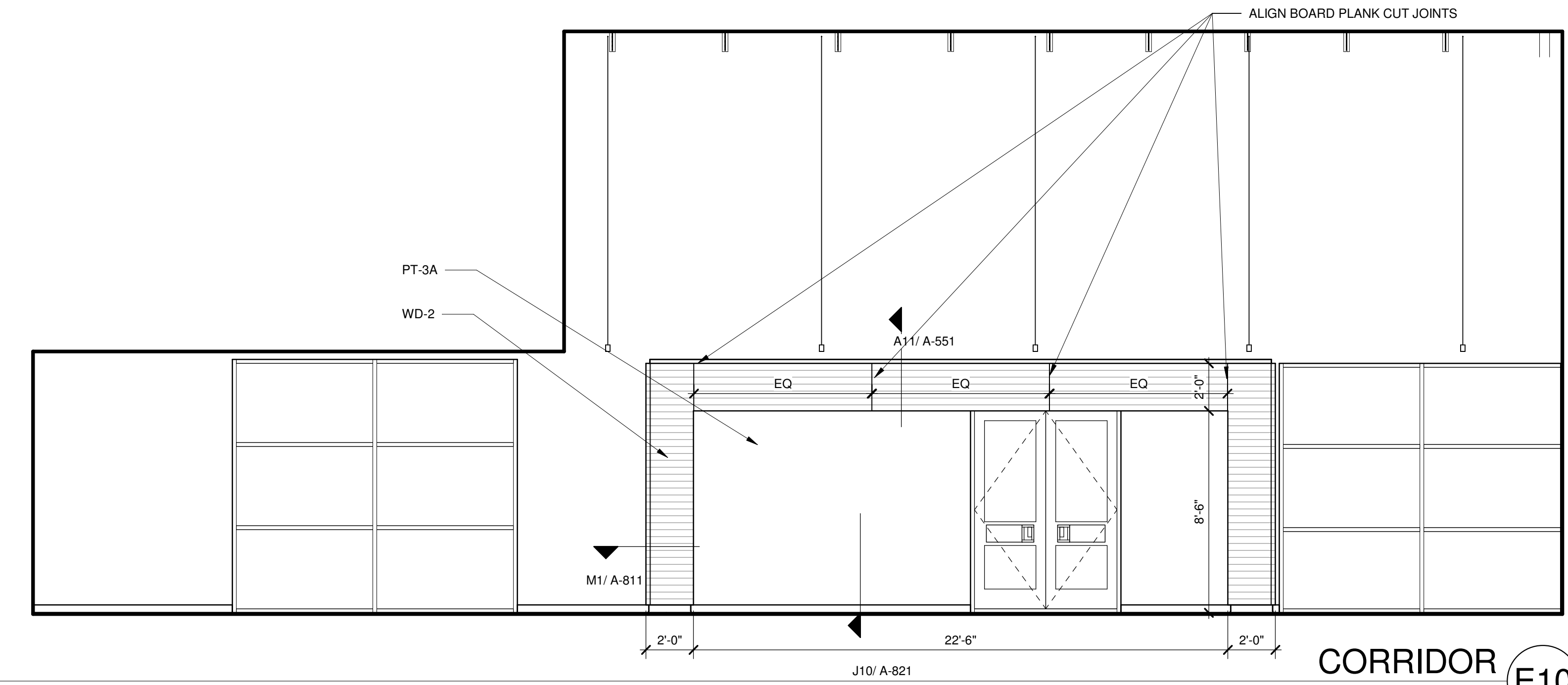
DATE: 05/24/2018
SCALE: 1/4" = 1'-0"
SHEET NAME: INTERIOR ELEVATIONS
SHEET NUMBER:



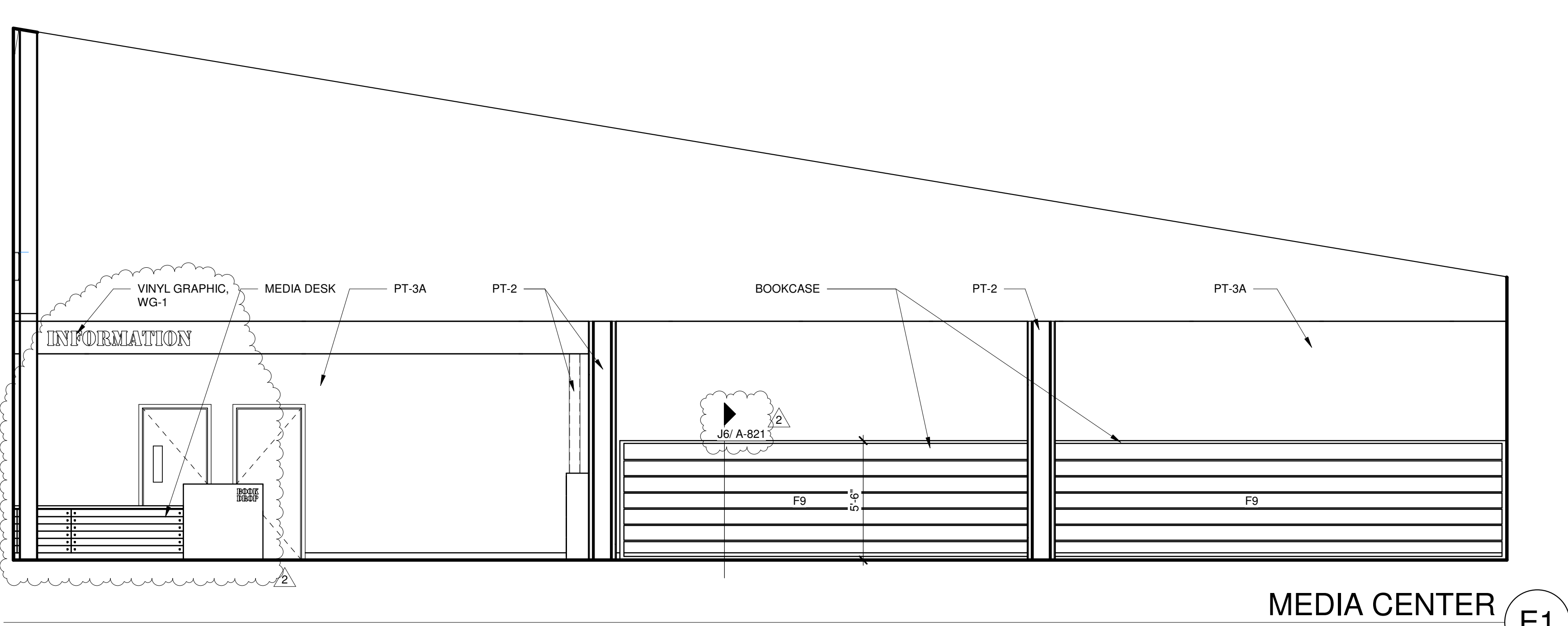
MEDIA CENTER K9
1/4" = 1'-0"



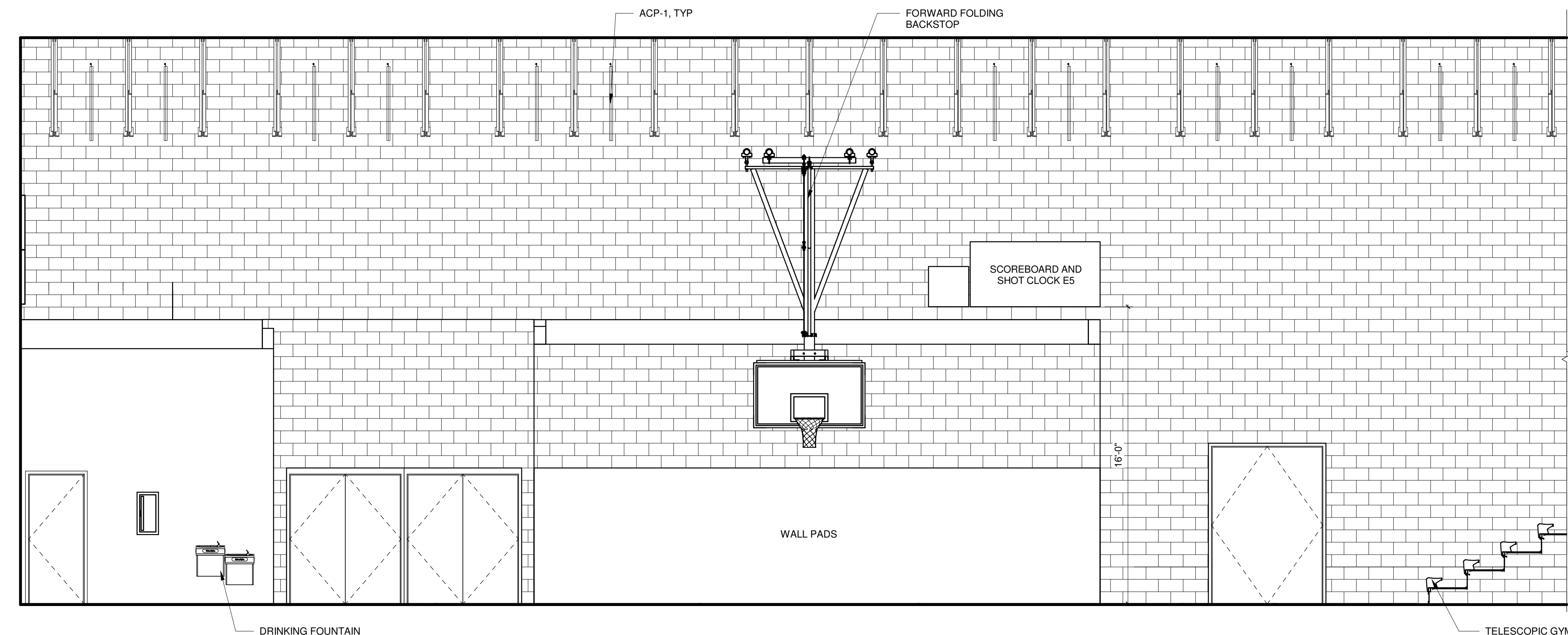
MEDIA CENTER K1
1/4" = 1'-0"



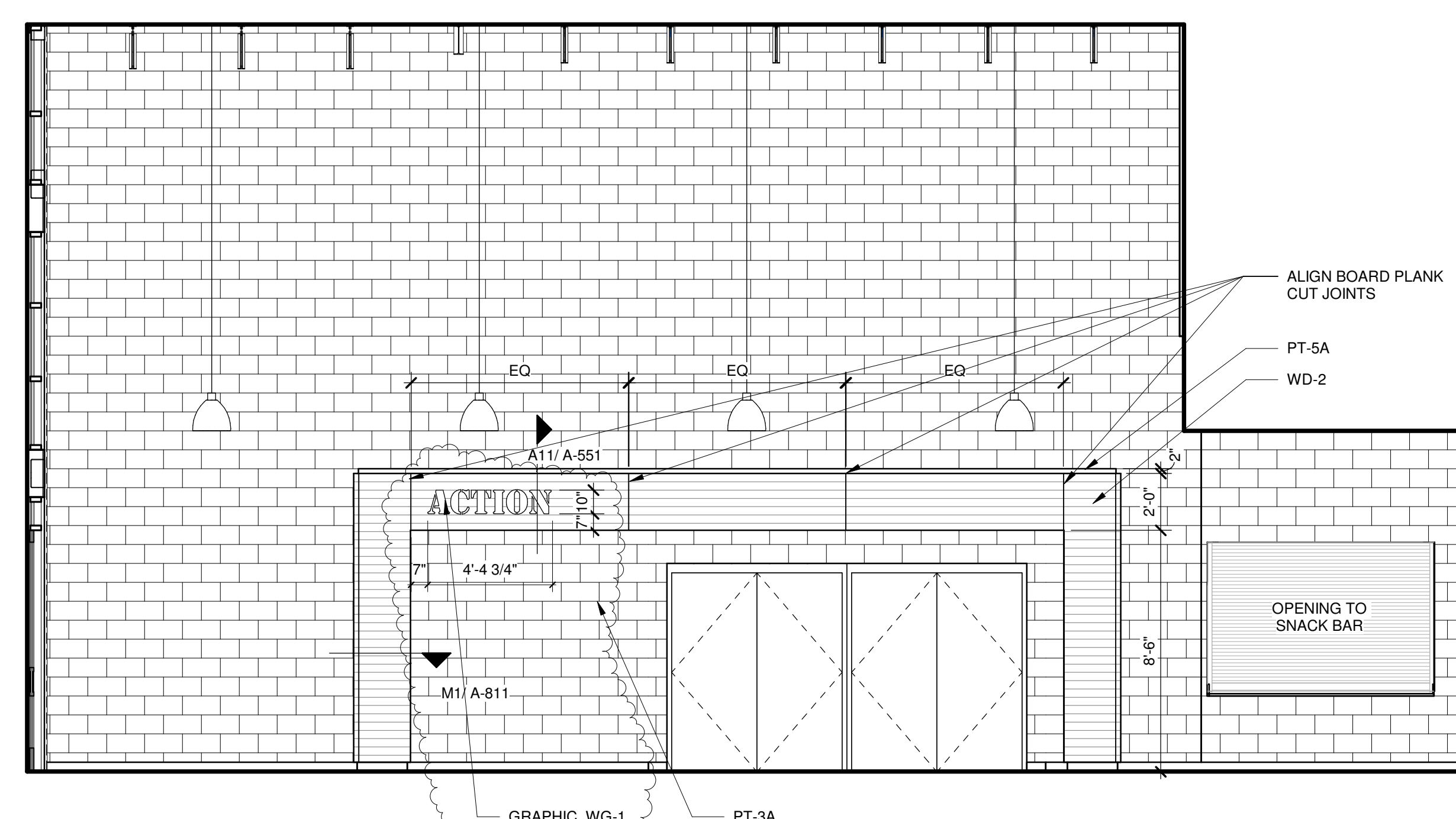
CORRIDOR E10
1/4" = 1'-0"



MEDIA CENTER E1
1/4" = 1'-0"



GYM WEST A8
1/4" = 1'-0"



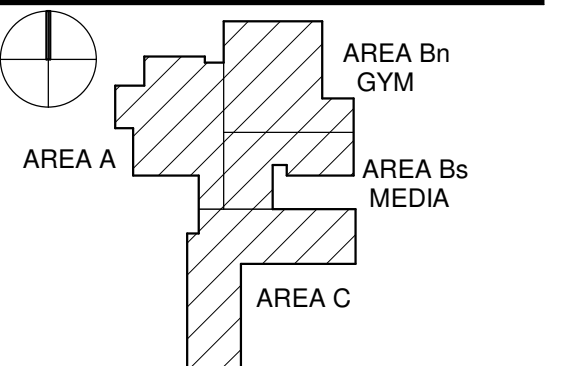
COMMONS CORRIDOR A1
1/4" = 1'-0"



TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479

KEY PLAN



No.	Description	Date
2	Addendum #2	6-19-2018

ISSUED: CONSTRUCTION DOCUMENTS

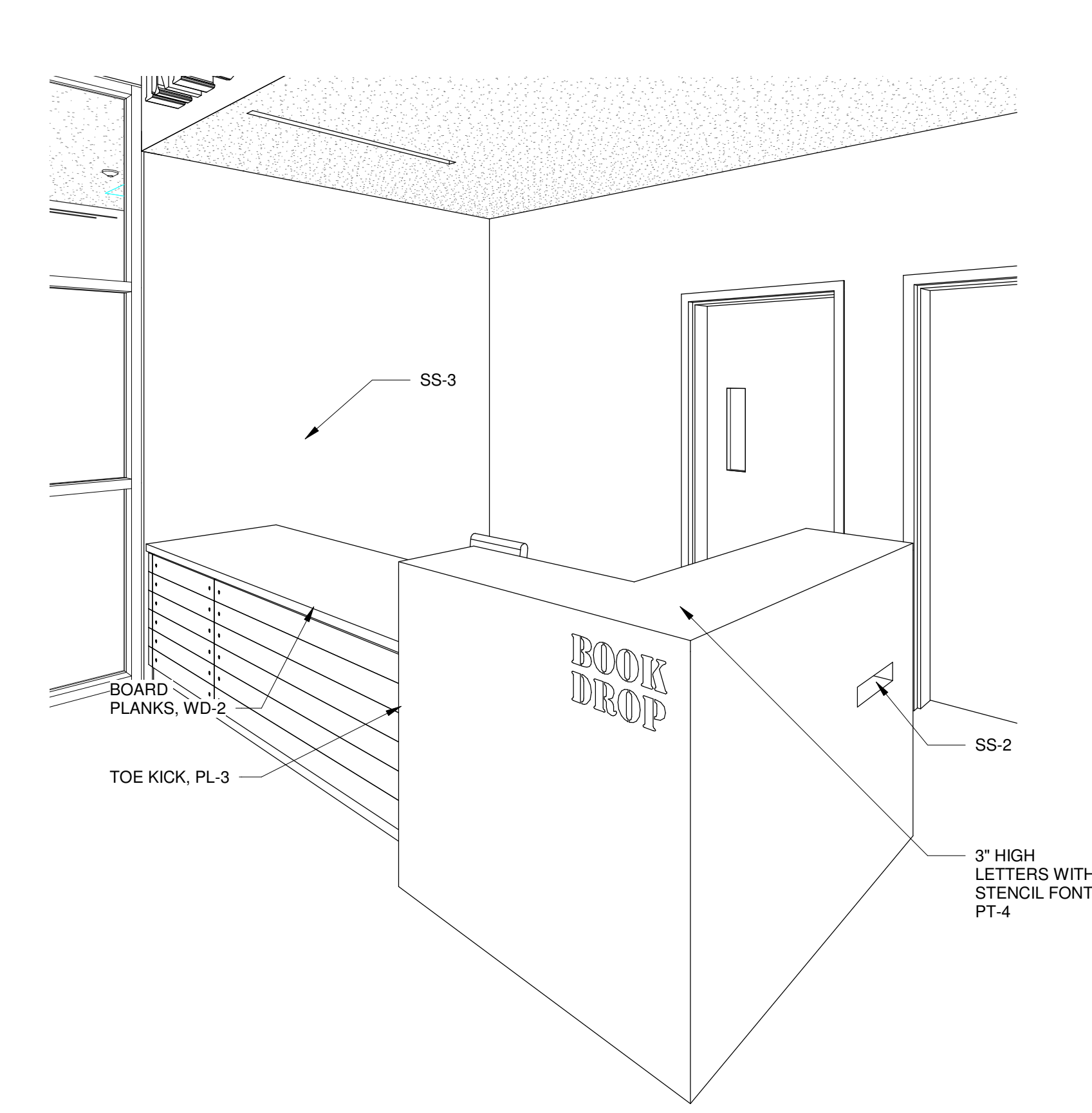
DATE: 05/24/2018

SCALE: As indicated

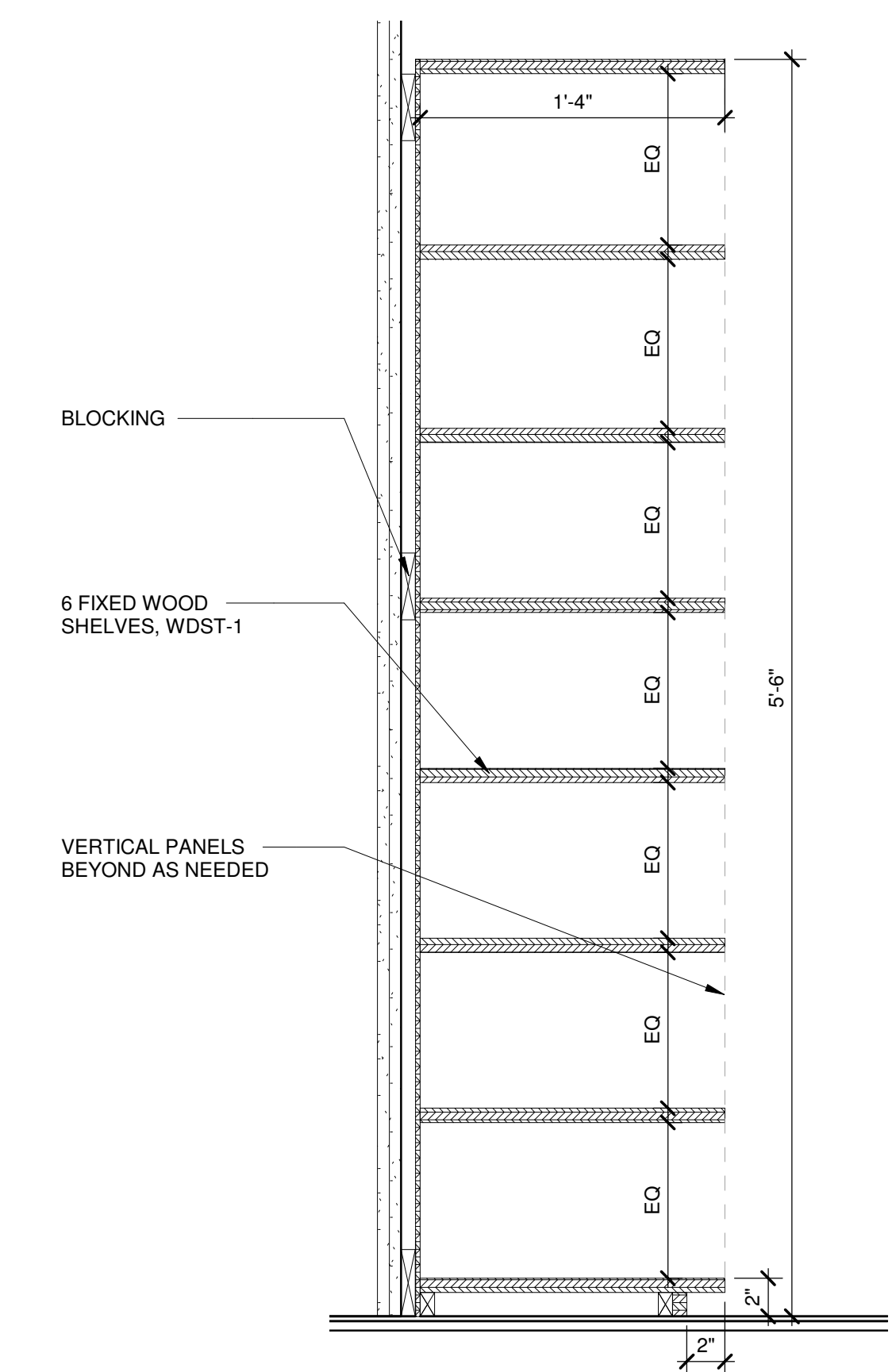
SHEET NAME: MILLWORK / CASEWORK DETAILS

SHEET NUMBER:

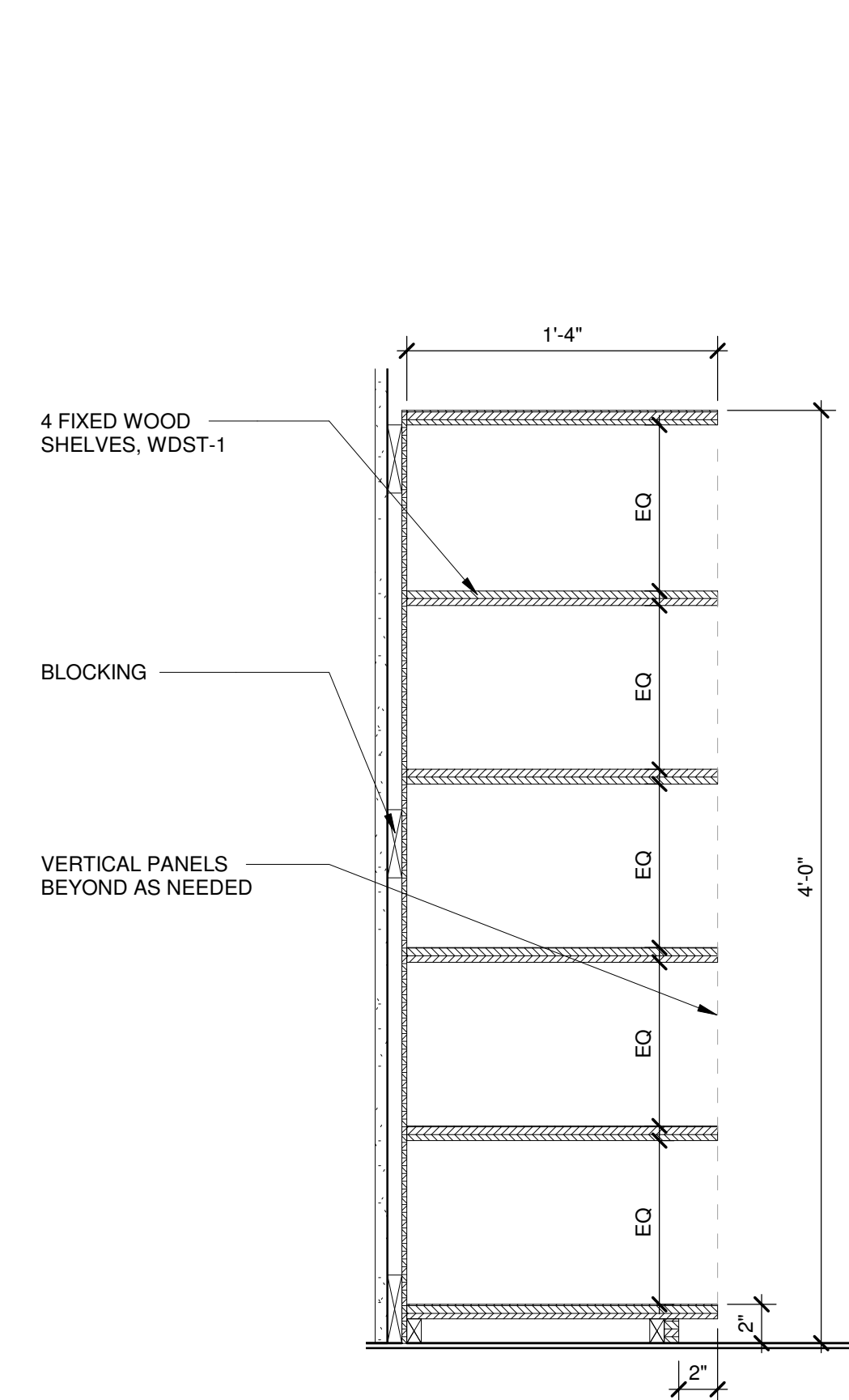
A-821



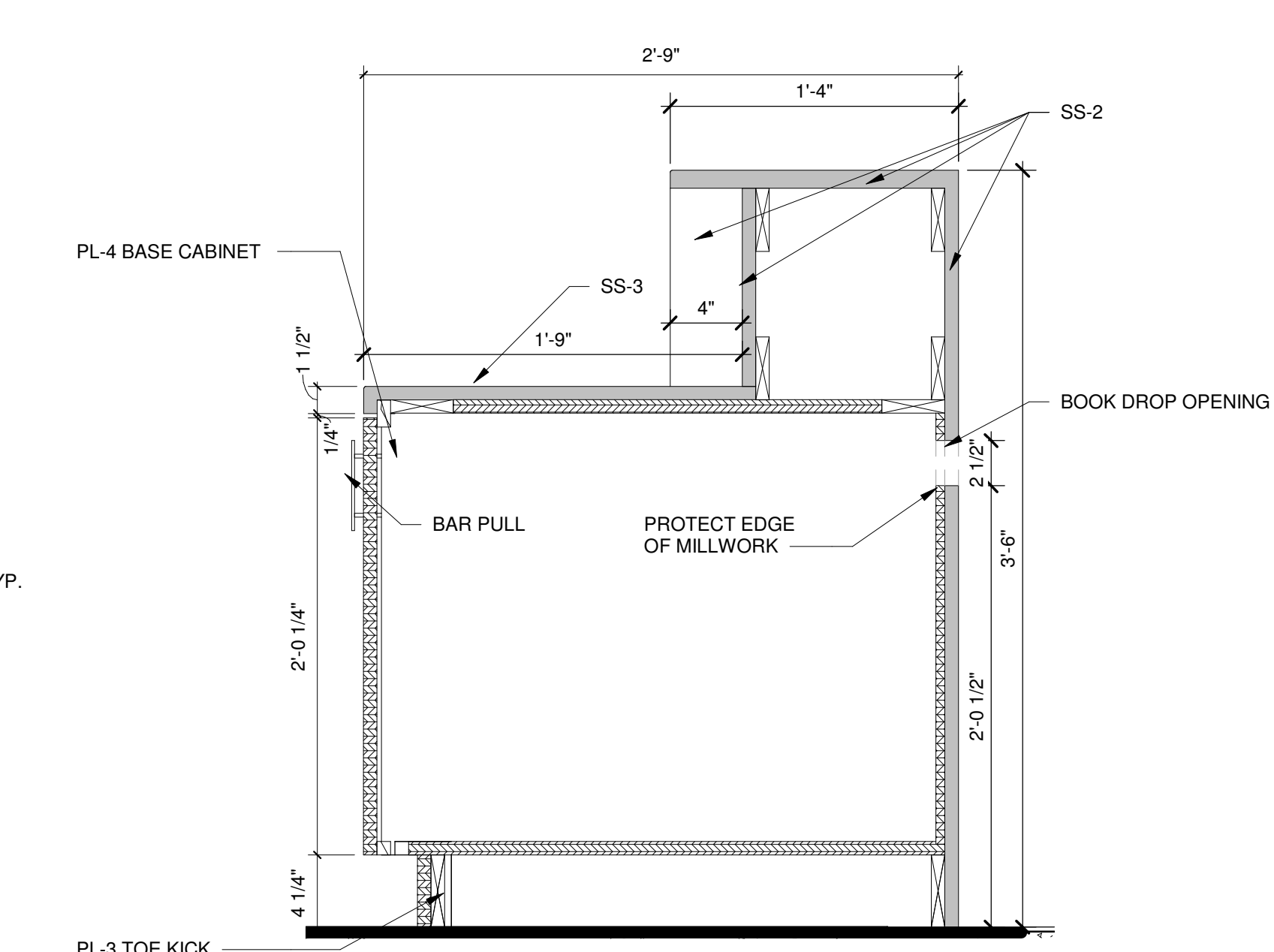
MEDIA DESK FOR REFERENCE ONLY J1
1 1/2" = 1'-0"



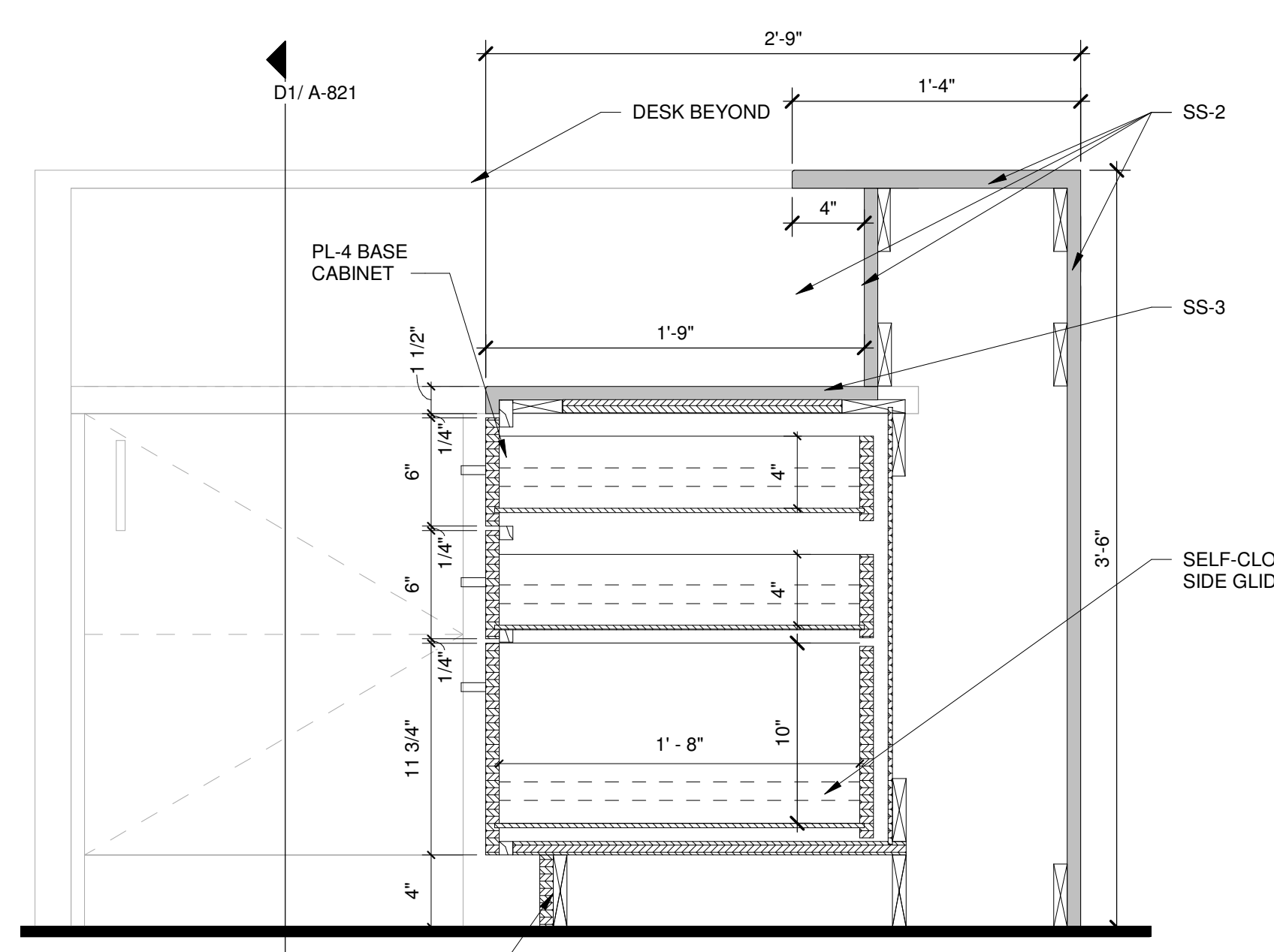
MEDIA CENTER TALL SHELVING J6
1 1/2" = 1'-0"



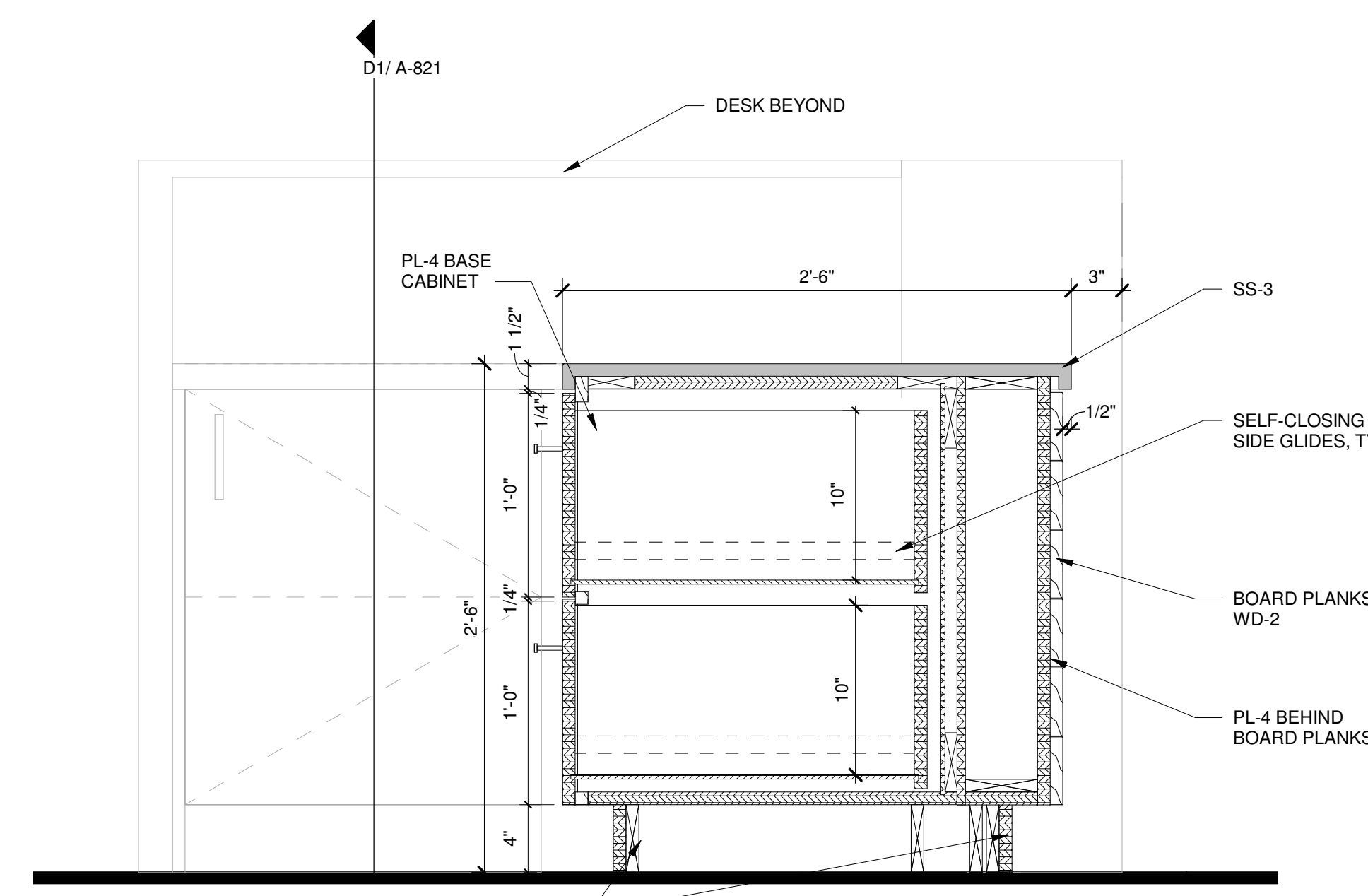
MEDIA CENTER SHELVING J10
1 1/2" = 1'-0"



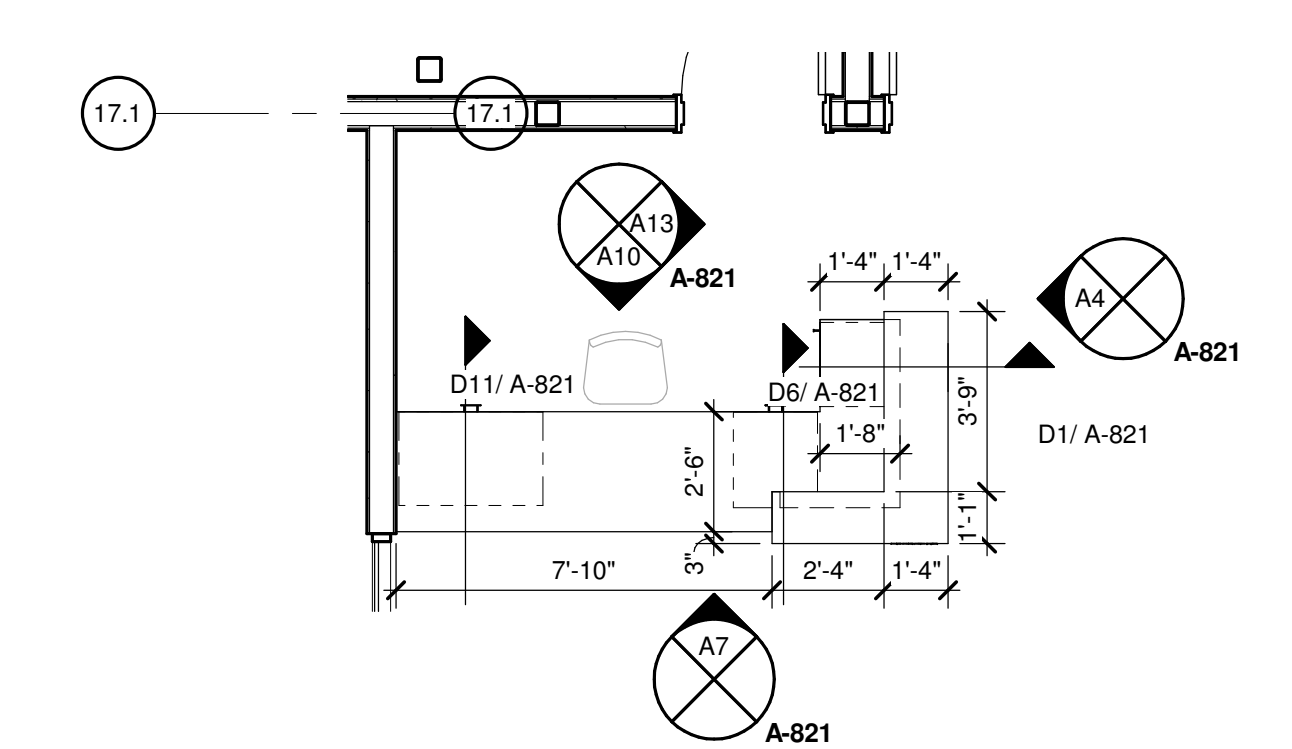
DESK SECTION THRU TRANSACTION 2 D1
1 1/2" = 1'-0"



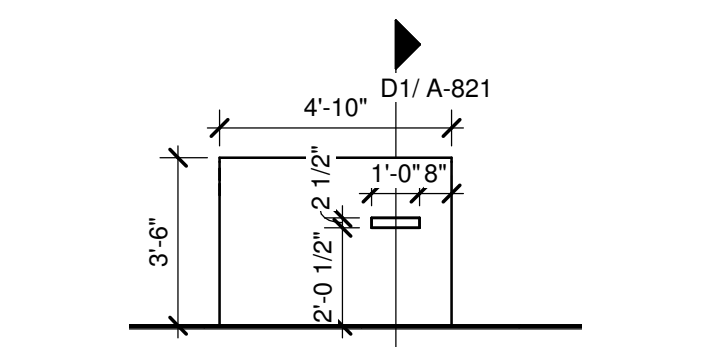
DESK SECTION THRU TRANSACTION D6
1 1/2" = 1'-0"



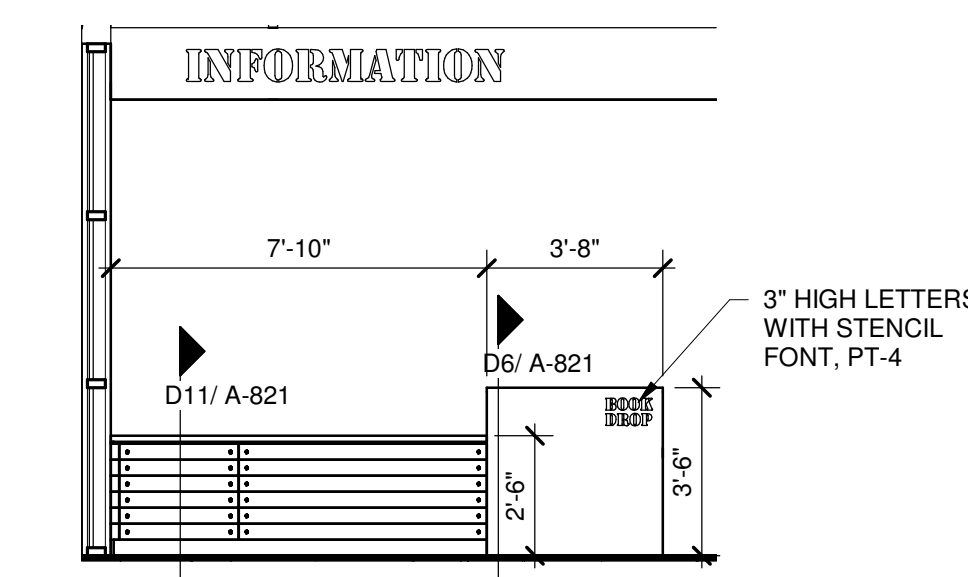
DESK SECTION THRU COUNTER D11
1 1/2" = 1'-0"



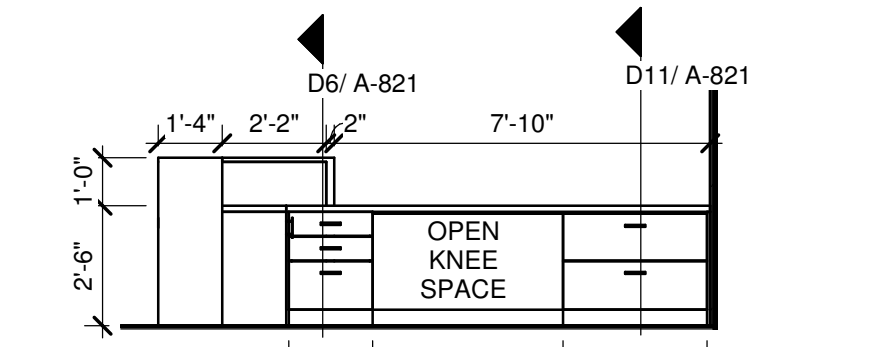
MEDIA CENTER DESK A1
1/4" = 1'-0"



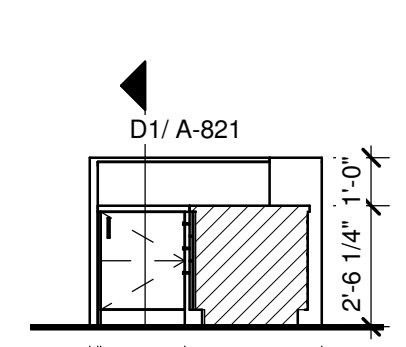
MEDIA DESK END A4
1/4" = 1'-0"



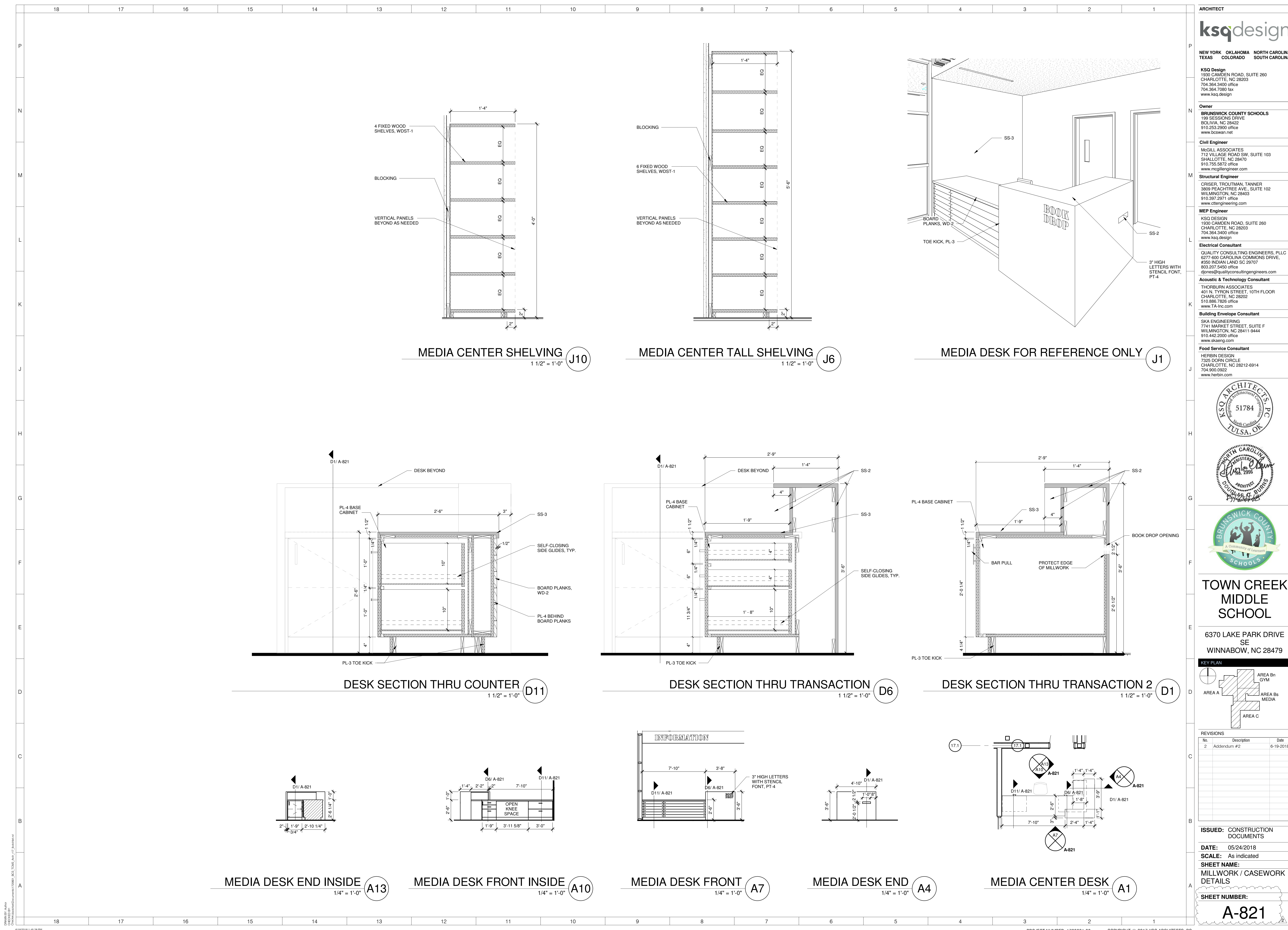
MEDIA DESK FRONT A7
1/4" = 1'-0"



MEDIA DESK FRONT INSIDE A10
1/4" = 1'-0"



MEDIA DESK END INSIDE A13
1/4" = 1'-0"



NUMBER	NAME	FLOOR FINISH	BASE FINISH	WALLS	CEILING FINISH	COMMENTS
1227	LOADING AREA	-	-	-	-	
1000	COMMONS CORRIDOR	VCT-1/VCT-2/VCT-3	WB-1	PT-1A/PT-3A	-	
1001	VESTIBULE	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	-	
1002	VESTIBULE	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	-	
1002A	TOILET	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1002B	GIRLS TOILET	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1002C	BOYS TOILET	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1100A	CORRIDOR	CPT-5	WB-1	PT-1A	ACT-1	
1100B	CORRIDOR	VCT-1/VCT-2/VCT-3	WB-1	PT-1A/PT-3A	ACT-1/PT-3A	
1100C	CORRIDOR	VCT-1/VCT-2/VCT-3	WB-1	PT-1A/PT-3A	ACT-1/PT-3A	
1101	PARENT CENTER	CPT-5	WB-1	PT-1A	ACT-1	
1102	RECEPTION	VCT-1/CPT-5	WB-1	PT-1A/PT-3A	ACT-1	
1103	WORKROOM	VCT-1	WB-1	PT-1A	ACT-1	
1104	OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
1105	SECURED RECORDS	VCT-1	WB-1	PT-1A	ACT-1	
1106	OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
1107	STORAGE	VCT-1	WB-1	PT-1A	ACT-1	
1108	ASSIST. PRINCIPAL	CPT-5	WB-1	PT-1A	ACT-1	
1110	STORAGE	VCT-1	WB-1	PT-1A	ACT-1	
1112	PRINCIPAL OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
1114	CONF. RM 1	CPT-5	WB-1	PT-1A	ACT-1	
1115	STAFF	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1116	GUIDANCE	CPT-5	WB-1	PT-1A	ACT-1	
1117	STAFF	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1118	NURSE	VCT-1	WB-1	PT-1A	ACT-1	
1118A	EXAM	VCT-1	WB-1	PT-1A	ACT-1	
1118B	TOILET / SHOWER	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1119	BOOK STORAGE	TL-1	WB-1	PT-1A	ACT-1	
1120	IN-SCHOOL SUSPENSION	CPT-5	WB-1	PT-1A	ACT-1	
1121	RESOURCE OFFICER	CPT-5	WB-1	PT-1A	ACT-1	
1122	I.T. MDF	SC-1	WB-1	PT-1A	ACT-1	
1201	GYM	WD-1/WD-3/RF-5/VC-1	WB-3	PT-1A/PT-3A	-	REF: FINISH FLOOR PLANS FOR FLOORING LOCATIONS
1202	SNACK BAR	VCT-1	WB-1	PT-1A	ACT-1	
1203	STORAGE	VCT-1	WB-1	PT-1A	ACT-1	
1204	VESTIBULE	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	-	
1205	VESTIBULE	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	-	
1205A	GIRLS LOCKERS	TL-1	WB-2	PT-1B	PT-1B	
1205B	GIRLS TOILET	TL-1	WB-2	TL-2/TL-4/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1206A	GIRLS DRESSING ROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	PT-1A	
1206B	TOILET	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1207	OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
1208A	BOYS DRESSING ROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1208B	TOILET	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1209	STORAGE	VCT-1	WB-1	PT-1A	ACT-1	
1210	STAGE	VCT-4	WB-1	PT-1A	ACT-1	
1211	OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
1212	ROOF ACCESS	-	-	-	-	
1213	VESTIBULE	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	-	
1213A	BOYS LOCKERS	TL-1	WB-2	PT-1B	PT-1B	
1213B	BOYS TOILET	TL-1	WB-2	TL-2/TL-3/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1226	LOADING AREA	-	-	-	-	
1302	DINING	VCT-1/VCT-2/VCT-3	WB-1	PT-1A/PT-3A/PT-5B	ACT-1/PT-2/PT-5A	
1304	SNACK LINE	TL-1	WB-2	TL-2	PT-1B	
1306	SERVERY	TL-1	WB-2	TL-2	PT-1B	
1308	KITCHEN	TL-1	WB-2	FRP-1	ACT-2	
1309	OFFICE	TL-1	WB-2	PT-1B	ACT-2	
1310	WAREWASHING	TL-1	WB-2	FRP-1	ACT-2	
1311	PLUMBING	SC-1	WB-1	PT-1B	-	
1312	DRY STORAGE	TL-1	WB-1	PT-1B	ACT-2	
1313	LOCKERS	TL-1	WB-1	PT-1B	ACT-2	
1313A	TOILET	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1315	FREEZER	-	-	-	-	
1317	COOLER	-	-	-	-	
1319	ELECT.	SC-1	WB-1	PT-1A	-	
1400	CORRIDOR	VCT-1/VCT-3	WB-1	PT-1A/PT-3A	ACT-1/PT-3A	
1402	CTE	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1404	CTE	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1406	VOCAL MUSIC	CPT-2	WB-1	PT-1A/ AWP-1	ACT-1	
1408	DIRECTOR	CPT-5	WB-1	PT-1A	ACT-1	
1410	STORAGE	CPT-2	WB-1	PT-1A	ACT-1	
1412	INSTRUMENTAL MUSIC	CPT-2	WB-1	PT-1A/ AWP-1	ACT-1	
1413	ART	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1414	INSTRUMENT STORAGE	CPT-2	WB-1	PT-1	ACT-1	
1415	ART STORAGE	VCT-1	WB-1	PT-1A	ACT-1	
1416	DIRECTOR	CPT-5	WB-1	PT-1A	ACT-1	
1417	KILN	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1418	STORAGE	CPT-2	WB-1	PT-1	ACT-1	
1500	CORRIDOR	VCT-1/VCT-3	WB-1	PT-1A/PT-3A	ACT-1/PT-3A	
1501	MEDIA CENTER	CPT-1/CPT-2/CPT-3	WB-1	PT-1A/PT-3A/PT-5A	ACT-1/PT-3A/PT-5A	
1503	HALL	VCT-1	WB-1	PT-1A	ACT-1	
1505	OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
1507	STORAGE	VCT-1	WB-1	PT-1A	ACT-1	
1508	WORKROOM	VCT-1	WB-1	PT-1A	ACT-1	
1700	CORRIDOR	VCT-1/VCT-3	WB-1	PT-1A/PT-3A	ACT-1/PT-3A	
1702	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1703	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1704	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1705	SCIENCE LAB	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1706	RESOURCE ROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1707	JANITOR	SC-1	WB-1	FRP-1	-	UP TO 8'-0"
1708	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1709	PREP	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1710	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1711	SCIENCE LAB	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1712	STAIR	RF-3/RF-4	WB-1	PT-1A	-	RF-3 ON LANDINGS, RF-4 ON STAIR TREADS, RISERS AND NOSINGS, PT-1 ON HANDRAILS.
1800A	CORRIDOR	VCT-1/VCT-3	WB-1	PT-1A/PT-3A	ACT-1/PT-3A	
1800B	CORRIDOR	VCT-1/VCT-3	WB-1	PT-1A/PT-3A	ACT-1/PT-3A	
1800C	CORRIDOR	VCT-1/VCT-3	WB-1	PT-1A/PT-3A	ACT-1/PT-3A	
1801	COMMUNITY STAIR LOBBY	RF-1/RF-2	WB-1	PT-1A	-	RF-1 ON LANDINGS, RF-2 ON STAIR TREADS, RISERS AND NOSINGS, PT-4 ON HANDRAILS AND STAIR
1802	VESTIBULE	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	-	
1802B	BOYS TOILET	TL-1	WB-2	TL-2/TL-3/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1802C	GIRLS TOILET	TL-1	WB-2	TL-2/TL-4/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1803	ELECT.	SC-1	WB-1	PT-1A	-	
1804	STAFF	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1805	STAIR	RF-3/RF-4	WB-1	PT-1A	-	RF-3 ON LANDINGS, RF-4 ON STAIR TREADS, RISERS AND NOSINGS, PT-1 ON HANDRAILS.
1806	STAFF	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1807	RESOURCE ROOM	VCT-1	WB-1	PT-1A	ACT-1	
1808	TEACHER WORKROOM	VCT-1	WB-1	PT-1A	ACT-1	
1809	MAKER SPACE	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1810	IDF	SC-1	WB-1	PT-1A	ACT-1	
1811	SPECIAL EDUCATION	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1811A	TO	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1812	RESOURCE ROOM	VCT-1	WB-1	PT-1A	ACT-1	
1813	TOILET / SHOWER	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
1814	OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
1815	SPECIAL EDUCATION	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1815A	TO	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
1816	OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
1818	STORAGE	VCT-1	WB-1	PT-1A	ACT-1	
1820	OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
1822	OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
1824	WORKROOM	VCT-1	WB-1	PT-1A	ACT-1	
1826	CUSTODIAL WORKROOM	VCT-1	WB-1	PT-1A	ACT-1	
1828	STAIR	RF-3/RF-4	WB-1	PT-1A	-	RF-3 ON LANDINGS, RF-4 ON STAIR TREADS, RISERS AND NOSINGS, PT-1 ON HANDRAILS.
EV1	ELEV	CPT-1	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	

NUMBER	NAME	FLOOR FINISH	BASE FINISH	WALLS	CEILING FINISH	COMMENTS
2700	CORRIDOR	VCT-1/VCT-3	WB-1	PT-1A/PT-3A	ACT-1/PT-3A	
2702	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2703	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2704	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2705	SCIENCE LAB	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2706	RESOURCE ROOM	VCT-1	WB-1	PT-1A	ACT-1	
2707	ELECT.	SC-1	WB-1	PT-1A	-	
2708	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2709	PREP	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2710	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2711	SCIENCE LAB	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2712	STAIR	RF-3/RF-4	WB-1	PT-1A	-	RF-3 ON LANDINGS, RF-4 ON STAIR TREADS, RISERS AND NOSINGS, PT-1 ON HANDRAILS.
2800	CORRIDOR	VCT-1/VCT-3	WB-1	PT-1A/PT-3A	ACT-1/PT-3A	
2801	COMMUNITY STAIR LOBBY	RF-1/RF-2	WB-1	PT-1A	-	RF-1 ON LANDINGS, RF-2 ON STAIR TREADS, RISERS AND NOSINGS, PT-4 ON HANDRAILS AND STAIR
2802	VESTIBULE	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	-	
2802A	STAFF	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
2802B	BOYS TLT	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
2802C	GIRLS TLT	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
2803	RESOURCE ROOM	VCT-1	WB-1	PT-1A	ACT-1	
2804	STAFF	TL-1	WB-2	TL-2/PT-1B	PT-1B	REF: INTERIOR ELEVATIONS FOR TILE LOCATIONS
2805	OFFICE	CPT-5	WB-1	PT-1A	ACT-1	
2806	ELECT.	SC-1	WB-1	PT-1A	-	
2807	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2808	TEACHER WORKROOM	VCT-1	WB-1	PT-1A	ACT-1	
2809	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2810	IDF	SC-1	WB-1	PT-1A	ACT-1	
2812	SCIENCE LAB	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2813	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2814	JANITOR	SC-1	WB-1	FRP-1	ACT-1	UP TO 8'-0"
2816	PREP	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2817	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2818	SCIENCE LAB	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2819	CLASSROOM	VCT-1/VCT-2/VCT-3	WB-1	PT-1A	ACT-1	
2826	ROOF ACCESS	-	-	-	-	
2828	STAIR	RF-3/RF-4	WB-1	PT-1A	-	RF-3 ON LANDINGS, RF-4 ON STAIR TREADS, RISERS AND NOSINGS, PT-1 ON HANDRAILS.

SYMBOL	MATERIAL TYPE	MANUFACTURER	PATTERN	COLOR	NOTES
ACT-1	ACOUSTICAL CEILING TILE; 2X2	ARMSTRONG	OPTIMA LAY-IN	WHITE	MUST MEET MFC 0.7
ACT-2	ACOUSTICAL CEILING TILE; 2X2	ARMSTRONG	CLEAN ROOM FL	WHITE	MOISTURE PRONE LOCATIONS
ACP-1	ACOUSTICAL CEILING PANEL; 2' WIDE X 4' TALL	ARMSTRONG	SOUND/SHOCK Baffles, SAILCLOTH FABRIC	TBD	GYMNASIUM CEILING
AWP-1	ACOUSTICAL WALL PANEL; 2X2'	WENGER	ABSORBER PANELS	LEAF	INSTRUMENTAL/VOCAL CLASSROOMS
AWP-2	ACOUSTICAL CEILING PANEL; 3X3'	ALPPO	ACOUST-X, 22 GAUGE PERFORATED STEEL	TBD	GYMNASIUM WALLS
CG-1	CORNER GUARD	KOROSEAL	2" STAINLESS STEEL CORNER GUARD	STAINLESS STEEL	ALL OUTSIDE CORNERS AS SHOWN ON FINISH PLANS
CPT-1	CARPET TILE; 50X50	MILLIKEN	LYCEUM PLATO	PLN69 MICA	FIELD CARPET
CPT-2	CARPET TILE; 50X50	MILLIKEN	LYCEUM PLATO	PLB141 ROLLING STONE	ACCENT CARPET
CPT-3	CARPET TILE; 50X50	MILLIKEN	LYCEUM PLATO	PLB103 SPRING	ACCENT CARPET
CPT-4	NOT USED	-	-	-	-
CPT-5	CARPET TILE; 50X50	MILLIKEN	STRAIGHT TALK EYE CONTACT	EC524 LEAF	ADMINISTRATION AND OFFICES
FRP-1	FIBER REINFORCED PLASTIC	MARLITE	STANDARD FRP - PEBBLED	WHITE	BOH KITCHEN - UP TO CEILING, JANITOR
GR-1	GROUT	CUSTOM BUILDING	FUSION PRO	#335 WINTER GRAY	ALL GROUT
PL-1	PLASTIC LAMINATE	NEVAMAR	S7027T	SMOKY WHITE	TYPICAL COUNTERTOPS
PL-2	PLASTIC LAMINATE	NEVAMAR	WM0046	ILLUSTRIOUS MAPLE	TYPICAL UPPER/LOWER CABINETS
PL-3	PLASTIC LAMINATE	NEVAMAR	SS001 T	BLACK	ALL CABINET TOE/KICKS
PL-4	PLASTIC LAMINATE	NEVAMAR	-	-	MEDIA CENTER DESK CABINET
PT-1A	PAINT	SHERWIN WILLIAMS	PROMAR 200 ZERO VOC LATEX; EGGSHELL	SW 7042 SHOJI WHITE	FIELD PAINT
PT-1B	PAINT	SHERWIN WILLIAMS	WATER BASED CATALYZED EPOXY; EGGSHELL	SW 7042 SHOJI WHITE	WET AREA FIELD PAINT
PT-2	PAINT	SHERWIN WILLIAMS	PRO-INDUSTRIAL ACRYLIC SEMI GLOSS	SW 7031 MEGA GREIGE	STAIR RAILINGS, HANDRAILS, STRINGERS; DOOR TRIM; EXPOSED INTERIOR STRUCTURE
PT-3A	PAINT	SHERWIN WILLIAMS	PROMAR 200 ZERO VOC LATEX; EGGSHELL	SW 6711 PARAKEET	ACCENT PAINT
PT-3B	PAINT	SHERWIN WILLIAMS	WATER BASED CATALYZED EPOXY; EGGSHELL	SW 6711 PARAKEET	ACCENT PAINT; DINING

SIGN TYP	ID #	SYMBOL	SIGNAGE RM NUMBER	SIGN TEXT	NUMBER OF SIGNS
WF	2700		700 WING		1
WF	1800B		500 WING		1
WF	1700		600 WING		1
E2	1511	X	ELEVATOR		2
WF	1800A		500 WING		1
WF	2800		800 WING		1
E1	1712	X	STAIR		1
E1	1828	X	STAIR		1
E1	2712		STAIR		1
E1	1805	X	STAIR		1
A	1201		201 GYM		3
A	1202		202 SNACK BAR		1
A	1203		203 STORAGE		2
A	1204		204 BACK OF STAGE		2
A	1205A		205 GIRLS LOCKER		1
A	1206A		206A GIRLS DRESSING ROOM		1
D	1206B	X	206B TOILET		1
B	1207		207 OFFICE, MS. XXX		1
A	1208A		208A BOYS DRESSING ROOM		1
D	1208B	X	208B TOILET		1
A	1209		209 STORAGE		2
A	1210		210 LIFT		1
B	1211		211 OFFICE, MS. XXX		1
A	1212		212 ROOF ACCESS		1
A	1213A		213 BOYS LOCKER		1
A	1302		302 DINING		1
D	1002A	X	302A RESTROOM		1
C	1002B	X	302B GIRLS		1
C	1002C	X	302C BOYS		1
A	1308		308 KITCHEN		2
B	1309		309 OFFICE, MS. XXX		1
A	1310		310 WARE WASHING		1
A	1312		312 DRY STORAGE		1
A	1313		313 LOCKERS		1
D	1313A	X	313A TOILET		1
A	1319		319 ELECTRICAL		1
A	1400		400 CORRIDOR		1
A	1410		410 STORAGE		1
B	1412		412 MUSIC, MS. XXX		1
B	1413		413 ART, MS. XXX		1
A	1414		414 STORAGE		1
A	1415		415 ART STORAGE		1
B	1416		416 DIRECTOR, MS. XXX		1
A	1417		417 KILN		1
A	1418		418 STORAGE		1
D	2802A	X	802A STAFF TOILET		1
C	2802B	X	802B BOYS		1
C	2802C	X	802C GIRLS		1

SIGN TYP	ID #	SYMBOL	SIGNAGE RM NUMBER	SIGN TEXT	NUMBER OF SIGNS
A	1100C		A-100C SCHOOL OFFICE		1
B	1101		A-101 OFFICE		1
A	1102		A-102 RECEPTION		1
A	1103		A-103 WORKROOM		1
B	1104		A-104 OFFICE, MS. XXX		2
A	1105		A-105 SECURED RECORDS		1
B	1106		A-106 OFFICE, MS. XXX		1
A	1107		A-107 STORAGE		1
B	1108		A-108 OFFICE, MS. XXX		1
A	1110		A-110 STORAGE		1
B	1112		A-112 OFFICE, MS. XXX		1
B	1114		A-114 OFFICE		1
D	1115		A-115 STAFF TOILET		1
B	1116		A-116 GUIDANCE, MS. XXX		1
D	1117	X	A-117 STAFF TOILET		1
A	1118		A-118 NURSE		1
D	1118B	X	A-118B TOILET		1
B	1119		A-119 BOOK STORAGE		1
B	1120		A-120 CLASSROOM		1
B	1121		A-121 OFFICE, MS. XXX		1
A	1122		A-122 IT MDF		1
A	1803		C-503 ELECTRICAL		1
D	1804	X	C-504 STAFF TOILET		1
D	1806		C-506 STAFF TOILET		1
A	1807		C-507 RESOURCE ROOM		2
A	1808		C-508 TEACHER WORKROOM		1
A	1809		C-509 MAKER SPACE		3
B	1811		C-511 CLASSROOM		1
A	1811A		C-511A T/O		1
A	1812		C-512 RESOURCE ROOM		1
A	1813	X	C-513 TOILET/SHOWER		2
B	1814		C-514 OFFICE, MS. XXX		1
B	1815		C-515 CLASSROOM		1
A	1815A		C-515A T/O		1
B	1816		C-516 OFFICE, MS. XXX		1
A	1818		C-518 STORAGE		1
B	1820		C-520 OFFICE, MS. XXX		1
B	1822		C-522 OFFICE, MS. XXX		1
A	1824		C-524 WORKROOM		1
A	1826		C-526 CUSTODIAL WORKROOM		1
B	1702		C-602 CLASSROOM, MS. XXX		1

SIGN TYP	ID #	SYMBOL	SIGNAGE RM NUMBER	SIGN TEXT	NUMBER OF SIGNS
C	1802B	X	C-602B BOYS		1
C	1802C	X	C-602C GIRLS		1
B	1703		C-603 CLASSROOM, MS. XXX		1
B	1704		C-604 CLASSROOM, MS. XXX		1
B	1705		C-605 CLASSROOM, MS. XXX		2
A	1706		C-606 RESOURCE ROOM		1
A	1707		C-607 JANITOR		1
B	1708		C-608 CLASSROOM, MS. XXX		1
A	1709		C-609 PREP		2
B	1710		C-610 CLASSROOM, MS. XXX		1
B	1711		C-611 CLASSROOM, MS. XXX		2
B	2702		C-702 CLASSROOM, MS. XXX		1
B	2703		C-703 CLASSROOM, MS. XXX		1
B	2704		C-704 CLASSROOM, MS. XXX		1
B	2705		C-705 CLASSROOM, MS. XXX		2
A	2706		C-706 TEACHER WORKROOM		1
A	2707		C-707 ELECTRICAL		1
B	2708		C-708 CLASSROOM, MS. XXX		1
A	2709		C-709 PREP		2
B	2710		C-710 CLASSROOM, MS. XXX		1
B	2711		C-711 CLASSROOM, MS. XXX		2
A	2803		C-803 RESOURCE ROOM		1
D	2804	X	C-804 STAFF TOILET		1
B	2805		C-805 CLASSROOM, MS. XXX		1
A	2806		C-806 ELECTRICAL		1
B	2807		C-807 CLASSROOM, MS. XXX		1
A	2808		C-808 TEACHER WORKROOM		1
B	2809		C-809 CLASSROOM, MS. XXX		1
A	2810		C-810 IDF		1
A	1810		C-810 IDF		1
B	2812		C-812 CLASSROOM, MS. XXX		1
B	2813		C-813 CLASSROOM, MS. XXX		1
A	2814		C-814 JANITOR		1
A	2816		C-816 PREP		2
B	2817		C-817 CLASSROOM, MS. XXX		1
B	2818		C-818 CLASSROOM, MS. XXX		2
B	2819		C-819 CLASSROOM, MS. XXX		1
A	2826		C-826 ROOF ACCESS		1
E1	2828	X	C-828 STAIR		1

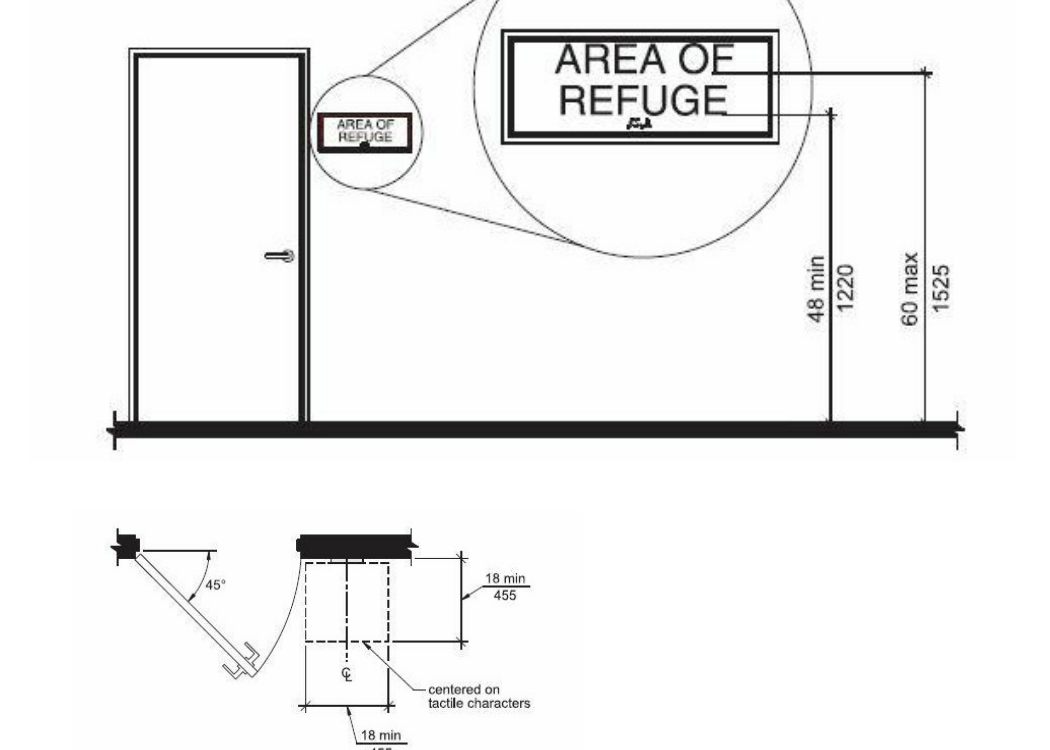
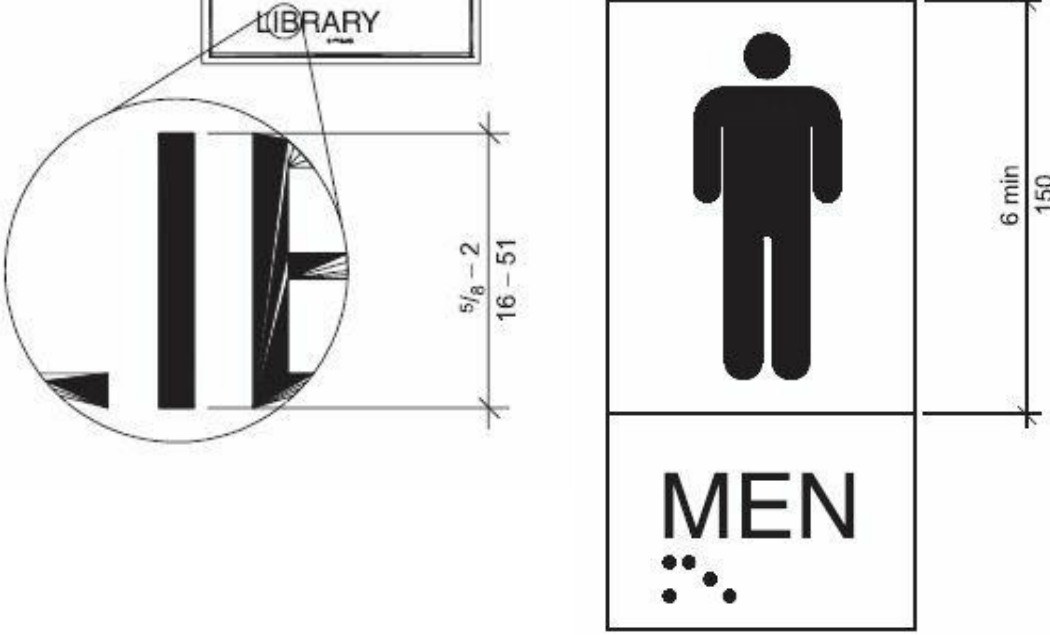
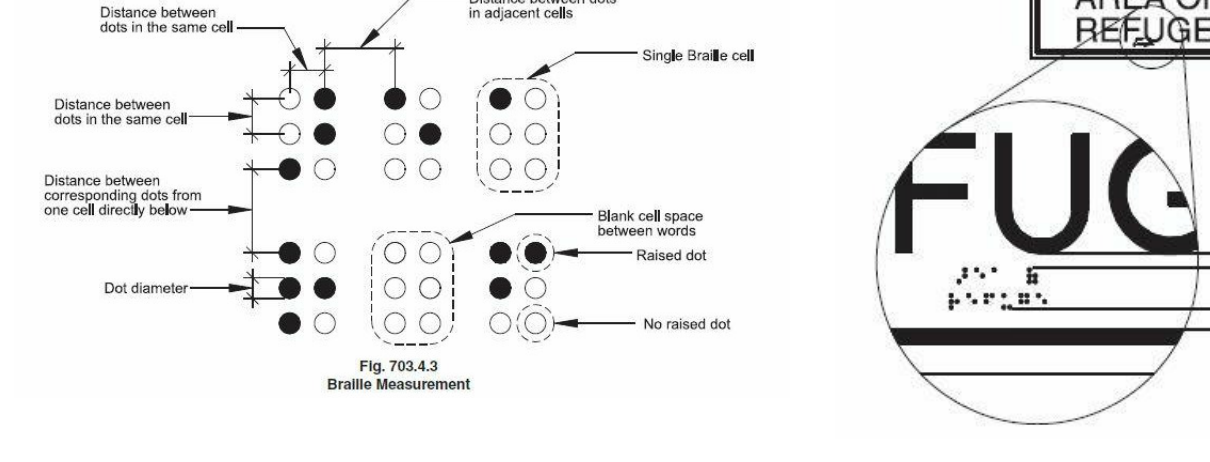
SEE FINISH PLANS A-800'S FOR SIGN LOCATIONS

Table 703.2.4—Visual Character Height

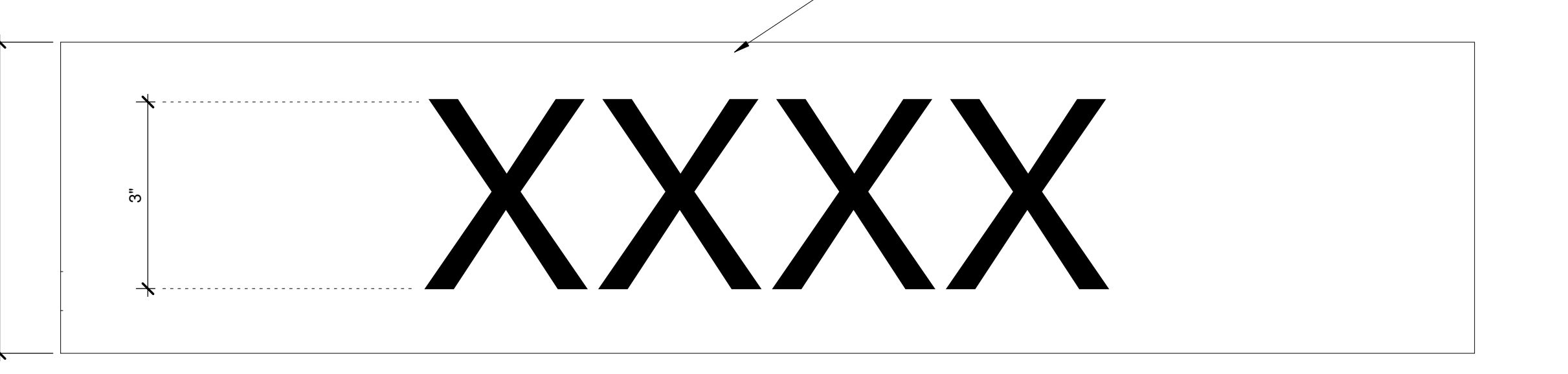
Height above Floor to Baseline of Character	Horizontal Viewing Distance	Minimum Character Height
40 inches (1015 mm) or less than or equal to 70 inches (1780 mm)	Less than 6 feet (1830 mm)	1/4 inch (6 mm)
	6 feet (1830 mm) and greater	1/4 inch (6 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 6 feet (1830 mm)
Greater than 70 inches (1780 mm) or less than or equal to 120 inches (3050 mm)	Less than 15 feet (4570 mm)	2 inches (51 mm)
	15 feet (4570 mm) and greater	2 inches (51 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 15 feet (4570 mm)
Greater than 120 inches (3050 mm)	Less than 21 feet (6400 mm)	3 inches (75 mm)
	21 feet (6400 mm) and greater	3 inches (75 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 21 feet (6400 mm)

Table 703.4.3—Braille Dimensions

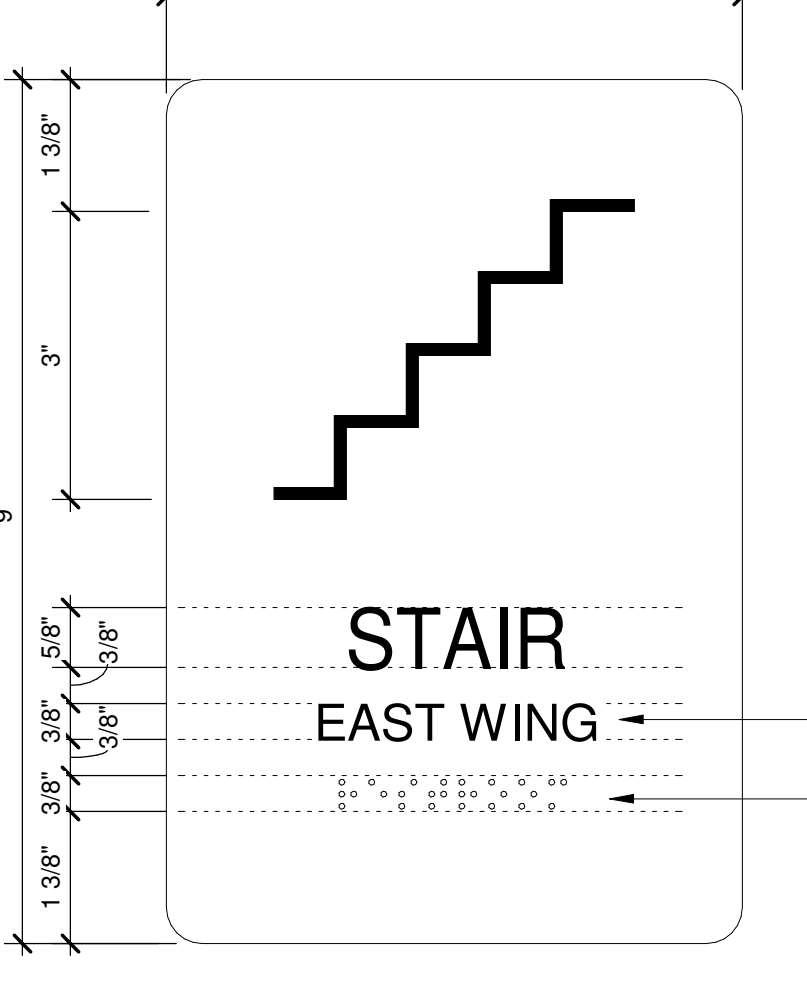
Measurement range	Minimum in inches	Maximum in inches
Dot base diameter	0.059 (1.5 mm) to 0.063 (1.6 mm)	
Distance between two dots in the same cell	0.090 (2.3 mm) to 0.100 (2.5 mm)	
Distance between corresponding dots in adjacent cells	0.241 (6.1 mm) to 0.300 (7.6 mm)	
Dot height	0.025 (0.6 mm) to 0.037 (0.9 mm)	
Distance between corresponding dots from one cell directly below	0.395 (10.0 mm) to 0.400 (10.2 mm)	



SIGN LOCATION AND REQUIREMENTS (K1) NTS A-861



SIGN TYPE EWF (EMERGENCY WAY FINDING) (H1) 6" = 1'-0"



SIGN TYPE E-1 - STAIR SIGN
6" x 9"

SIGN CONSTRUCTION:

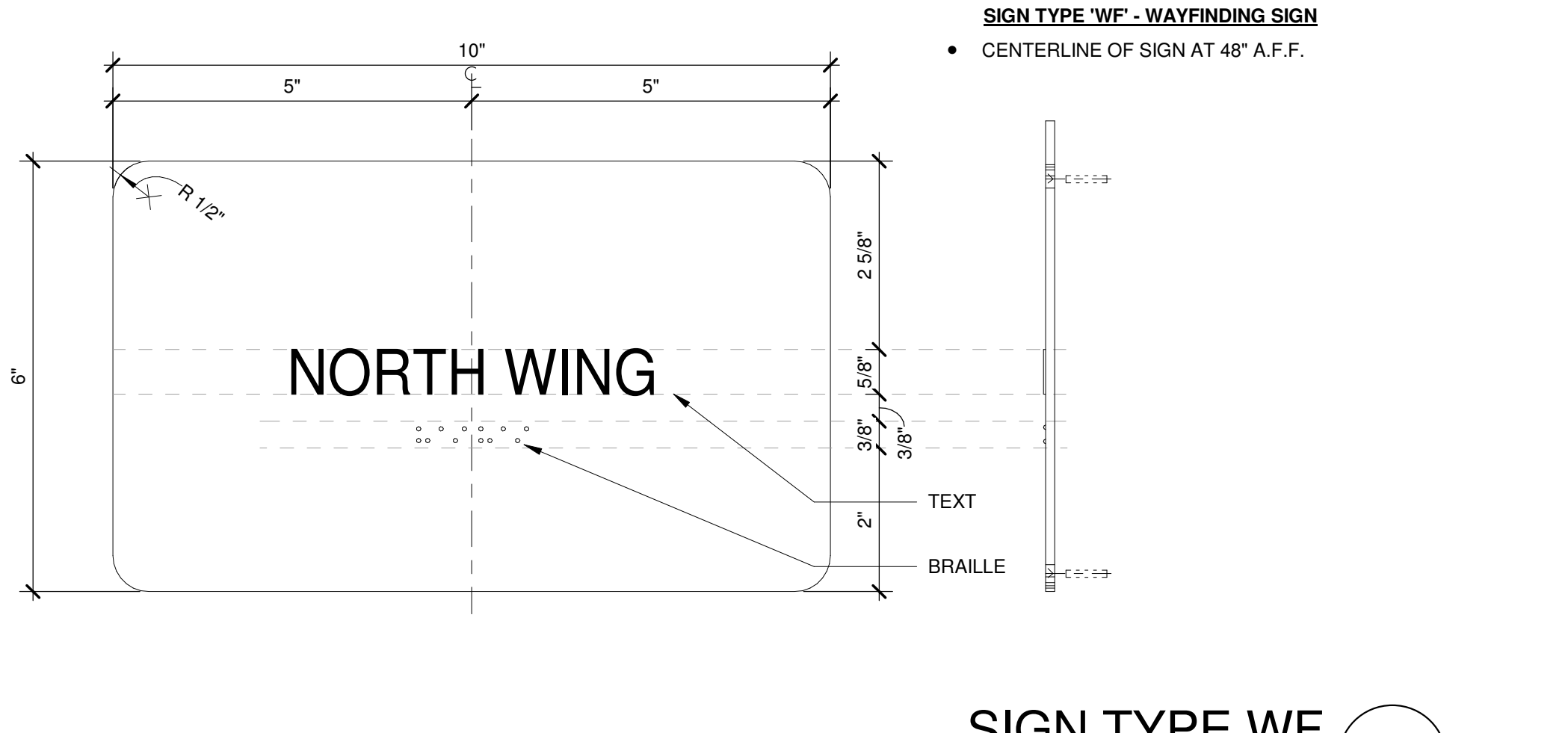
- 1/8" THICK ENGRAVING STOCK
- 1/16" ENGRAVED RULE LINE BORDER
- 1/16" ENGRAVED STAIR STEPS
- 5/8" HELVETICA MEDIUM STAIR TEXT, ALL CAPS, RAISED 1/32"
- 3/8" HELVETICA MEDIUM STAIR INDICATOR, ALL CAPS, RAISED 1/32"
- 1/16" RAISED (THE BRAILLE BEADS) GRADE II BRAILLE
- 3/8" RADIUS CORNERS
- MECHANICALLY FASTEN TO WALLS - MOUNT 60" FROM TOP OF SIGN TO FINISH FLOOR AND INSTALL AS DIRECTED IN FIELD



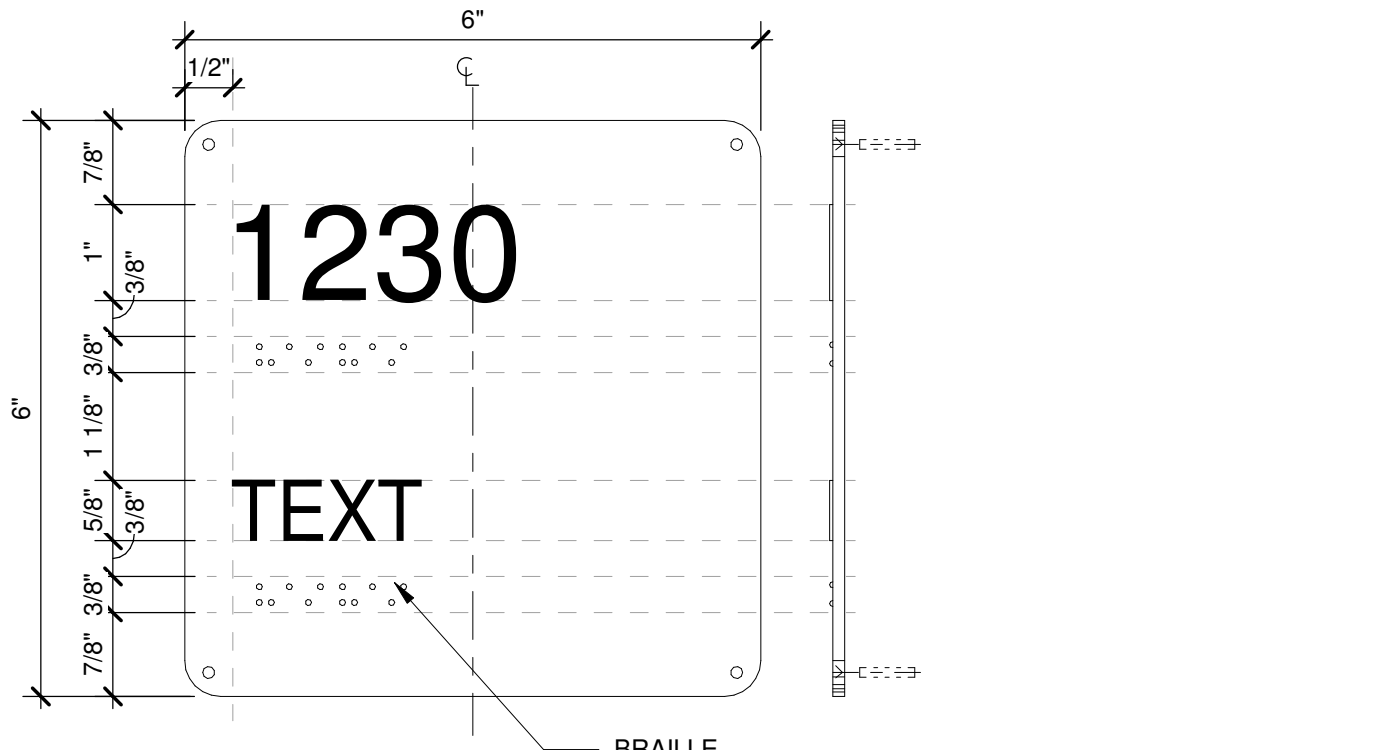
SIGN TYPE E-2 - ELEVATOR SIGN
6" x 9"

SIGN CONSTRUCTION:

- 1/8" THICK ENGRAVING STOCK WITH SQUARE CORNERS
- 5/8" HELVETICA MEDIUM TEXT, ALL CAPS, RAISED 1/32"
- 3" STAIR EGRESS SYMBOL, RAISED 1/32"
- 2 5/8" FIRE SYMBOL, RAISED 1/32"
- MECHANICALLY FASTEN TO WALLS - MOUNT 60" FROM TOP OF SIGN TO FINISH FLOOR AND INSTALL AS DIRECTED IN FIELD



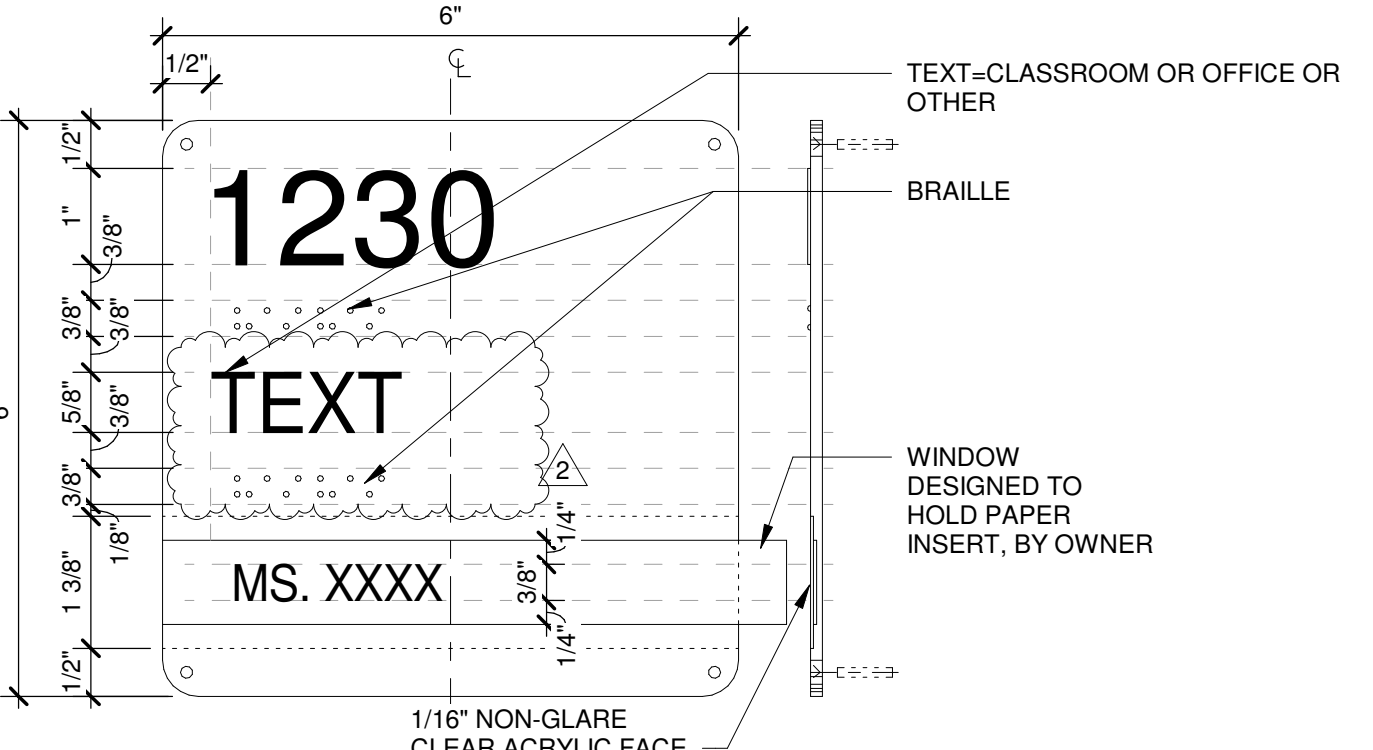
SIGN TYPE WF (E1) 6" = 1'-0"



SIGN TYPE 'A' ROOM NAME, NUMBER, & BRAILLE SIGN
6" x 6"

SIGN CONSTRUCTION:

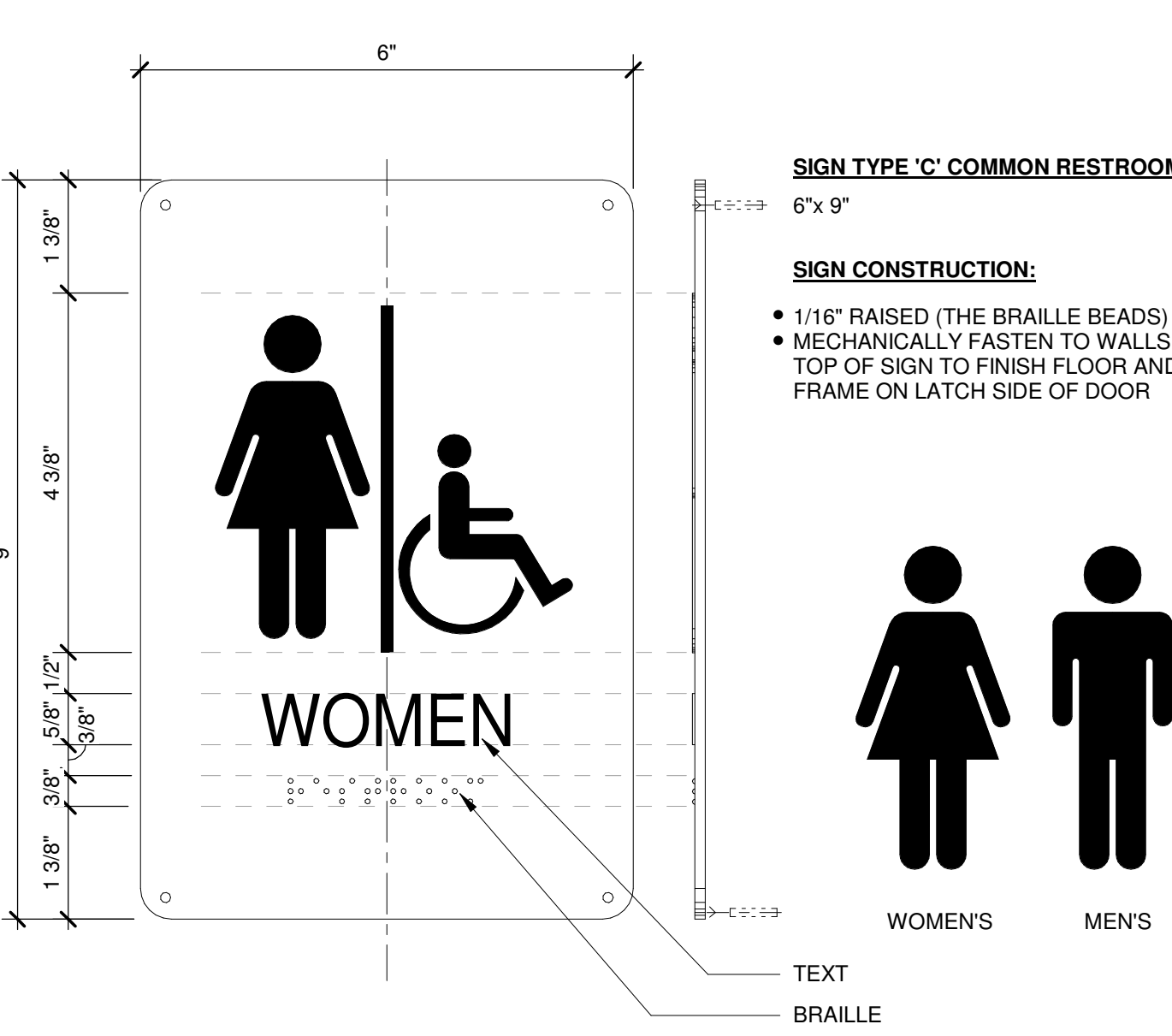
- 3/8" RAISED (THE BRAILLE BEADS) GRADE II BRAILLE
- MECHANICALLY FASTEN TO WALLS - MOUNT 60" FROM TOP OF SIGN TO FINISH FLOOR AND 4" FROM DOOR FRAME ON LATCH SIDE OF DOOR



SIGN TYPE 'B' TEMPORARY ROOM NAME, NUMBER, & BRAILLE SIGN
6" x 6"

SIGN CONSTRUCTION:

- 3/8" RAISED (THE BRAILLE BEADS) GRADE II BRAILLE
- MECHANICALLY FASTEN TO WALLS - MOUNT 60" FROM TOP OF SIGN TO FINISH FLOOR AND 4" FROM DOOR FRAME ON LATCH SIDE OF DOOR

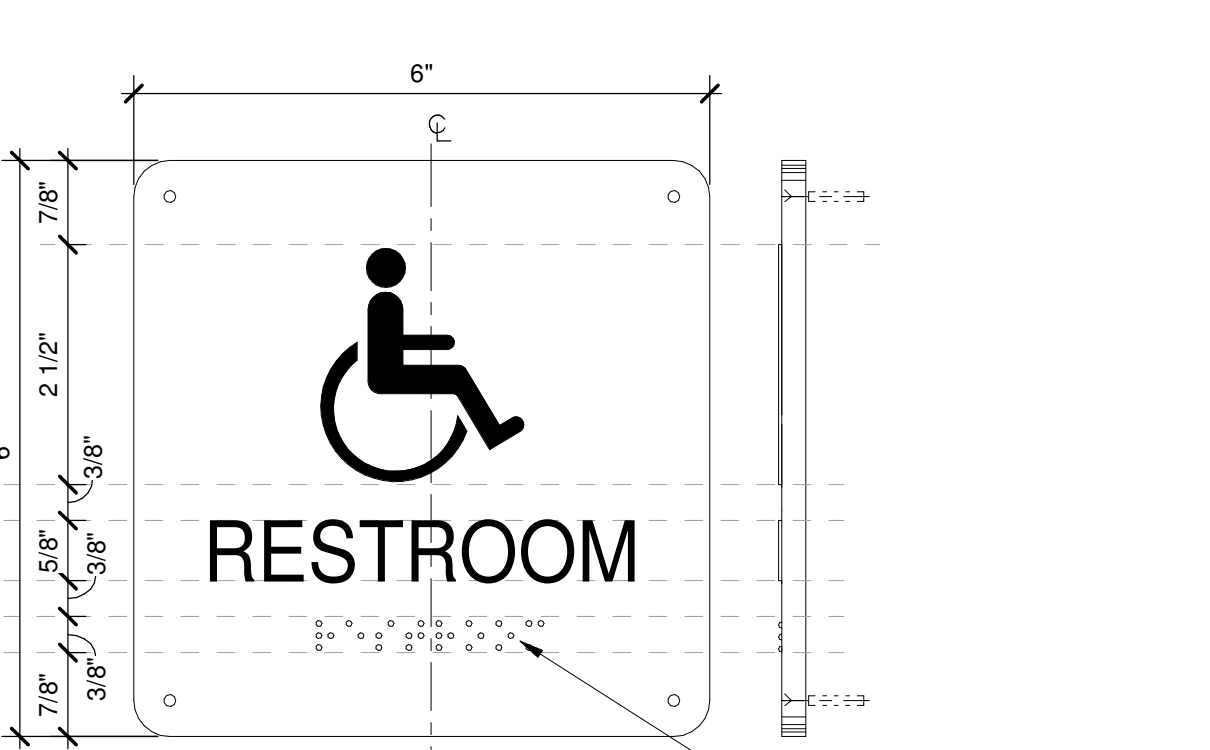


SIGN TYPE 'C' COMMON RESTROOM SIGN
6" x 9"

SIGN CONSTRUCTION:

- 1/16" RAISED (THE BRAILLE BEADS) GRADE II BRAILLE
- MECHANICALLY FASTEN TO WALLS - MOUNT 60" FROM TOP OF SIGN TO FINISH FLOOR AND 4" FROM DOOR FRAME ON LATCH SIDE OF DOOR

SIGN TYPE C (A5) 6" = 1'-0"



SIGN TYPE 'D' MULTI GENDER RESTROOM SIGN
6" x 6"

SIGN CONSTRUCTION:

- 1/16" RAISED (THE BRAILLE BEADS) GRADE II BRAILLE
- MECHANICALLY FASTEN TO WALLS - MOUNT 60" FROM TOP OF SIGN TO FINISH FLOOR AND 4" FROM DOOR FRAME ON LATCH SIDE OF DOOR

SIGN TYPE D (A1) 6" = 1'-0"

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WINNABOW, NC 28479

KEY PLAN

AREA A
AREA Bn GYM
AREA Bs MEDIA
AREA C

REVISIONS

No.	Description	Date
1	Addendum #1	6-7-2018
2	Addendum #2	6-19-2018

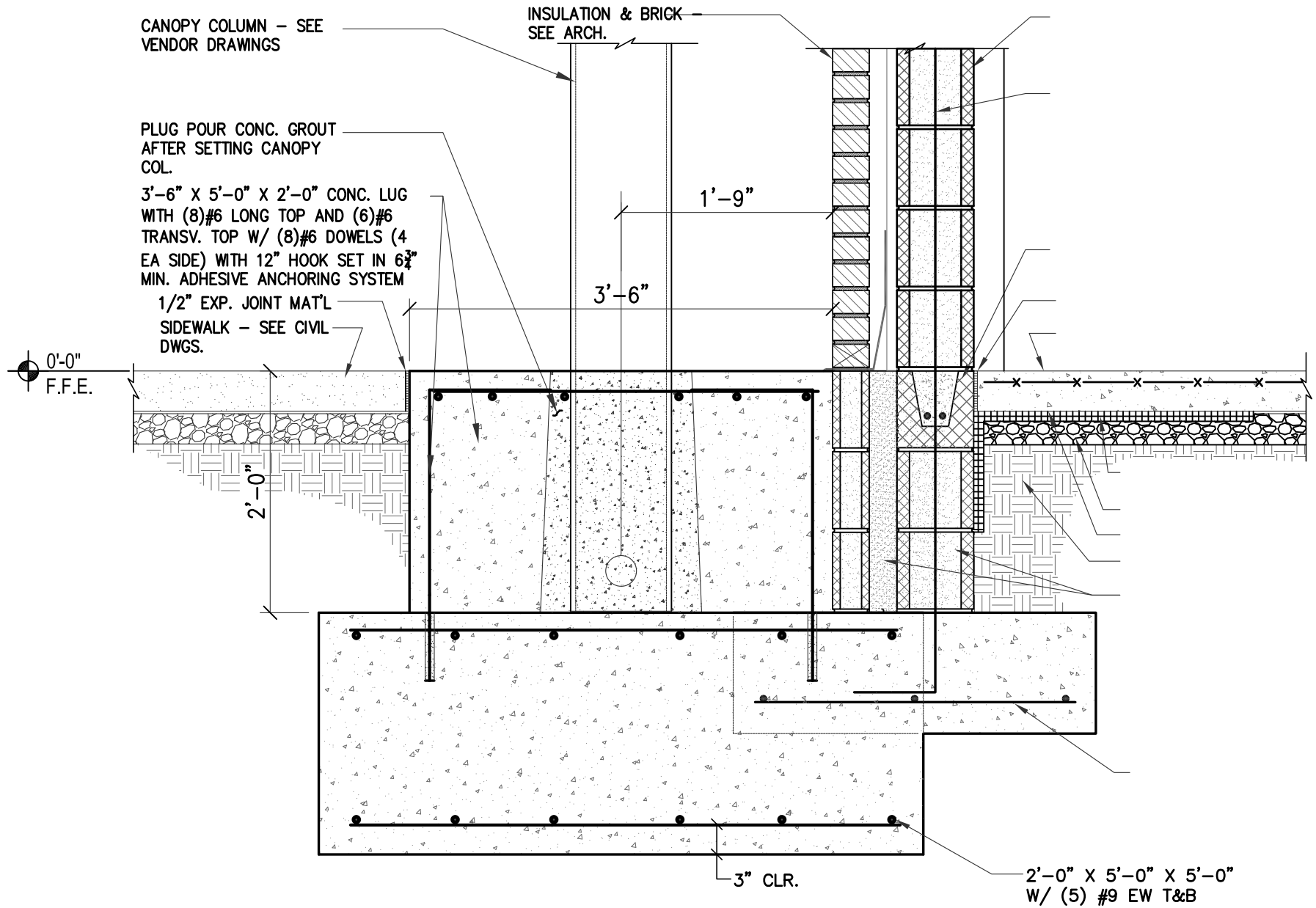
ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018

SCALE: As indicated

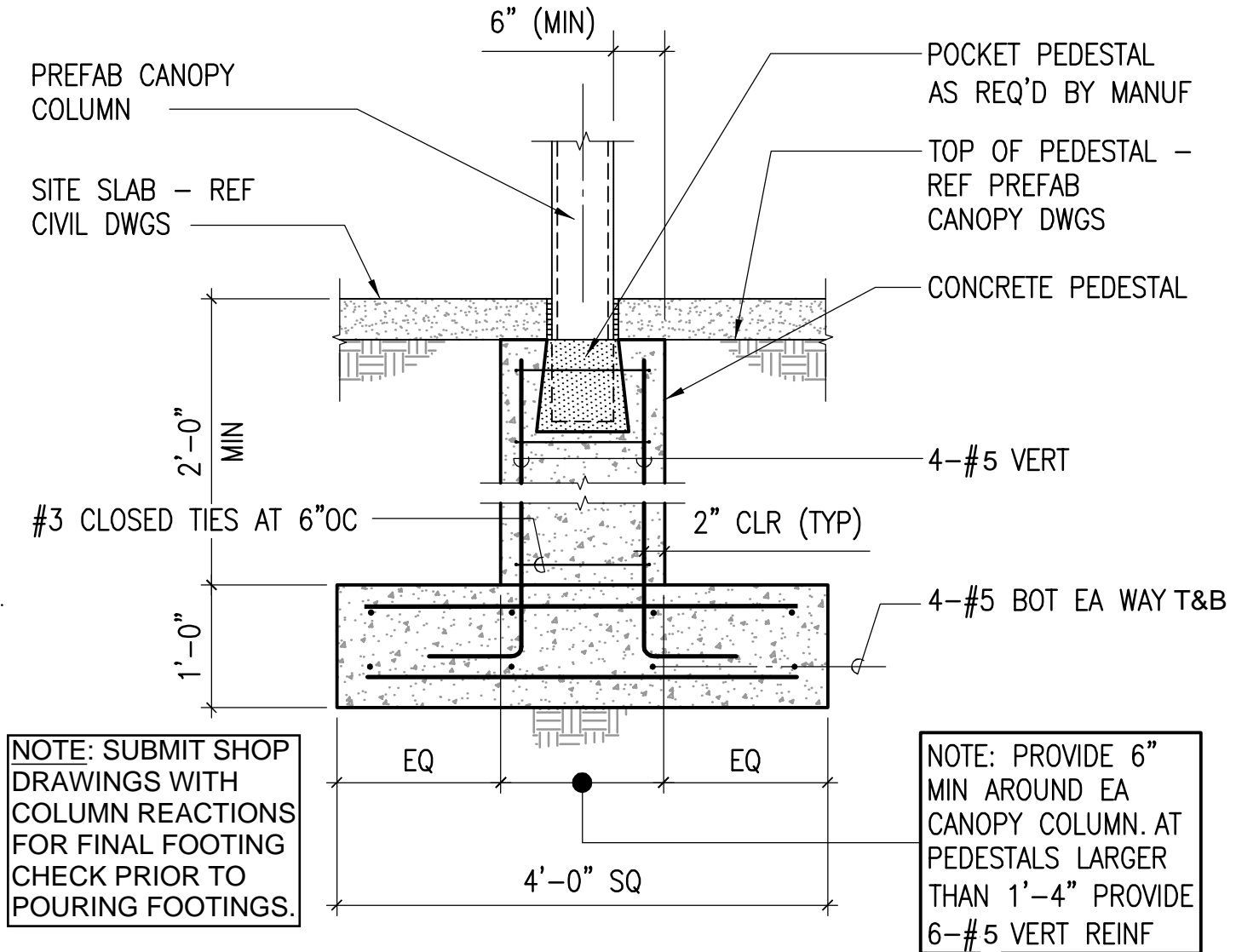
SHEET NAME: SIGNAGE SCHEDULE & DETAILS

SHEET NUMBER: A-861



SECTION - CANOPY FOUNDATION (CANT COL.)

SCALE: NTS



TYPICAL PREFABRICATED CANOPY COLUMN FOOTING DETAIL

NTS

(NON-CANTILEVERED FRAMES)



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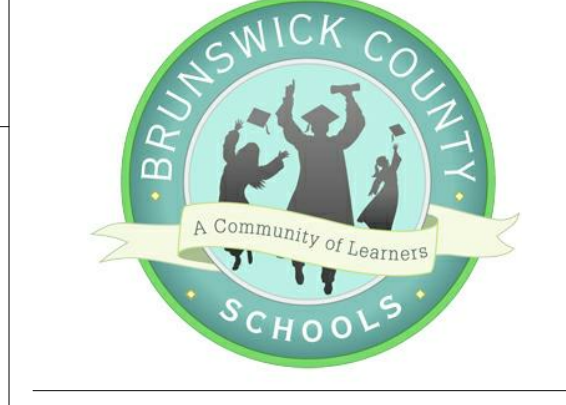
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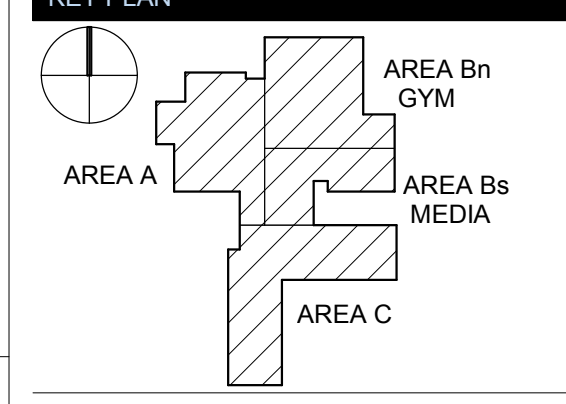
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REVISIONS table with columns: No., Description, Date

Table with columns: No., Description, Date

ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE:
SHEET NAME:
SHEET INDEX

SHEET NUMBER:
G-001a

SHEET INDEX - VOL I

Issue Addendum 2, Issue Addendum 1, CD Issue 06-24-2018, CD Issue 04-04-2018, DD 12-11-2017, SD 10-23-2017

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Table with columns: Issue Addendum, CD Issue, DD Issue, SD Issue, Sheet Number, Sheet Name. Includes sections: GENERAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, FOOD SERVICE, AUDIOVISUAL, NETWORK/IT, SECURITY.



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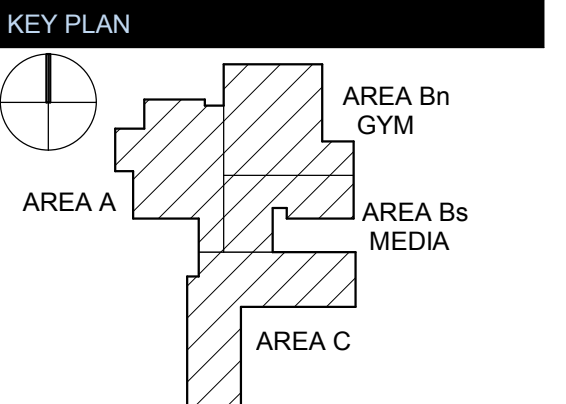
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TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE WINNABOW, NC 28479



REVISIONS table with columns: No., Description, Date. Includes entries for Addendum #1 and #2.

ISSUED: CONSTRUCTION DOCUMENTS DATE: 05/24/2018 SCALE: SHEET NAME: SHEET INDEX SHEET NUMBER:

G-001b

APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
EXCEPT 1 & 2 FAMILY DWELLING & TOWNHOUSES

PROJECT DATA:
 Name of Project: Town Creek Middle School
 Address: 6370 LAKE PARK DRIVE SE WINNABOW, NC 28479
 Project Number: 17265.01
 Proposed Use: Education / Middle School
 Owner or Authorized Agent: Jack Doyle (910) 253-1077; doyle@bcswn.net
 Phone No. / Email: Brunswick County School
 Owned By: Brunswick County School
 Code Enforcement Jurisdiction: City/County Private State County: Brunswick State: North Carolina

LEAD DESIGN PROFESSIONAL: Mr. Doug Burns, AIA
DESIGNER

ARCHITECTURAL	KSO Design	Doug Burns	dburns@ksqdesign.com
Electrical	Quality Consulting Engineers, PLLC	Donnie Jones	djones@qualityconsultingengineers.com
Fire Alarm	Quality Consulting Engineers, PLLC	Donnie Jones	djones@qualityconsultingengineers.com
Plumbing	KSO Design	John Notling	jnotling@ksqdesign.com
Mechanical	KSO Design	John Notling	jnotling@ksqdesign.com
Sprinkler / Standpipe	KSO Design	John Notling	jnotling@ksqdesign.com
Structural	Crisler Troutman	Jeff Troutman	jtroutman@ctengineering.com

APPLICABLE CODES:
 Edition Year of Code: See List Below (NCSBC - NC State Building Code)
 NCSBC 2012 Edition for Existing: New Construction Addition Uplift
 Reconstruction Alteration Repair
 Year: Existing: 2018, Constructed: 2018, Renovated: 2018
 Uses(s): (Ch 3) Original: Education, Current: Education, Proposed: Education

TRADE CODE EDITION

General Construction	NCSBC	Building Code	2012
Administration & Enforcement	NCSBC	Administrative Code	2012
Plumbing	NCSBC	Plumbing Code	2012
Mechanical	NCSBC	Mechanical Code	2012
Electrical	National Electrical Code - NFPA 70		2014
Fire Prevention	NCSBC	Fire Prevention Code	2012
Gas	NCSBC	Fuel Gas Code	2012
Energy - Commercial	NCSBC	Energy Conservation Code	2012
Accessibility	NCSBC	Building Code	2012
Special Fire Codes	NFPA 99		2012
Zoning	NFPA 30 A		2012
	Brunswick County		

BUILDING DATA:

Construction Type: Shell I-A II-A III-A IV V-A 402 403 404 405

Sprinklers: Shell Building I-B II-B III-B V-B 406 407 408 409

Sprinklers: Shell Building No Partial Yes NFPA 13 NFPA 13R NFPA 13D 410 411 412 413

Standpipes: No Yes I II III Wet Dry 414 415 416 417

Class: I II III Wet Dry 418 419 420 421

Fire District: No Yes (Primary) 422 423 424 425

Floor Hazard Area: No Yes 426 427

Building Height: 35'-0" Feet Stories 2

Mezzanine: No Yes 428 429

Gross Building Area: (91,279 GSF)

Floor Existing Area Unrenovated Existing Area Renovated Existing Area Total New Const. Area Total Area (New & Exist.) Project Area

Floor	Existing Area Unrenovated	Existing Area Renovated	Existing Area Total	New Const. Area	Total Area (New & Exist.)	Project Area
Third Floor	0	0	0	0	0	0
Second Floor	0	0	0	22,386	22,386	22,386
First Floor	0	0	0	68,893	68,893	68,893
Ground Floor	0	0	0	0	0	0
Total	0	0	0	91,279	91,279	91,279

ALLOWABLE AREA:
 Primary Occupancy:
 Assembly A-1 A-2 A-3 A-4 A-5
 Business Educational Factory F-1 (Moderate) F-2 (Low)
 Hazardous H-1 (Detonate) H-2 (Deflagrate) H-3 (Combust)
 Institutional I-1 I-2 I-3 I-4 I-5 (HPM)
 I-3 Condition 1 2 3 4 5
 Mercantile
 Residential R-1 R-2 R-3 R-4
 Storage S-1 (Moderate) S-2 (Low) High-Piled
 Parking Garage Open Enclosed Repair Garage
 Utility & Miscellaneous
 Secondary Occupancy:
 Assembly A-1 A-2 A-3 A-4 A-5
 Business Educational Factory F-1 (Moderate) F-2 (Low)
 Hazardous H-1 (Detonate) H-2 (Deflagrate) H-3 (Combust)
 H-4 (Health) H-5 (HPM)
 Institutional I-1 I-2 I-3 I-4 I-5 (HPM)
 I-3 Condition 1 2 3 4 5
 Mercantile
 Residential R-1 R-2 R-3 R-4
 Storage S-1 (Moderate) S-2 (Low) High-Piled
 Parking Garage Open Enclosed Repair Garage
 Utility & Miscellaneous

Incidental Uses - (Table 508.2.5): N/A
 Furnace room where any piece of equipment is over 400,000 btu / hr input.
 Rooms with boilers where the largest piece of equipment is over 15psi & 10 HP.
 Refrigerant machine room.
 Hydrogen cut-off rooms, not classified as Group H.
 Incinerator rooms.
 Paint shops, not classified as Group H, located in occupancies other than Group F.
 Laboratories and vocational shops, not classified as Group H, located in a Group E or I-2 occupancy.
 Laundry rooms over 100 square-feet.
 Group I-3 cells equipped with padded surfaces.
 Group I-2 waste & linen collection rooms.
 Waste & linen collection rooms over 100 square-feet.
 Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 lbs used for facility stand-by power, emergency power or uninterrupted power supplies.
 Rooms containing fire pumps.
 Group I-2 storage rooms over 100 square-feet.
 Group I-2 commercial kitchens.
 Group I-2 laundries equal to or less than 100 square-feet.
 Group I-2 rooms or spaces contain fuel-fired heating equipment.

SPECIAL USES: N/A

Mixed Occupancy:
 No Yes Exception: _____

Incidental Use Separation (508.2.5)
 This separation is not exempt as a non-separated use (see exceptions).
 Non-Separated Use (508.3 & 508.3.1)
 The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
 Separated Use Occupancy (508.4 & 508.4.1)
 See below for area calculations. For each story, the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

Actual Area of Occupancy A Actual Area of Occupancy B
 Allowable Area of Occup. A Allowable Area of Occup. B

FLOOR LEVEL

FLOOR LEVEL	FIRST FLOOR		Total (Less than or equal to 1)
	NORTH	SOUTH	
OCUPANCY	E	A	
A - ACTUAL AREA	23,867	17,826	27,200
B - ALLOWABLE AREA	68,875	45,125	52,340
A/B	.37 +	.40x1	.52

FLOOR LEVEL

FLOOR LEVEL	SECOND FLOOR		Total (Less than or equal to 1)
	E		
OCUPANCY	E		
A - ACTUAL AREA	22,386		22,386
B - ALLOWABLE AREA	52,486		52,486
A/B	.43		

FLOOR LEVEL

FLOOR LEVEL	THIRD FLOOR N/A		Total (Less than or equal to 1)
	OCUPANCY		
OCUPANCY	E		
A - ACTUAL AREA	-		-
B - ALLOWABLE AREA	-		-
A/B	-		-

AREA CALCULATIONS:

Story No.	Description & Use	A Building Area Per Story	B Table 503 Area & 406.3.6	C Area For Frontage Increase	D Area For Sprinkler Increase	E Allowable Area Unlimited	F Maximum Building Area
NORTH OF FIRE WALL							
1	FIRST FLOOR	41,692.79	14,500	10,875	43,500	N/A	68,875
SOUTH OF FIRE WALL							
2	SECOND FLOOR	22,386.56	14,500	8,986	29,000	N/A	52,486
1	FIRST FLOOR	27,200.53	14,500	8,840	29,000	N/A	52,340
TOTAL SOUTH BLDG		49,587.09					104,826
TOTAL		91,279.88					173,701

SOUTH BLDG
 1. Frontage area increases from Section 506.2 are computed as follows:
 a. Perimeter which fronts a public way or open space having 20 foot minimum width: $\frac{802}{100} (F)$ SOUTH BLDG
 b. Total Building Perimeter: $\frac{927}{100} (P)$ SOUTH BLDG
 c. Ratio (F/P): $\frac{1}{100} (F/P)$
 d. Minimum Width of Public Way: $\frac{30}{100} (W)$
 e. Percent of Frontage Increase: If $\frac{100(F-P-0.25) \times W}{30} > 75\%$ NORTH BLDG
 If $\frac{100(F-P-0.25) \times W}{30} > 81\%$ SOUTH BLDG

2. The Sprinkler Increase per Section 506.3.3 is as follows:
 a. Multi-Story Building Is = 200%
 b. Single-Story Building Is = 300%

3. Unlimited Area applicable under conditions of Sections Group B, F, M, S, A-3, & A-4 (507):
 Group A - Motion Picture (507.10):
 Covered Mall Buildings (402.6):
 H-2 Aircraft Paint hangers (507.8): = NA

4. Maximum Building Area = Total number of stories times "E" (506.4)

5. Maximum Area of Open Parking Garages must comply with Table 406.3.5, 406.3.6 or Traffic Control Towers must comply with Table 412.1.2.

ALLOWABLE HEIGHT:

Type of Construction	Type IIB	Increase for Sprinklers (504.2)	Shown on Plans	Code Reference
Height in Feet	55'	75'-0"	35'-0"	Table 503 & 504
Height in Stories	2 Stories	3 Stories	2 Stories	Table 503 & 504

FIRE PROTECTION REQUIREMENTS:

BUILDING ELEMENT	FIRE SEPARATION (FIRE RESISTANCE) (min)	RATING	DETAIL AND SHEET NUMBER	Rated Assembly	Rated Penetration	Rated Joints
Structural Frame including columns, girders, & trusses	0	0	0			
Bearing walls	0	0	0			
Interior	0	0	0			
Non-bearing walls & Partitions	0	0	0			
Interior	0	0	0			
Floor construction including supporting beams & joists	0	0	0			
Shaft Enclosures	1	N/A	UL U	SEE MEP	SEE MEP	SEE MEP
Fire Barriers	1	N/A	UL U	SEE MEP	SEE MEP	SEE MEP
Corridor Separation	1	N/A	UL U	SEE MEP	SEE MEP	SEE MEP
Occupancy Separation	1	THR	UL U	SEE MEP	SEE MEP	SEE MEP
Parityfire Wall Separation	1	N/A				
Smoke Barrier	1	N/A				
Tenant Separation	1	THR	UL U	SEE MEP	SEE MEP	SEE MEP
Fire Partition	1	THR	UL U	SEE MEP	SEE MEP	SEE MEP
Smoke Partition	1	N/A				
Horizontal Assembly	1	N/A				
Incidental Use Separation	1	N/A				

NC - Non-Combustible EX - Existing LS - Limit of Passage of Smoke
 ST - Smoke Tight N/A - Not Applicable
 * Indicates Section Number Permitting Reduction MEP - See Mech, Elec, & Plumb Dwg's

LIFE SAFETY SYSTEM REQUIREMENTS:

Emergency Lighting No Yes

Exit Signs No Yes

Fire Alarm No Yes

Smoke Detection System No Yes Partial

Panic Hardware No Yes

LIFE SAFETY PLAN REQUIREMENTS:

LIFE SAFETY PLAN - SEE SHEET G101

Fire and/or Smoke Rated Wall locations (Chapter 7)
 Assumed and Real Property Line locations
 Exterior wall opening area with respect to distance to assumed property lines (705.8)
 Existing structures within 30' of proposed building
 Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
 Exit access travel distance (1016)
 Common path of travel distances (1014.3 & 1028.8)
 Dead end lengths (1018.4)
 Clear exit widths for each exit door
 Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
 Actual occupant load for each exit door
 A separate schematic plan indicating where fire rated floor / ceiling and/or roof structure is provided for purposes of occupancy separation
 Location of doors with panic hardware (1008.1.10)
 Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
 Location of doors with electromagnetic egress locks (1008.1.9.8)
 Location of doors with hold-open devices
 Location of emergency escape windows (1029)
 The square footage of each fire area (902)
 The square footage of each smoke compartment (407.4)
 Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS: (SECTION 1107) N/A

Total Units	Accessible Units Required	Accessible Units Provided	Type A Units Required	Type A Units Provided	Total B Units Required	Type B Units Provided	Total Accessible Units Provided

ACCESSIBLE PARKING: (SECTION 1106) SEE CIVIL DWGS.

Lot or Parking Area	Total # of Parking Spaces		# of Accessible Parking Spaces Provided		Total # Accessible Provided
	Required	Provided	Regular w/ 5' Access Aisle	Van Spaces With 12' Access Aisle	
Lot 99	133	127	N/A	N/A	6
Total	99	133	127	N/A	6

STRUCTURAL DESIGN:

DESIGN LOADS:
 Importance Factors:
 Wind: Iw = 1.15
 Snow: Is = 1.1
 Seismic: Ie = 1.25

Live Loads:
 Roof: 20 psf
 Attic: N/A
 Mezzanine: N/A
 Floor: CLASSROOMS / LABS: 40 psf
 LOBBIES: 100 psf
 CORRIDORS, FIRST FLOOR: 100 psf
 UPPER CORRIDORS: 80 psf
 OFFICE: 50 psf
 RESTROOMS: 50 psf
 STAIRS: 100 psf
 STAGE: 125 psf
 LIGHT STORAGE: 120 psf
 MECH. / ELEC. / STORAGE: 150 psf
 Ground Snow: 10 psf

Wind Load: Basic Wind Speed 131 mph
 Exposure Category C
 Wind Based Shears (for MWFRS): Vy = SEE STRUCTURAL DWGS
 Seismic Design Category: A B C D
 Provide the following Seismic Design Parameters:
 Occupancy Category (Table 1604.5) I II III IV

Spectral Response Acceleration:
 Ss = 0.2 g
 S1 = 0.4 g
 Basic Structural System: Field Test Presumptive Historical Data

Basic Structural System: (check one)
 Bearing Wall Dual w/ special moment frame
 Building Frame Dual w/ Intermediate R/C or Special Steel
 Moment Frame Inverted Pendulum

Seismic Base Shear: Vx = SEE STRUCTURAL DWGS Vy = SEE STRUCTURAL DWGS
 Analysis Procedure: Simplified Equivalent Lateral Force Dynamic
 Architectural/Mechanical Components Anchored: No Yes
 Lateral Design Control: Earthquake Wind (varies - see structural drawings)

Soil Bearing Capacity:
 Field Test (provide Copy of test report): N/A
 Presumptive Bearing Capacity: 2000 psf
 Pile size, type & capacity: N/A

SPECIAL INSPECTIONS REQUIRED: No Yes

SPECIAL APPROVALS:
 (Local Jurisdiction, Department of Insurance, OSC, DHHS, ICC, etc., describe below)
 SEE STRUCTURAL DRAWING S002 FOR LIST OF SPECIAL INSPECTIONS

SCHEDULE OF SPECIAL INSPECTIONS
 No special inspection required for this project Special inspections required

The following sheets comprise the required schedule of Special Inspections for this project. The construction divisions which require special inspection for this project are as follows:

Division	Inspection
II	II-1 Verification of Soils
	II-2 Excavation and Fill
	II-3 Piling and Drilling Piers
	II-4 Modular Retaining Walls
	II-5 Reinforced Concrete
	II-6 Post-Tensioned Slab
	II-7 Precast Concrete Erection
	II-8 Pre-stressed Concrete
	II-9 Inspection of Pre-Cast Fabricators
	II-10 Inspection of Structural Steel Fabricators
	II-11 Structural Masonry
	II-12 Welding
	II-13 High Strength Bolts & Steel Framing Imp.
	II-14 Sprayed Fire-Resistance Materials
II-15 Exterior Insulation and Finish systems	
II-16 Seismic Restraints	
II-17 Smoke Control	
II-18 Wood	
II-19 Special Cases	

Check the above boxes for the special inspection required for this project and list below specific special inspections required under Chapter 17. For questions regarding Special Inspections please see www.Meck-SI.com.

EXIT REQUIREMENTS:

Floor, Room, or Space Designation	Minimum # of Exits -	Travel Distance	Arrangement Means of Egress (Section 1015.2) See notes 1 & 3	
			Required	Actual
SECOND FLOOR	3	250'	226'	95'-0" 173'-0"
FIRST FLOOR / NORTH	3	250'	174'	100'-0" 116'-0"
FIRST FLOOR / SOUTH	3	250'	196'	91'-4" 131'-0"

Notes:
 1. Corridor Dead Ends (Section 1018.4)
 2. Buildings with Single Exits (1021.2)
 3. Common Path of Travel (Section 1014.3)

EXIT WIDTH:

Use Group or Space Description / Occupancy Type	Area (sf) See note 1	Area per Occupant (Table 1005.1) See note 1	Occupant Load	Exit Width (in.) See notes 2, 3, 4, 5, & 6			
				Required Width (Section 1005.1) (a/b) x c	Actual Width Shown on Plans		
1ST CLASS RM / -	15,528	20	777	0.3	0.2	156	140
2ND CLASS RM / -	12,557	20	630	0.3	0.2	189	126
ADMIN / -	5,294	100	53	0.3	0.2	11	96
GYM / A-4	8,864	07	1,265	0.3	0.2	253	340
DINING / A-2	3,750	15	251	0.3	0.2	51	136
MEDIA CENTER / -	4,139	60	283	0.3	0.2	17	136
TOTAL	-	-	3,059	0.3	0.2	189	614

Notes:
 1. See Table 1004.1.1 to determine whether Net or Gross area is applicable. See definition "Area Gross" and "Area Net" (Section 1002).
 2. Minimum Stairway width (Section 1005.1, 1009.1). Minimum Corridor Width (Section 1018.2). Minimum Door Width (Section 1008.1).
 3. Minimum Width of Exit Passageway (Section 1023.2)
 4. See Section 1004.5 for converging exits.
 5. The loss of one means of egress shall not reduce the available capacity to less than 50 percent of the total required (Section 1005.1).

PLUMBING REQUIREMENTS:

Use	Waterclosets		Urinals		Lavatories		Showers / Tubs		Drinking Fountains	
	Male	Female	Male	Female	Male	Female	Male	Female	Regular	Accessible
CLASS ROOM	New 17	13	1	12	13	N/A	5	5		
STAFF	New 2	2	0	2	2	0	0	0		
Req'd.	1	2	0	1	1	0	0	0		

ENERGY SUMMARY: N/A

ENERGY REQUIREMENTS
 The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs. annual energy cost for the proposed design.

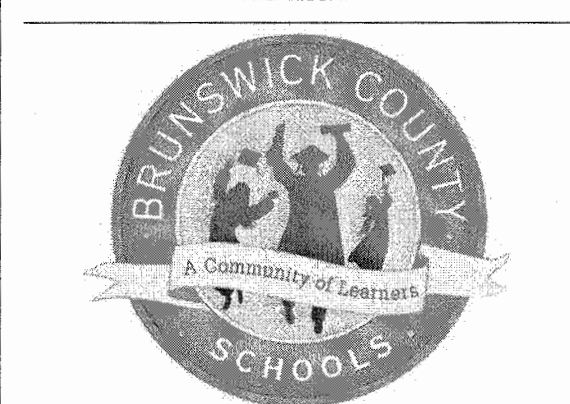
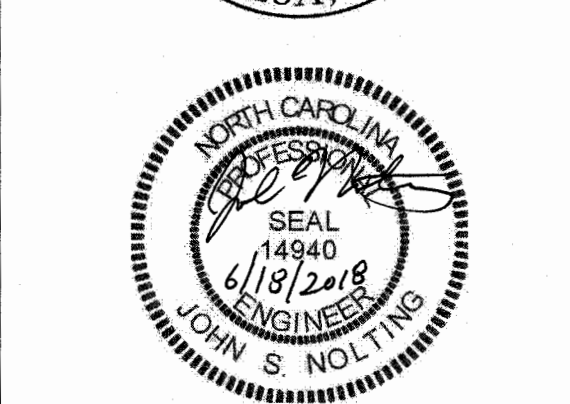
Climate Zone: 3 4 5
 Method of Compliance: Prescriptive (Energy Code) Performance (Energy Code) Prescriptive (ASHREA 90.1) Performance (ASHREA 90.1)

THERMAL ENVELOPE:

ROOF / CEILING ASSEMBLY

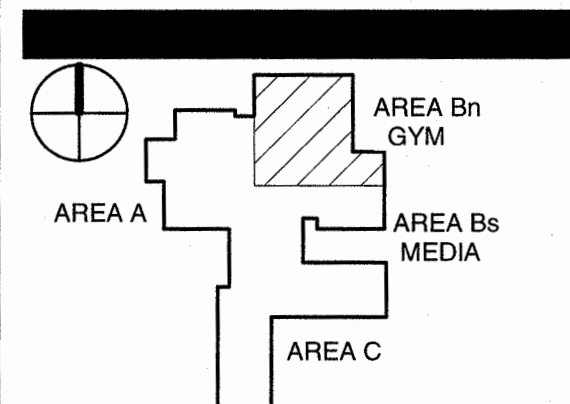
No.	Description	Total U-Value	Insulation R-Value	Skylights Total U-Value	Total Area
	METAL ROOFING OVER 3" RIGID INSULATION ON METAL DECK.			N/A	N/A

EXTERIOR WALL ASSEMBLY



TOWN CREEK MIDDLE SCHOOL

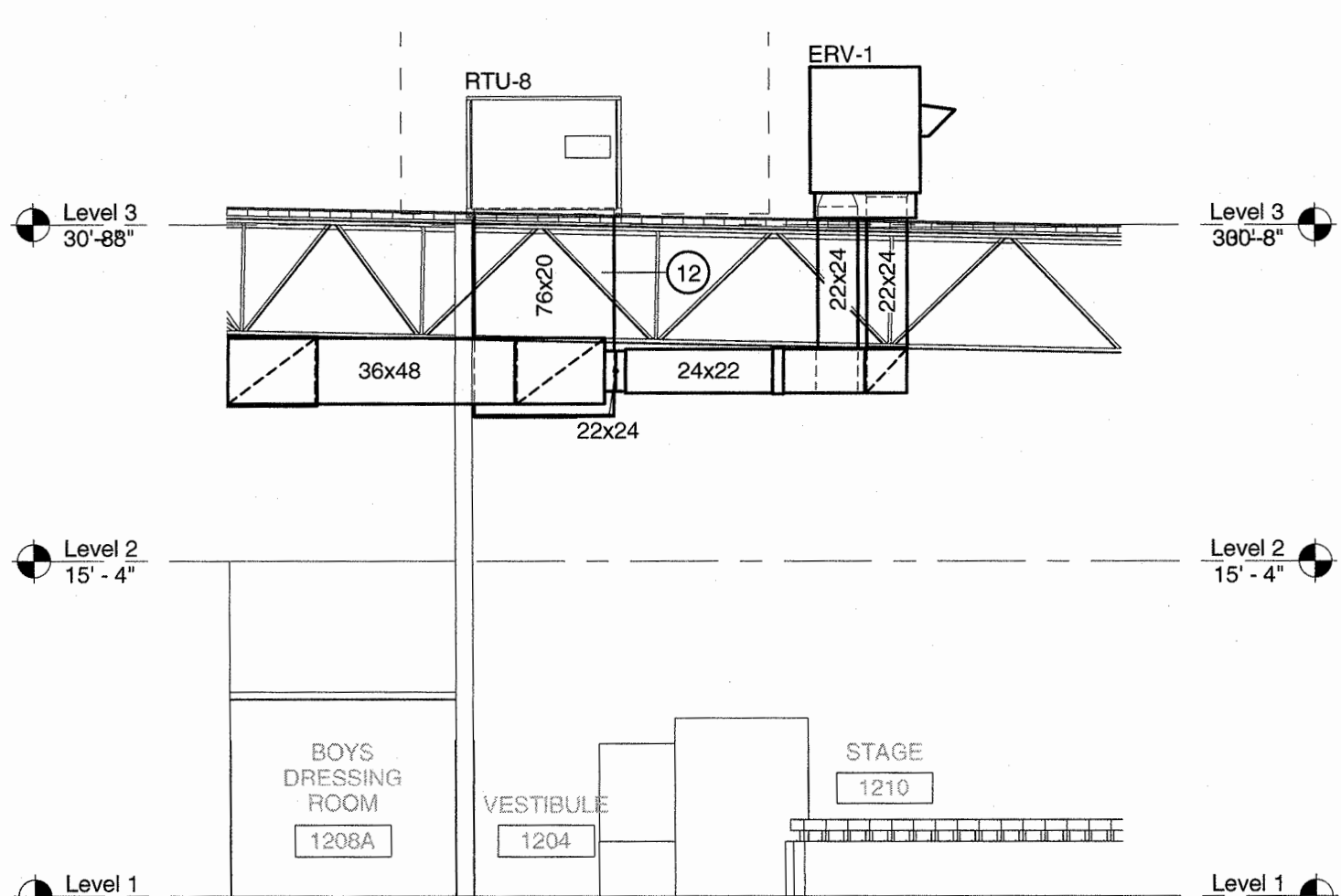
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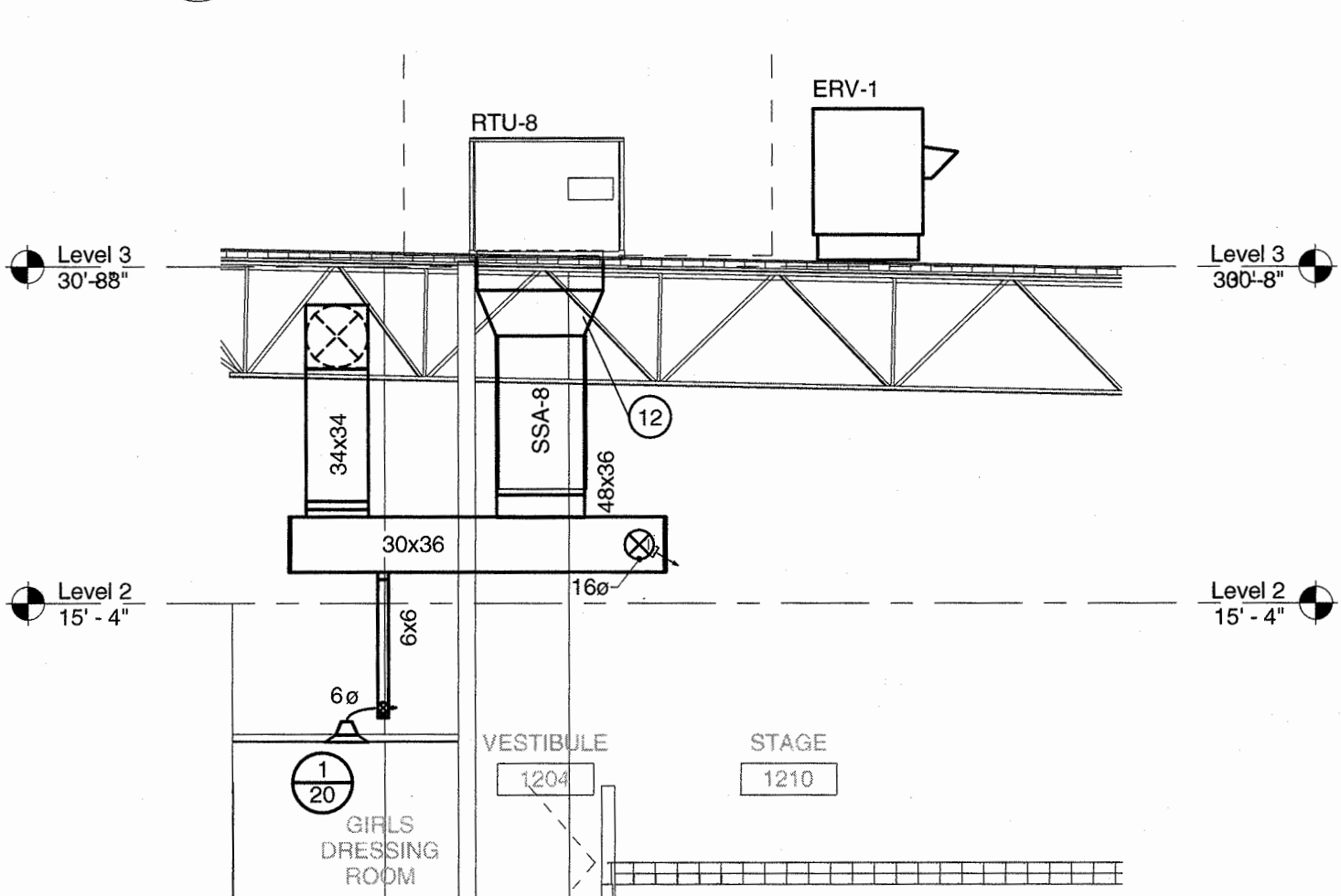
REVISIONS		
No.	Description	Date
2	ADDENDUM 2	6/18/2018

ISSUED: CONSTRUCTION DOCUMENTS
 DATE: 05/24/2018
 SCALE: 1/8" = 1'-0"
 SHEET NAME:
 DUCTWORK FLOOR PLAN - LEVEL 1 - AREA B GYM

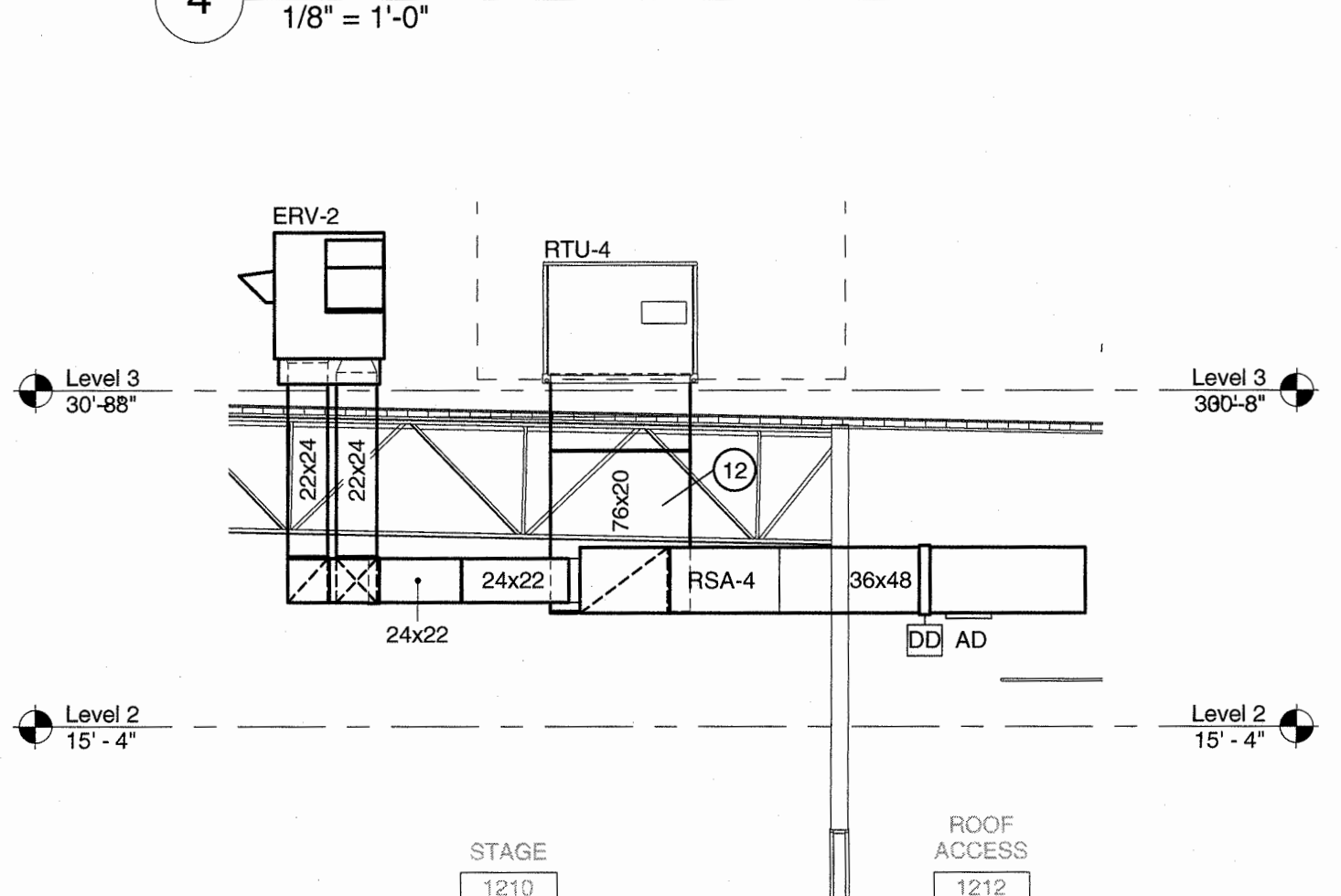
SHEET NUMBER:
M-101Bn



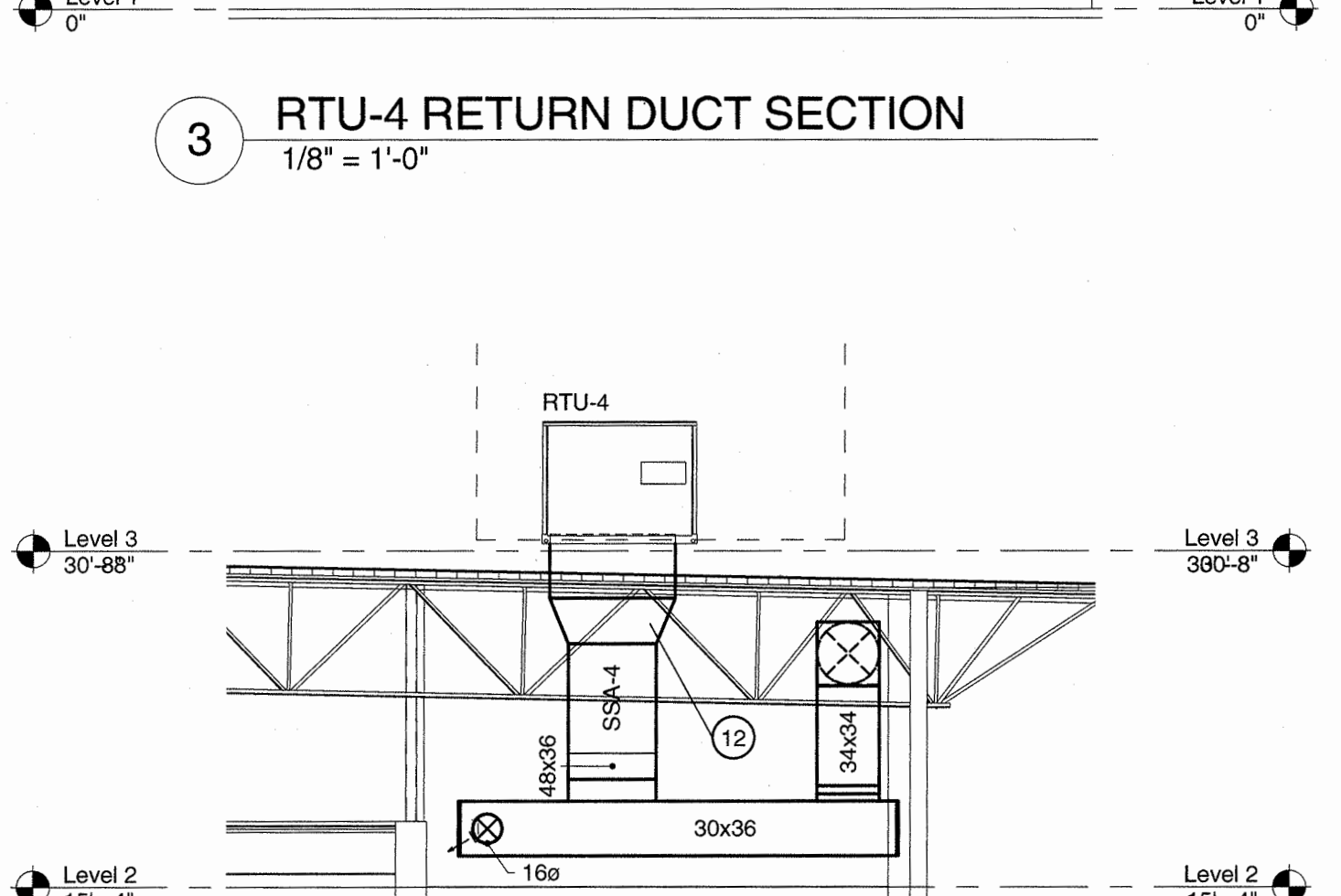
5 RTU-8 RETURN DUCT SECTION
1/8" = 1'-0"



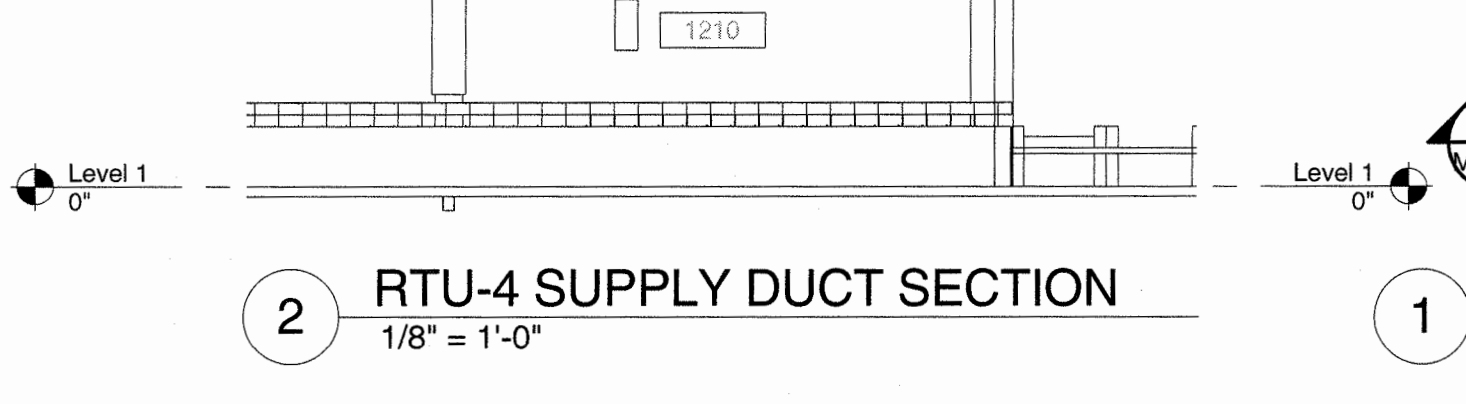
4 RTU-8 SUPPLY DUCT SECTION
1/8" = 1'-0"



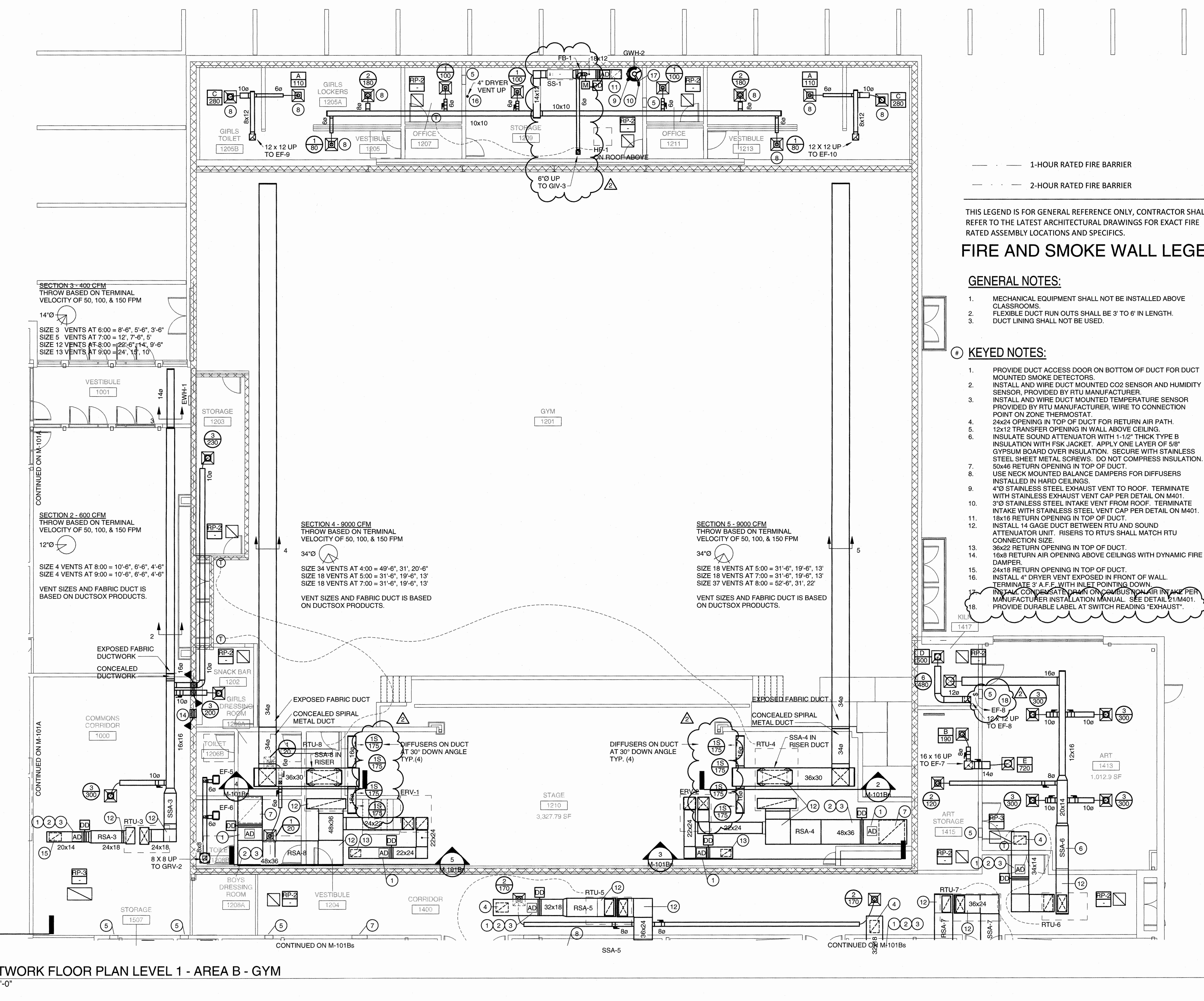
3 RTU-4 RETURN DUCT SECTION
1/8" = 1'-0"



2 RTU-4 SUPPLY DUCT SECTION
1/8" = 1'-0"



1 DUCTWORK FLOOR PLAN LEVEL 1 - AREA B - GYM
1/8" = 1'-0"



- 1-HOUR RATED FIRE BARRIER
- 2-HOUR RATED FIRE BARRIER

THIS LEGEND IS FOR GENERAL REFERENCE ONLY, CONTRACTOR SHALL REFER TO THE LATEST ARCHITECTURAL DRAWINGS FOR EXACT FIRE RATED ASSEMBLY LOCATIONS AND SPECIFICS.

FIRE AND SMOKE WALL LEGEND

GENERAL NOTES:

- MECHANICAL EQUIPMENT SHALL NOT BE INSTALLED ABOVE CLASSROOMS.
- FLEXIBLE DUCT RUN OUTS SHALL BE 3' TO 6' IN LENGTH. DUCT LINING SHALL NOT BE USED.

KEYED NOTES:

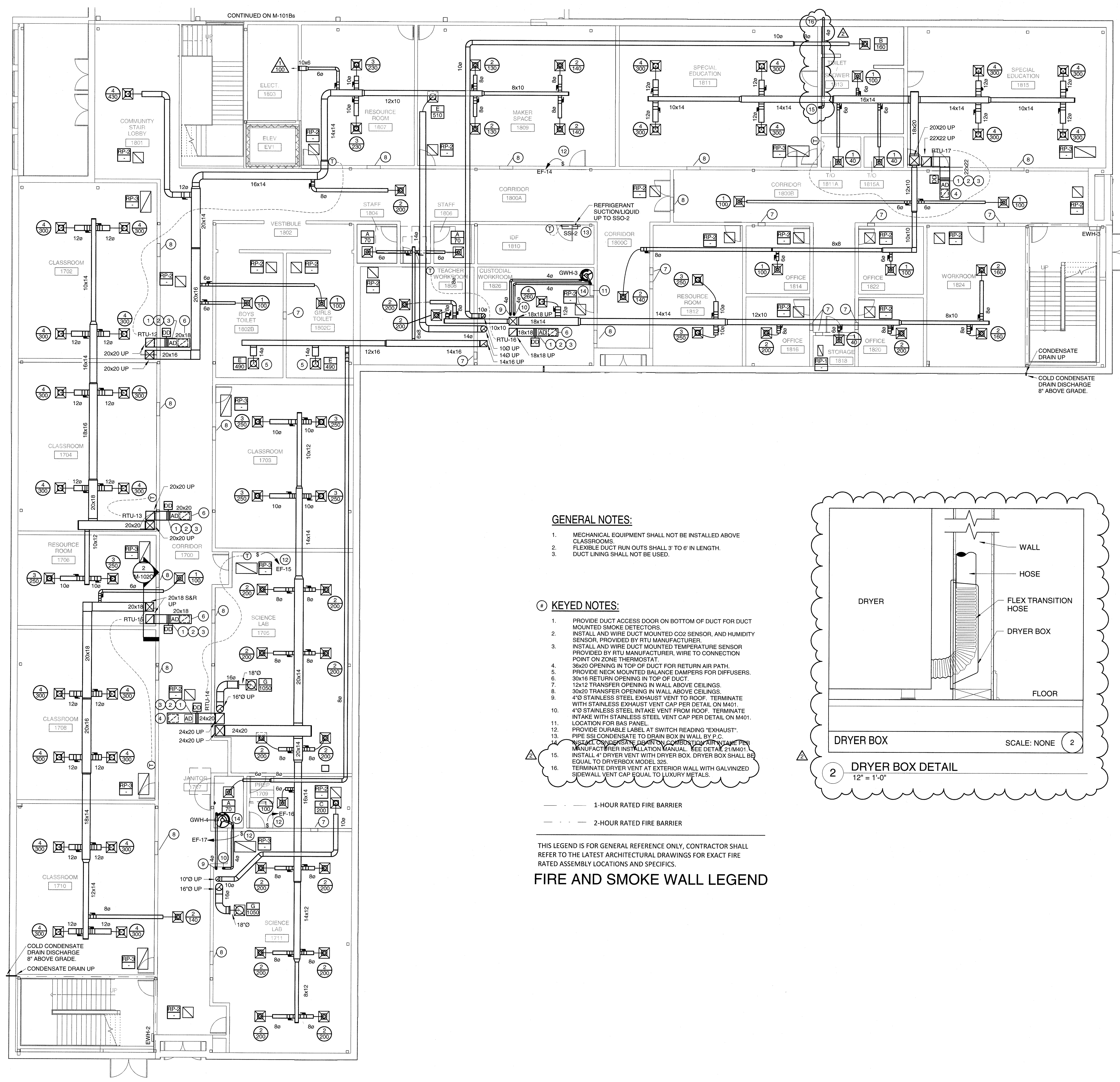
- PROVIDE DUCT ACCESS DOOR ON BOTTOM OF DUCT FOR DUCT MOUNTED SMOKE DETECTORS.
- INSTALL AND WIRE DUCT MOUNTED CO2 SENSOR AND HUMIDITY SENSOR, PROVIDED BY RTU MANUFACTURER.
- INSTALL AND WIRE DUCT MOUNTED TEMPERATURE SENSOR PROVIDED BY RTU MANUFACTURER, WIRE TO CONNECTION POINT ON ZONE THERMOSTAT.
- 24x24 OPENING IN TOP OF DUCT FOR RETURN AIR PATH.
- 12x12 TRANSFER OPENING IN WALL ABOVE CEILING.
- INSULATE SOUND ATTENUATOR WITH 1-1/2" THICK TYPE B INSULATION WITH FSK JACKET. APPLY ONE LAYER OF 5/8" GYPSUM BOARD OVER INSULATION. SECURE WITH STAINLESS STEEL SHEET METAL SCREWS. DO NOT COMPRESS INSULATION.
- 50x46 RETURN OPENING IN TOP OF DUCT.
- USE NECK MOUNTED BALANCE DAMPERS FOR DIFFUSERS INSTALLED IN HARD CEILINGS.
- 4" STAINLESS STEEL EXHAUST VENT TO ROOF. TERMINATE WITH STAINLESS EXHAUST VENT CAP PER DETAIL ON M401.
- 3" STAINLESS STEEL INTAKE VENT FROM ROOF. TERMINATE INTAKE WITH STAINLESS STEEL VENT CAP PER DETAIL ON M401.
- 18x16 RETURN OPENING IN TOP OF DUCT.
- INSTALL 14 GAUGE DUCT BETWEEN RTU AND SOUND ATTENUATOR UNIT. RISERS TO RTU'S SHALL MATCH RTU CONNECTION SIZE.
- 30x25 RETURN OPENING IN TOP OF DUCT.
- 16x8 RETURN AIR OPENING ABOVE CEILINGS WITH DYNAMIC FIRE DAMPER.
- 34x18 RETURN OPENING IN TOP OF DUCT.
- INSTALL 4" DRYER VENT EXPOSED IN FRONT OF WALL. TERMINATE 3" A.F.F. WITH INLET POINTING DOWN.
- INSTALL CONDENSATE PAN ON CONDENSATION AIR IN 1/2" PER MANUFACTURER INSTALLATION MANUAL. SEE DETAIL M401.
- PROVIDE DURABLE LABEL AT SWITCH READING 'EXHAUST'.

SECTION 3 - 800 CFM
THROW BASED ON TERMINAL VELOCITY OF 50, 100, & 150 FPM
 14'-0"
 SIZE 3 VENTS AT 6:00 = 8'-6", 5'-6", 3'-6"
 SIZE 5 VENTS AT 7:00 = 12'-7", 9'-6", 5"
 SIZE 12 VENTS AT 8:00 = 22'-6", 14'-9", 9'-6"
 SIZE 13 VENTS AT 9:00 = 24'-15", 10"

SECTION 2 - 600 CFM
THROW BASED ON TERMINAL VELOCITY OF 50, 100, & 150 FPM
 12'-0"
 SIZE 4 VENTS AT 8:00 = 10'-6", 6'-6", 4'-6"
 SIZE 4 VENTS AT 9:00 = 10'-6", 6'-6", 4'-6"
 VENT SIZES AND FABRIC DUCT IS BASED ON DUCTSOX PRODUCTS.

SECTION 4 - 8000 CFM
THROW BASED ON TERMINAL VELOCITY OF 50, 100, & 150 FPM
 34'-0"
 SIZE 34 VENTS AT 4:00 = 49'-6", 31'-6", 20'-6"
 SIZE 18 VENTS AT 5:00 = 31'-6", 19'-6", 13"
 SIZE 18 VENTS AT 7:00 = 31'-6", 19'-6", 13"
 VENT SIZES AND FABRIC DUCT IS BASED ON DUCTSOX PRODUCTS.

SECTION 5 - 8000 CFM
THROW BASED ON TERMINAL VELOCITY OF 50, 100, & 150 FPM
 34'-0"
 SIZE 18 VENTS AT 5:00 = 31'-6", 19'-6", 13"
 SIZE 18 VENTS AT 7:00 = 31'-6", 19'-6", 13"
 SIZE 37 VENTS AT 8:00 = 52'-6", 31'-22"
 VENT SIZES AND FABRIC DUCT IS BASED ON DUCTSOX PRODUCTS.



GENERAL NOTES:

- MECHANICAL EQUIPMENT SHALL NOT BE INSTALLED ABOVE CLASSROOMS.
- FLEXIBLE DUCT RUN OUTS SHALL 3' TO 6' IN LENGTH. DUCT LINING SHALL NOT BE USED.

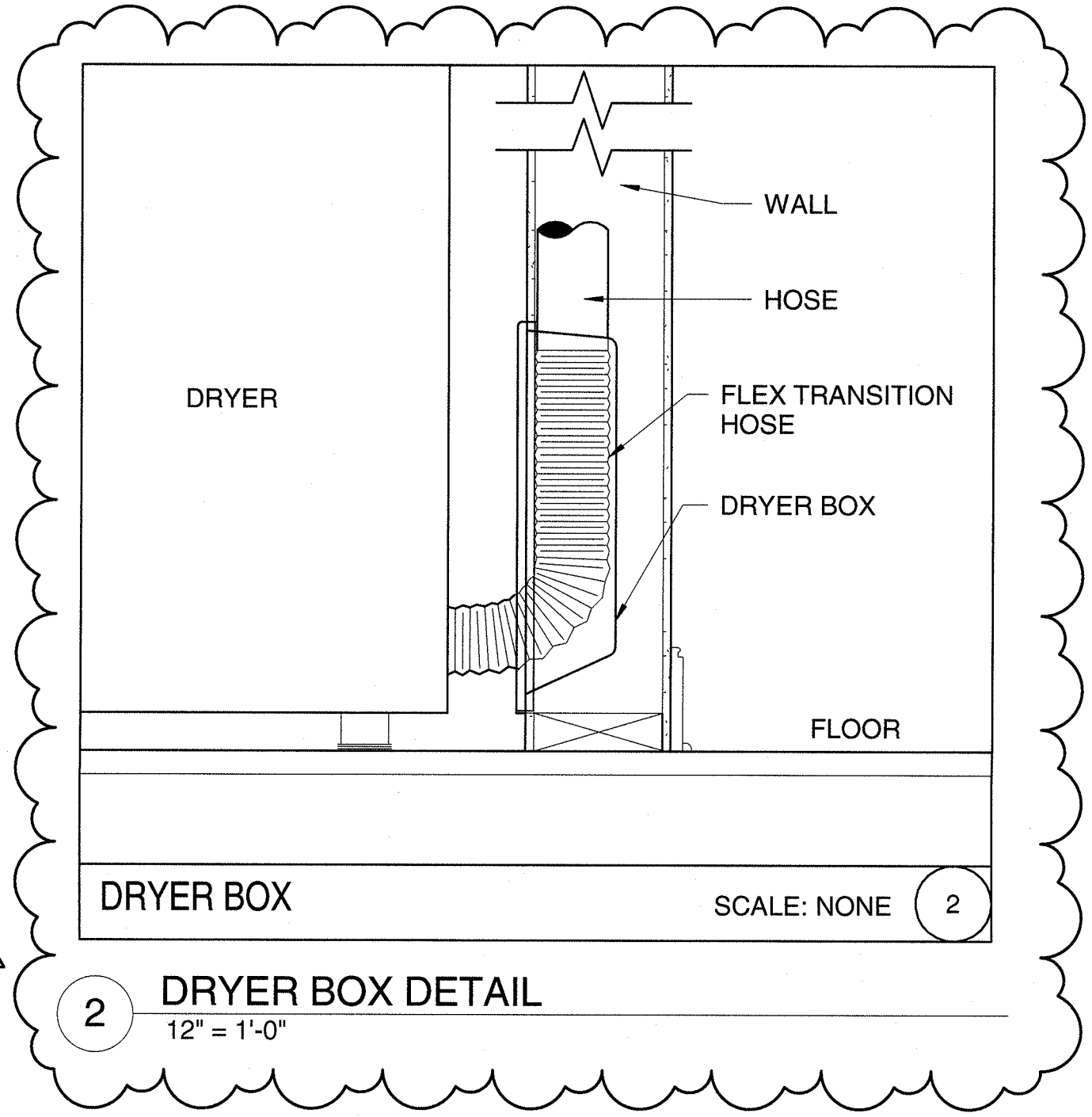
KEYED NOTES:

- PROVIDE DUCT ACCESS DOOR ON BOTTOM OF DUCT FOR DUCT MOUNTED SMOKE DETECTORS.
- INSTALL AND WIRE DUCT MOUNTED CO2 SENSOR, AND HUMIDITY SENSOR, PROVIDED BY RTU MANUFACTURER.
- INSTALL AND WIRE DUCT MOUNTED TEMPERATURE SENSOR PROVIDED BY RTU MANUFACTURER. WIRE TO CONNECTION POINT ON ZONE THERMOSTAT.
- 36x20 OPENING IN TOP OF DUCT FOR RETURN AIR PATH.
- PROVIDE NECK MOUNTED BALANCE DAMPERS FOR DIFFUSERS.
- 30x16 RETURN OPENING IN TOP OF DUCT.
- 12x12 TRANSFER OPENING IN WALL ABOVE CEILINGS.
- 30x20 TRANSFER OPENING IN WALL ABOVE CEILINGS.
- 4" STAINLESS STEEL EXHAUST VENT TO ROOF. TERMINATE WITH STAINLESS EXHAUST VENT CAP PER DETAIL ON M401.
- 4" STAINLESS STEEL INTAKE VENT FROM ROOF. TERMINATE INTAKE WITH STAINLESS STEEL VENT CAP PER DETAIL ON M401. LOCATION FOR BAS PANEL.
- PROVIDE DURABLE LABEL AT SWITCH READING "EXHAUST".
- PIPE SSI CONDENSATE TO DRAIN BOX IN WALL BY P.C.
- INSTALL CONDENSATE DRAIN ON COMBUSTION AIR INTAKE PER MANUFACTURER INSTALLATION MANUAL. SEE DETAIL 21/M401.
- INSTALL 4" DRYER VENT WITH DRYER BOX. DRYER BOX SHALL BE EQUAL TO DRYERBOX MODEL 325.
- TERMINATE DRYER VENT AT EXTERIOR WALL WITH GALVANIZED SIDEWALL VENT CAP EQUAL TO LUXURY METALS.

- 1-HOUR RATED FIRE BARRIER
- 2-HOUR RATED FIRE BARRIER

THIS LEGEND IS FOR GENERAL REFERENCE ONLY. CONTRACTOR SHALL REFER TO THE LATEST ARCHITECTURAL DRAWINGS FOR EXACT FIRE RATED ASSEMBLY LOCATIONS AND SPECIFICS.

FIRE AND SMOKE WALL LEGEND



1 DUCTWORK FLOOR PLAN LEVEL 1 - AREA C
1/8" = 1'-0"

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 6370 LAKE PARK DRIVE SE
 WINNABOW, NC 28479

REVISIONS

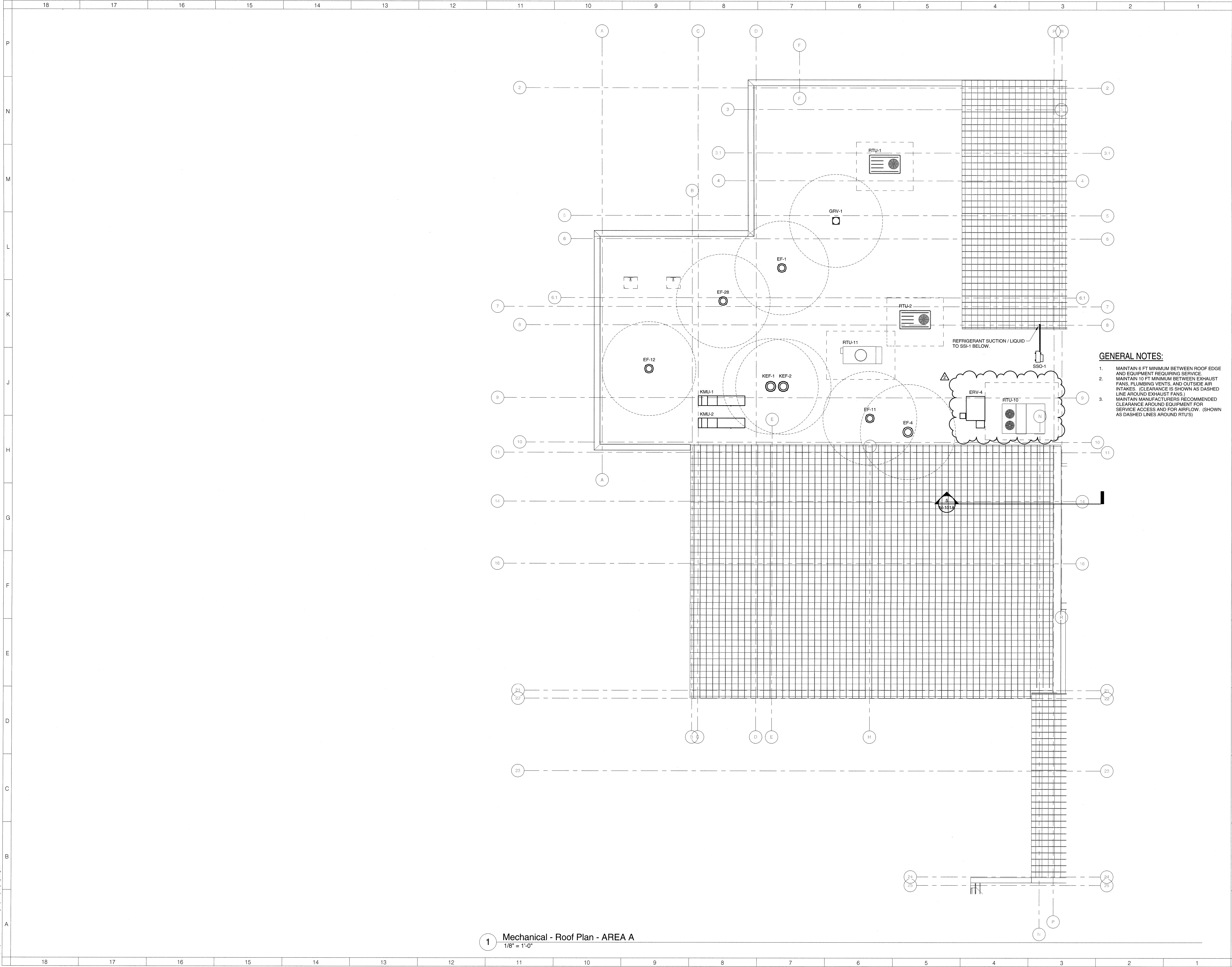
No.	Description	Date
2	ADDENDUM 2	6/18/2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: As indicated
SHEET NAME: DUCTWORK FLOOR PLAN - LEVEL 1 - AREA C
SHEET NUMBER:

M-101C

PROJECT NUMBER: 1720601.00 COPYRIGHT © 2017 KSO ARCHITECTS, PC



- GENERAL NOTES:**
1. MAINTAIN 6 FT MINIMUM BETWEEN ROOF EDGE AND EQUIPMENT REQUIRING SERVICE.
 2. MAINTAIN 10 FT MINIMUM BETWEEN EXHAUST FANS, PLUMBING VENTS, AND OUTSIDE AIR INTAKES. (CLEARANCE IS SHOWN AS DASHED LINE AROUND EXHAUST FANS.)
 3. MAINTAIN MANUFACTURERS RECOMMENDED CLEARANCE AROUND EQUIPMENT FOR SERVICE ACCESS AND FOR AIRFLOW. (SHOWN AS DASHED LINES AROUND RTU'S)

1 Mechanical - Roof Plan - AREA A
1/8" = 1'-0"

ARCHITECT

ksqdesign

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www.ctengineering.com

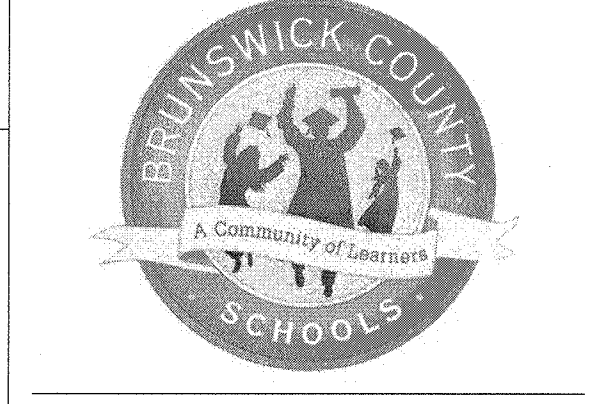
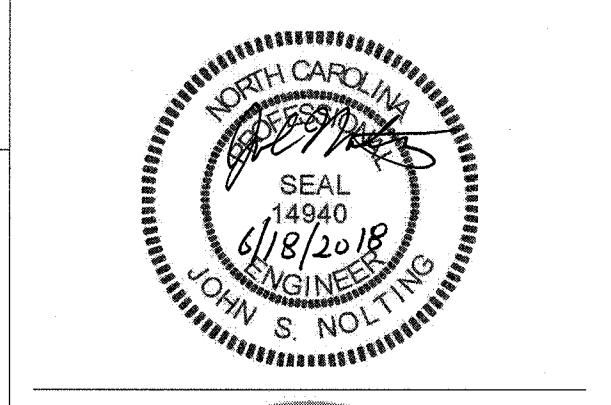
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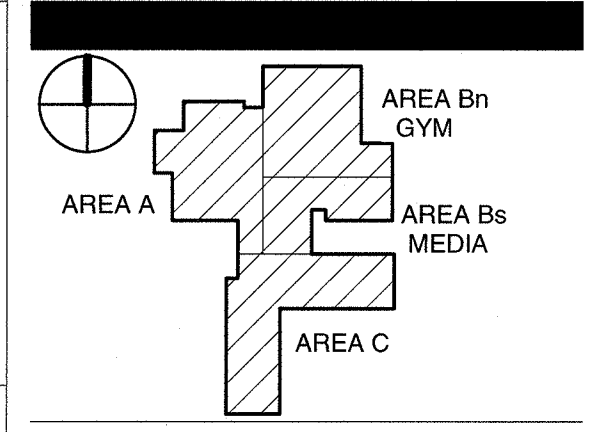
Building Envelope Consultant
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TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479



REVISIONS

No.	Description	Date
2	ADDENDUM 2	6/18/2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1/8" = 1'-0"
SHEET NAME:
MECHANICAL ROOF PLAN - AREA A

SHEET NUMBER:
M-121A

18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
P																	
N																	
M																	
L																	
K																	
J																	
H																	
G																	
F																	
E																	
D																	
C																	
B																	
A																	

UNIT HEATER SCHEDULE

TAG	LOCATION	CFM	E.A.T. DEG F	L.A.T. DEG F	CAPACITY KW	CAPACITY BTU/HR MIN	MOTOR HP/VOLT/PHASE	MANUFACTURER AND MODEL NUMBER	NOTES
EWH-1	1001 VESTIBULE	245	65	129	5.0	17,065	277/1	MARKEL G3425T	1
EWH-2	1712 STAIRS	245	65	116	4.0	13,652	277/1	MARKEL G3424T	1
EWH-3	1828 STAIRS	245	65	116	4.0	13,652	277/1	MARKEL G3424T	1
EWH-4	1311 PLUMBING	70	65	110	1.0	3410	120/1	MARKEL E4410TRP	1
EWH-5	1319 ELECTRICAL	70	65	133	1.5	5119	120/1	MARKEL E4415TRP	1

NOTES:
1. PROVIDE WITH DISCONNECT, SURFACE MOUNT FRAME, INTEGRAL TAMPER PROOF THERMOSTAT AND THERMAL OVERLOAD.

SPLIT SYSTEM AIR HANDLER / HEAT PUMP SCHEDULE

AIR HANDLER										HEAT PUMP										NOTES					
TAG	CFM	OA CFM	EXT. S.P. (°W.C.)	DRIVE	ELEC HEAT KW	STAGE	ELECTRICAL VOLTAGE/PHASE	FAN WATTS	WEIGHT (LBS)	MANUFACTURER MODEL NUMBER	TAG	TOTAL CAP (MBH)	SENS CAP (MBH)	EDB	EWB	AMBI ENT	SEER	HEATING CAP @77 (MBH)	HSPF	ELECTRICAL VOLTAGE/PHASE	MCA	MOP	WEIGHT (LBS)	MANUFACTURER MODEL NUMBER	NOTES
SS-1	820	70	0.5	DIRECT	5.77	1	208 / 1	145	117	TRANE TEMPA0824H21	HP-1	23.1	18.3	76.6	64.1	95	16.0	22.0	9.0	208 / 1	14	25	174	TRANE 4TWR6024H1	ALL

NOTES:
1. PROVIDE WITH UNIT MOUNTED DISCONNECTS AT BOTH AIR HANDLING UNIT AND CONDENSING UNIT. OUTDOOR UNIT TO BE NEMA 3R TYPE.
2. PROVIDE WITH MOTORIZED DAMPER IN OUTSIDE AIR INLET. INTERLOCK DAMPER WITH AHU. DAMPER TO CLOSE WHEN UNIT IS NOT IN OPERATION.
3. PROVIDE WITH A WATER DETECTING DEVICE IN THE UNIT DRAIN PAN CONFORMING TO NC MECHANICAL CODE 307.2.2, NOTE 4.
4. PROVIDE ANTI-SHORT CYCLE TIMER.
5. PROVIDE 7 DAY PROGRAMMABLE THERMOSTAT WITH DIGITAL DISPLAY.

PACKAGED DX / GAS ROOF TOP UNIT SCHEDULE

TAG	LOCATION	CFM	OUTSIDE AIR	EXT. S.P. (°W.C.)	TOTAL (MBH)	SENSIBLE (MBH)	EAT-DB (F)	EAT-WB (F)	AMBIENT TEMP (F)	HOT GAS REHEAT CAPACITY (MBH)	EAT (F)	LAT (F)	TYPE	INPUT (BTUH)	OUTPUT (BTUH)	CONTROL	VOLTAGE/PHASE	FLA	MCA	MOP	WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER	NOTES	
RTU-11	KITCHEN ROOF	1550	SEE BELOW		1.0	88.9	51	85	72	95	65	54	93	GAS	100	80	MODULATING	460/3	22.7	25.9	35	1963	TRANE HORIZON OAB/G	ALL

NOTES:
1. PROVIDE WITH ROOF CURB.
2. PROVIDE WITH UNIT MOUNTED DISCONNECT.
3. PROVIDE WITH 100% ENTHALPY BASED ECONOMIZER WITH MODULATING POWERED EXHAUST, AND MODULATING O/A/R DAMPER CONTROL.
4. PROVIDE WITH WATER DETECTING DEVICE IN DRAIN PAN TO SHUT UNIT DOWN UPON HIGH CONDENSATE LEVEL.
5. PROVIDE INDIRECT FIRED, MODULATING NATURAL GAS HEAT.
6. PROVIDE VFD FOR SUPPLY FAN FOR BALANCING. UNIT WILL OPERATE CONSTANT VOLUME.
7. PROVIDE MODULATING COOLING CAPACITY WITH EITHER VARIABLE SPEED COMPRESSOR(S) OR DIGITAL SCROLL COMPRESSOR(S).
8. PROVIDE BACKNET INTERFACE WITH SPACE CONTROL AND ROOM SENSOR.
9. PROVIDE MODULATING HOT GAS REHEAT.
10. PROVIDE RETURN ROOM PRESSURE CONTROL.
11. PROVIDE AIRFLOW MONITORING FOR OUTSIDE AND EXHAUST AIRFLOWS.
12. ACCEPTABLE EQUALS ARE TRANE, AACH.

OUTSIDE AIR:
1. OCCUPIED, NEITHER HOOD OPERATING: 210 CFM OUTSIDE AIR
2. OCCUPIED, GREASE HOODS ON: 676 CFM OUTSIDE AIR

PACKAGED ROOF TOP UNIT SCHEDULE

TAG	LOCATION	CFM	MINIMUM OUTSIDE AIR	EXT. S.P. (°W.C.)	TOTAL (MBH)	SENSIBLE (MBH)	EAT-DB (F)	EAT-WB (F)	AMBIENT TEMP (F)	EFFICIENCY @ AHR1	CAPACITY (MBH)	T RISE (°F)	EAT (°F)	TYPE	INPUT (BTUH)	OUTPUT (BTUH)	EFFICIENCY	VOLTAGE/PHASE	MCA	MOP	WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER	NOTES	
RTU-1	AREA-A ROOF	1340	190	0.75	45.25	31.99	77.59	65.12	95	17.5 EER	27.58	19.0	54.40	GAS	60,000	49,000	81.6 %	460/3	13.7	20.0	976	TRANE PRECEDENT YHC047	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19	
RTU-2	AREA-A ROOF	1630	200	0.75	46.86	34.02	77.25	64.78	95	17.5 EER	28.82	16.3	56.8	GAS	60,000	49,000	81.6 %	460/3	13.7	20.0	976	TRANE PRECEDENT YHC047	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19	
RTU-3	AREA-A ROOF	1730	200	0.75	47.05	34.33	77.17	64.70	95	17.5 EER	29.05	15.8	57.2	GAS	60,000	49,000	81.6 %	460/3	13.7	20.0	976	TRANE PRECEDENT YHC047	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19	
RTU-4	AREA-B ROOF	9700	4920	0.75	258.21	187.44	79.05	66.70	95	10.6 EER	185.16	19.0	57.6	GAS	250,000	200,000	80.0 %	460/3	54.0	70.0	3005	TRANE VOYAGER YHD000	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 21	
RTU-5	AREA-B ROOF	3460	620	0.75	110.08	83.23	78.58	67.60	95	12.4 EER	91.90	24.5	56.7	GAS	150,000	120,000	80.0 %	460/3	21.9	30.0	1608	TRANE PRECEDENT YHC067	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19	
RTU-6	AREA-B ROOF	1800	440	0.75	57.52	40.66	78.52	66.2	95	17.2 EER	32.59	16.7	56.6	GAS	60,000	49,000	81.6 %	460/3	15.2	20.0	999	TRANE PRECEDENT YHC067	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19	
RTU-7	AREA-B ROOF	3440	1120	0.75	111.54	84.81	80.96	68.31	95	12.4 EER	92.77	24.9	57.5	GAS	150,000	120,000	80.0 %	460/3	21.9	30.0	1608	TRANE PRECEDENT YHC120	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19	
RTU-8	AREA-B ROOF	9740	4920	0.75	258.21	187.44	79.05	66.70	95	10.6 EER	185.16	19.0	57.6	GAS	250,000	200,000	80.0 %	460/3	54.0	70.0	3005	TRANE VOYAGER YHD000	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19, 21	
RTU-9	AREA-B ROOF	3400	1550*	0.75	96.12	74.93	76.64	64.37	95	12.5 EER	79.01	21.4	56.2	GAS	120,000	96,000	80.0 %	460/3	21.6	25.0	1300	TRANE PRECEDENT YHC102	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19	
RTU-10	AREA-A ROOF	5000	2800*	0.75	165.53	109.13	77.24	65.02	95	12.1 EER	116.58	21.5	55.8	GAS	250,000	200,000	80.0 %	460/3	35.0	45	2383	TRANE VOYAGER YHD180	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 21	
RTU-11																								REFER TO OTHER SCHEDULE ON THIS SHEET
RTU-12	AREA-C ROOF	1930	530	1.25	68.81	47.25	80.03	67.45	95	12.6 EER	31.33	15.0	55.9	GAS	80,000	64,000	80.0 %	460/3	15.1	20.0	1168	TRANE PRECEDENT YHC072	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19, 22	
RTU-13	AREA-C ROOF	2900	840	1.25	97.13	71.48	80.30	67.71	95	12.5 EER	79.7	25.3	56.1	GAS	120,000	96,000	80.0 %	460/3	21.6	25.0	1300	TRANE PRECEDENT YHC102	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19, 22	
RTU-14	AREA-C ROOF	3500	1280	1.25	112.72	85.25	81.62	68.96	95	12.4 EER	93.7	24.4	56.3	GAS	150,000	120,000	80.0 %	460/3	21.9	30.0	1608	TRANE PRECEDENT YHC120	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19, 22	
RTU-15	AREA-C ROOF	2640	710	1.25	86.79	61.28	79.92	67.35	95	12.6 EER	70.3	24.5	57.5	GAS	120,000	96,000	80.0 %	460/3	19.9	25.0	1291	TRANE PRECEDENT YHC092	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19, 22	
RTU-16	AREA-C ROOF	1920	350	1.25	67.22	46.77	78.52	6.02	95	12.6 EER	31.93	15.3	54.5	GAS	80,000	64,000	80.0 %	460/3	15.1	20.0	1168	TRANE PRECEDENT YHC072	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19, 22	
RTU-17	AREA-C ROOF	3120	640	1.25	92.71	69.66	78.75	66.25	95	12.5 EER	79.43	23.5	57.0	GAS	120,000	96,000	80.0 %	460/3	21.6	25.0	1300	TRANE PRECEDENT YHC102	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19, 22	
RTU-18	AREA-C ROOF	1540	340	0.75	47.70	33.89	79.04	66.52	95	17.5 EER	27.78	16.6	57.5	GAS	60,000	49,000	81.6 %	460/3	13.7	20.0	976	TRANE PRECEDENT YHC047	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19	
RTU-19	AREA-C ROOF	3400	850	0.75	109.84	82.72	79.58	67.60	95	12.4 EER	91.69	24.9	56.5	GAS	150,000	120,000	80.0 %	460/3	21.9	30.0	1608	TRANE PRECEDENT YHC120	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19	
RTU-20	AREA-C ROOF	3500	1280	0.75	113.02	85.22	81.69	68.98	95	12.4 EER	93.71	24.7	56.5	GAS	150,000	120,000	80.0 %	460/3	21.9	30.0	1608	TRANE PRECEDENT YHC120	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19	
RTU-21	AREA-C ROOF	3420	930	0.75	109.69	85.04	79.98	67.41	95	12.4 EER	91.58	24.7	56.4	GAS	150,000	120,000	80.0 %	460/3	21.9	30.0	1608	TRANE PRECEDENT YHC120	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19	
RTU-22	AREA-C ROOF	3100	870	0.75	95.12	70.95	80.14	67.55	95	12.5 EER	80.06	23.8	56.2	GAS	120,000	96,000	80.0 %	460/3	21.6	25.0	1300	TRANE PRECEDENT YHC102	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19	
RTU-23	AREA-C ROOF	2540	700	0.75	86.80	60.96	80.04	67.47	95	12.6 EER	70.25	25.5	56.9	GAS	120,000	96,000	80.0 %	460/3	19.9	25.0	1291	TRANE PRECEDENT YHC092	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19	
RTU-24	AREA-C ROOF	2540	700	0.75	86.80	60.96	80.04	67.47	95	12.6 EER	70.25	25.5	56.9	GAS	120,000	96,000	80.0 %	460/3	19.9	25.0	1291	TRANE PRECEDENT YHC092	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19	
RTU-25	AREA-B ROOF	1600	200	0.75	46.74	33.90	77.30	64.80	95	17.5 EER	28.70	16.5	56.5	GAS	60,000	49,000	80.0 %	460/3	13.7	20.0	976	TRANE PRECEDENT YHC047E4	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 19	

NOTES:
1. PROVIDE WITH DRY BULB ECONOMIZER WITH BAROMETRIC RELIEF.
2. PROVIDE WITH HIGH-WIND RATED ROOF CURB.
3. PROVIDE WITH UNIT MOUNTED DISCONNECT.
4. PROVIDE WITH A WATER DETECTING DEVICE IN THE UNIT DRAIN PAN TO SHUT UNIT DOWN UPON HIGH CONDENSATE LEVEL.
5. PROVIDE THERMOSTAT WITH DIGITAL TEMPERATURE DISPLAY, USER INPUT FOR ZONE TEMPERATURE SETPOINT, AND SIGNAL TO BAS FOR UNOCCUPIED OVERRIDE, WITH REMOTE DUCT MOUNTED TEMPERATURE SENSOR. THERMOSTAT EQUAL TO TRANE BAYSENS135 DIGITAL DISPLAY ZONE SENSOR.
6. PROVIDE DUCT MOUNTED CO2 SENSOR AND WIRING FOR DEMAND CONTROLLED VENTILATION SEQUENCE.
7. PROVIDE DUCT MOUNTED HUMIDITY SENSOR AND WIRING FOR DEHUMIDIFICATION CONTROL SEQUENCE.
8. PROVIDE CONDENSER COIL GUARD.
9. PROVIDE CLOGGED FILTER SWITCH.
10. PROVIDE HOT GAS REHEAT.
11. PROVIDE EPOXY COIL COATING ON EVAPORATOR AND CONDENSER COILS FOR SEACOAT APPLICATION.
12. PROVIDE WITH MERV 7 FILTERS.
13. PROVIDE WITH 5 YEAR ANTI-CORROSION WARRANTY.
14. PROVIDE BACKNET INTERFACE FOR BAS CONTROL POINTS.
15. UNIT TO BE FIELD PAINTED TO CLOSELY MATCH BUILDING BRICK COLOR, REFER TO ARCHITECTURAL PLANS FOR FINISH INFORMATION. SUBMIT COLOR SAMPLES FOR APPROVAL BY ARCHITECT.
16. UNIT SHALL HAVE TWO COMPRESSORS.
17. M.C. SHALL PROVIDE FABRICATED COVER FOR UNUSED SUPPLY DOWNFLOW OPENING IN UNIT CABINET.
18. PROVIDE WITH TALL CURB WITH IN-CURB HORIZONTAL DISCHARGE FOR SUPPLY AND RETURN DUCTWORK, EQUAL TO THYBAR.
19. PROVIDE SINGLE ZONE VARIABLE AIR VOLUME OPERATION.
20. PROVIDE TWO SPEED FAN OPERATION.
21. PROVIDE WITH HIGH-WIND RATED, AND VIBRATION-ISOLATION ROOF CURB.
22. PROVIDE POWERED EXHAUST.

* OUTSIDE AIR PROVIDED THROUGH ERV.

FILTER BOX SCHEDULE

TAG	SERVICE	LOCATION	CFM	SIZE	EFFICIENCY	INITIAL S.P. DROP (°W.C.)	MANUFACTURER AND MODEL NUMBER	REMARKS
FB-1	SS-1	STORAGE 1209	820	24x12	95%	0.31	CAMFIL - GLIDEPACK MULTITRACK 13	1, 2

NOTES:
1. PROVIDE WITH SIDE ACCESS DOOR.
2. PROVIDE WITH 2" MERV-8 FILTER, EQUAL TO CAMFIL 30/30.

DUCTLESS SPLIT SYSTEM SCHEDULE

AIR HANDLER										CONDENSING UNIT										NOTES
TAG	CFM	LOCATION	EXT. S.P. (°W.C.)	TOTAL (MBH)	SENSIBLE (MBH)	EAT-DB (F)	EAT-WB (F)	AMBIENT TEMP (F)	VOLT/PHASE	MCA	MANUFACTURER MODEL NUMBER	TAG	SEER	VOLT/PHASE	MCA	MOP	MANUFACTURER MODEL NUMBER	NOTES		
SSI-1	300	1122 MDF	0.5	16.3	12.0	75	62.5	95	208/1	1	MITSUBISHI PKA-A18HA6	SSO-1	15.3	208/1	13	20	MITSUBISHI PUY-A12NHA6	1, 2, 3, 4		
SSI-2	300	1810 IDF	0.5	11.2	9.4	75	62.5	95	208/1	1	MITSUBISHI PKA-A12HA6	SSO-2	15.							

PERFORATED EXHAUST DIFFUSER table with columns SYM, DESCRIPTION, TYPE. Includes notes on acceptable manufacturers and maximum NC values.

PERFORATED SUPPLY DIFFUSER table with columns SYM, DESCRIPTION, TYPE. Includes notes on acceptable manufacturers and maximum NC values.

PERFORATED RETURN DIFFUSER table with columns SYM, DESCRIPTION, TYPE. Includes notes on acceptable manufacturers and maximum NC values.

ENERGY RECOVERY VENTILATOR SCHEDULE table with columns TAG, LOCATION, OUTSIDE AIR CFM, SUPPLY EXT. S.P., EXHAUST EXT. S.P., etc. Includes notes on unit mounting and controls.

PERFORATED RETURN PANEL table with columns SYM, DESCRIPTION, TYPE. Includes notes on acceptable manufacturers and maximum NC values.

BLADE SUPPLY GRILLES table with columns SYM, MODULE SIZE, TYPE. Includes notes on acceptable manufacturers and maximum NC values.

SIDEWALL RETURN GRILLE table with columns SYM, MODULE SIZE, TYPE. Includes notes on acceptable manufacturers and maximum NC values.

GRAVITY VENTILATOR SCHEDULE table with columns TAG, SERVICE, LOCATION, CFM, THROAT SIZE, HOOD SIZE, HEIGHT, DAMPER, ROOF CURB, MANUFACTURER AND MODEL, NOTES.

EGG CRATE RETURN PANEL table with columns SYM, DESCRIPTION, TYPE. Includes notes on acceptable manufacturers and maximum NC values.

SPIRAL DUCT MOUNTED SUPPLY GRILL table with columns SYM, DESCRIPTION, TYPE. Includes notes on acceptable manufacturers and maximum NC values.

SUPPLY DUCT - SOUND ATTENUATOR SCHEDULE

SUPPLY DUCT - SOUND ATTENUATOR SCHEDULE table with columns TAG, LOCATION, SIZE, DIL @ DUCT VELOCITY, GENERATED NOISE @ DUCT VELOCITY, AIR FLOW, VELOCITY, PRESSURE DROP, MANUFACTURER, MODEL, NOTES.

Notes: 1. GENERATED NOISE VALUES BASED ON 4 SF ENTERING AREA.

RETURN DUCT - SOUND ATTENUATOR SCHEDULE

RETURN DUCT - SOUND ATTENUATOR SCHEDULE table with columns TAG, LOCATION, SIZE, DIL @ DUCT VELOCITY, GENERATED NOISE @ DUCT VELOCITY, AIR FLOW, VELOCITY, PRESSURE DROP, MANUFACTURER, MODEL, NOTES.

Notes: 1. GENERATED NOISE VALUES BASED ON 4 SF ENTERING AREA.

FAN SCHEDULE

FAN SCHEDULE table with columns TAG, SERVICE, LOCATION, CFM, FAN RPM, STATIC PRESSURE, MAX TIP SPEED, MIN WHEEL DIA, FAN WHEEL TYPE, MOTOR HP/VOLT/PHASE, DRIVE TYPE, FAN TYPE, MAX SONES, WEIGHT (LBS), MANUFACTURER AND MODEL NUMBER, NOTES.

Notes: 1. PROVIDE WITH UNIT MOUNTED DISCONNECT. 2. PROVIDE BACKDRAFT DAMPER. 3. PROVIDE WITH ELECTRONICALLY COMMUTED MOTOR, GREENHECK VARI GREEN OR EQUAL. 4. PROVIDE ROOF CURB RATED FOR HIGH WIND, WITH DAMPER TRAY, AND STAINLESS STEEL FASTENERS. 5. PROVIDE WITH SPEED ADJUSTMENT DIAL. 6. PROVIDE UL 782 LISTED FAN FOR GREASE EXHAUST, HINGED CURB CAP WITH CABLES, GREASE TRAP, VENTED CURB EXTENSION TO PLACE FAN DISCHARGE 40' MINIMUM ABOVE ROOF, NEMA 3R DISCONNECT.



NC-ENG LICENSE NO. C-064 NEW YORK OKLAHOMA NORTH CAROLINA TEXAS COLORADO SOUTH CAROLINA

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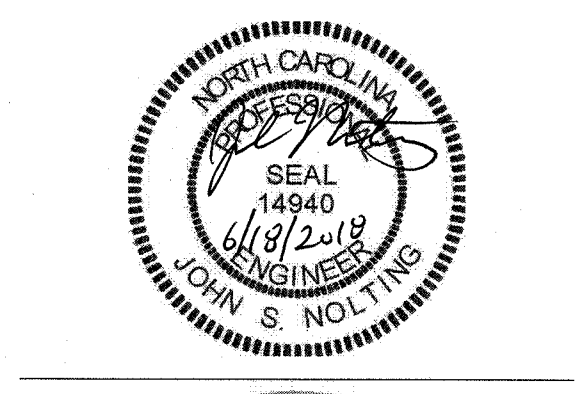
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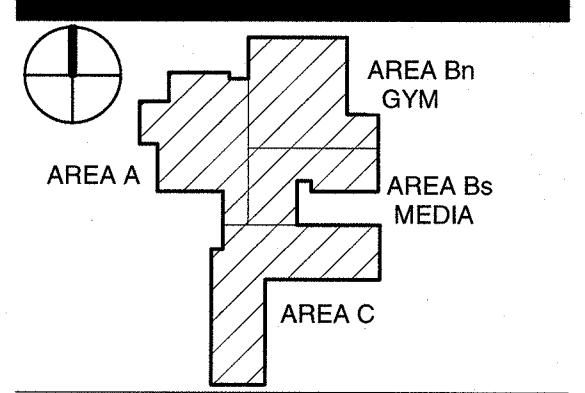
Building Envelope Consultant SKA ENGINEERING 7741 MARKET STREET, SUITE F WILMINGTON, NC 28411-9444 910.442.2000 office www.skaeng.com

Food Service Consultant HERBIN DESIGN 7355 DORR CIRCLE CHARLOTTE, NC 28212-6914 704.900.0922 www.herbin.com



TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE WINNABOW, NC 28479



REVISIONS table with columns No., Description, Date. Includes revision 2: ADDENDUM 2, 6/18/2018.

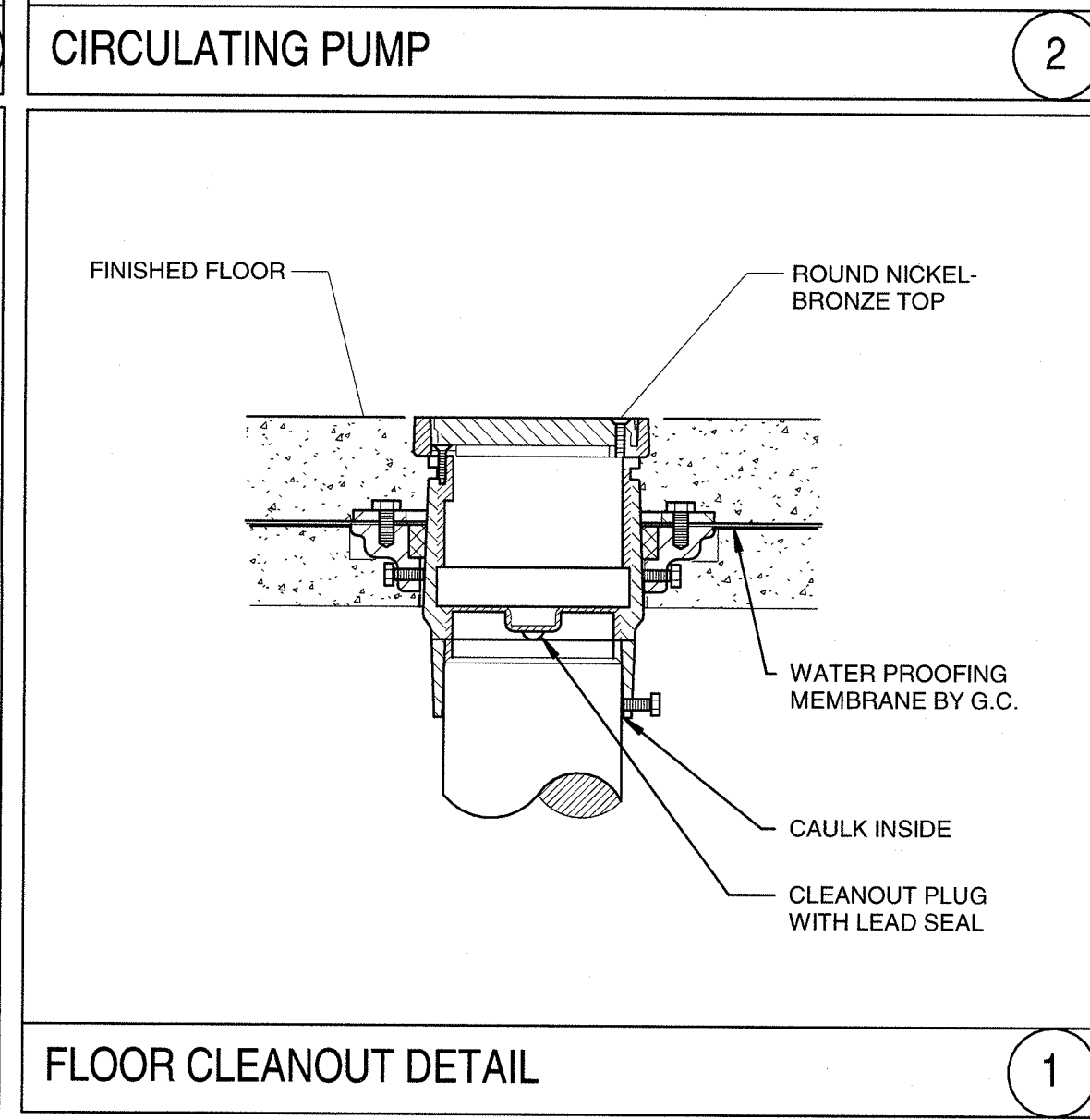
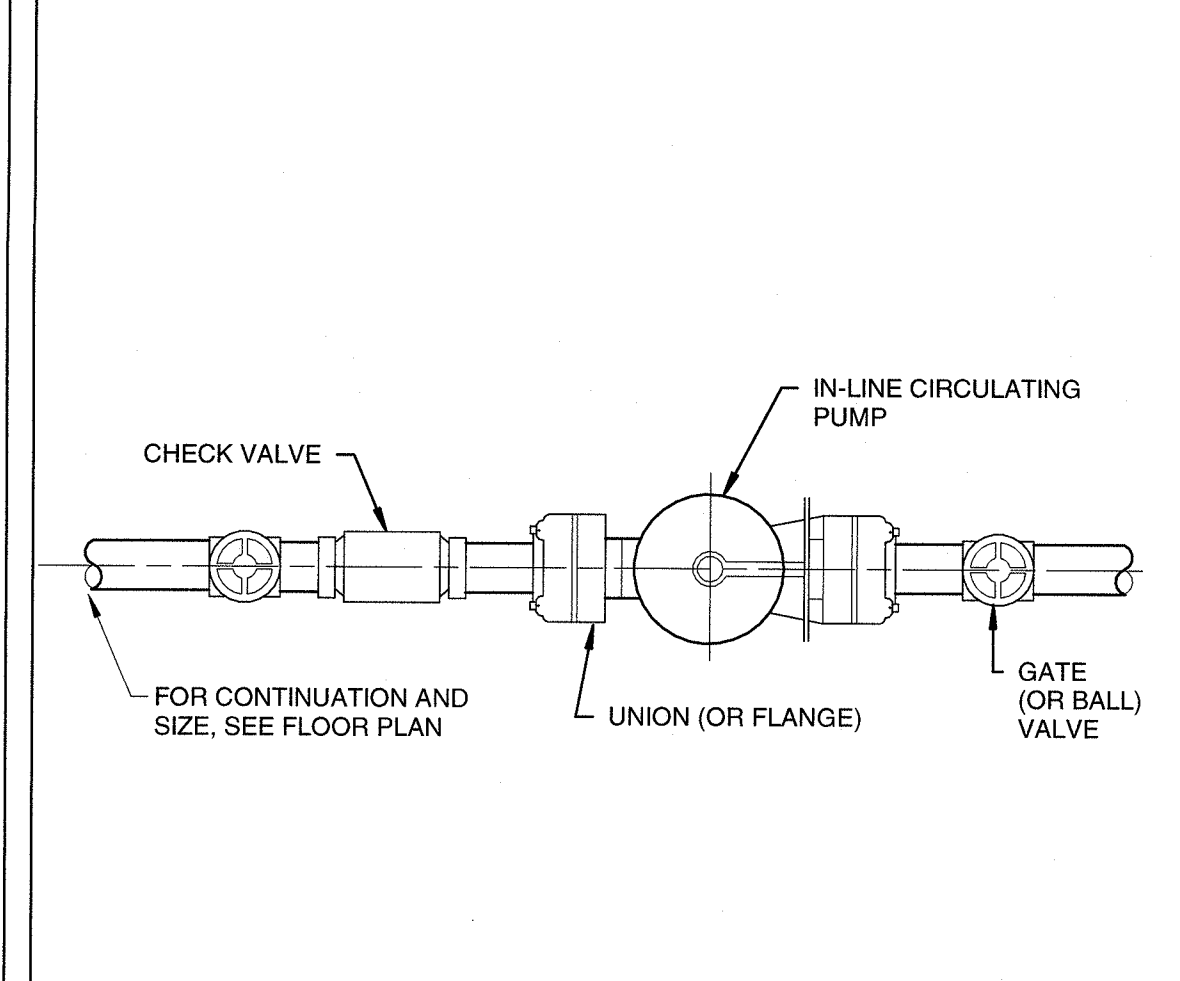
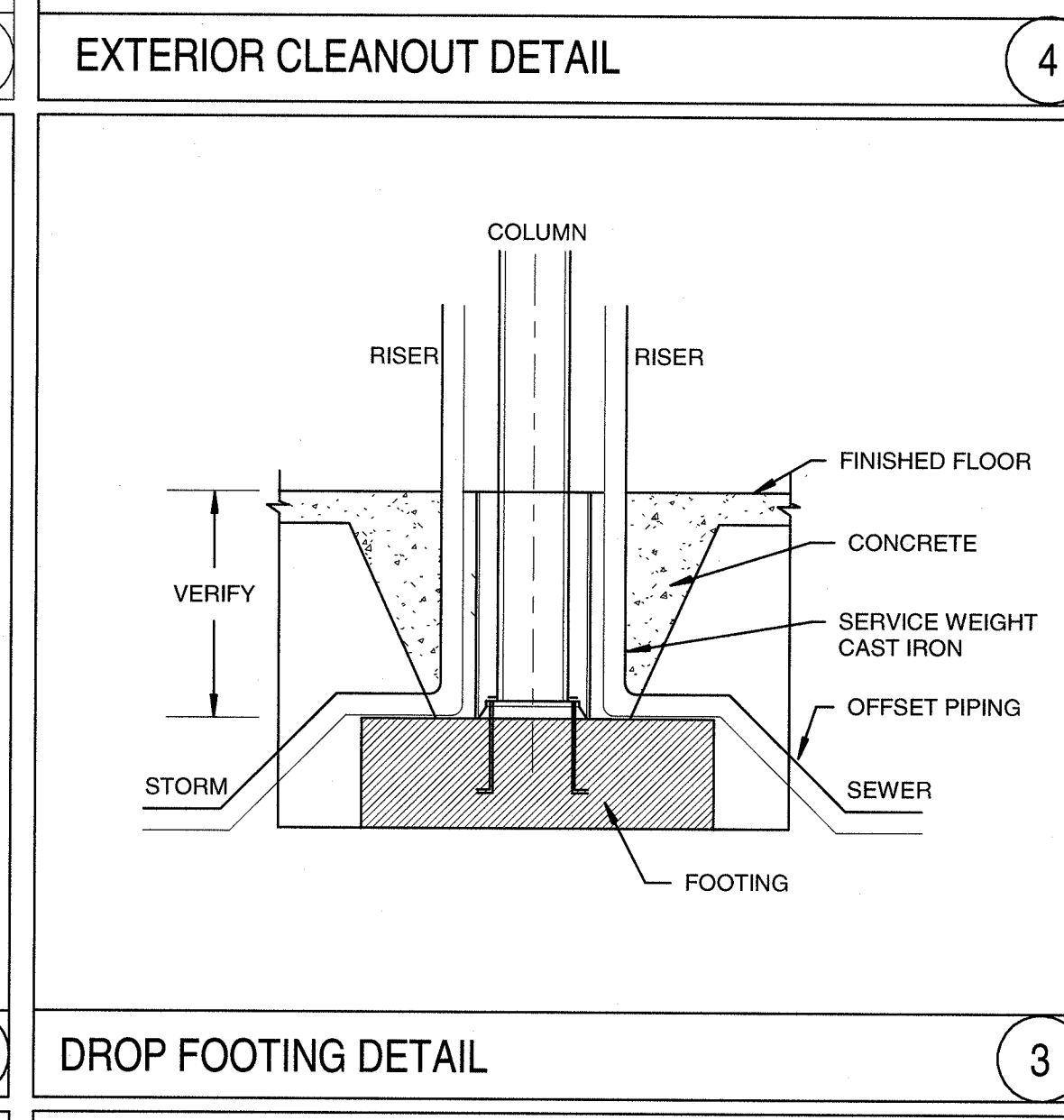
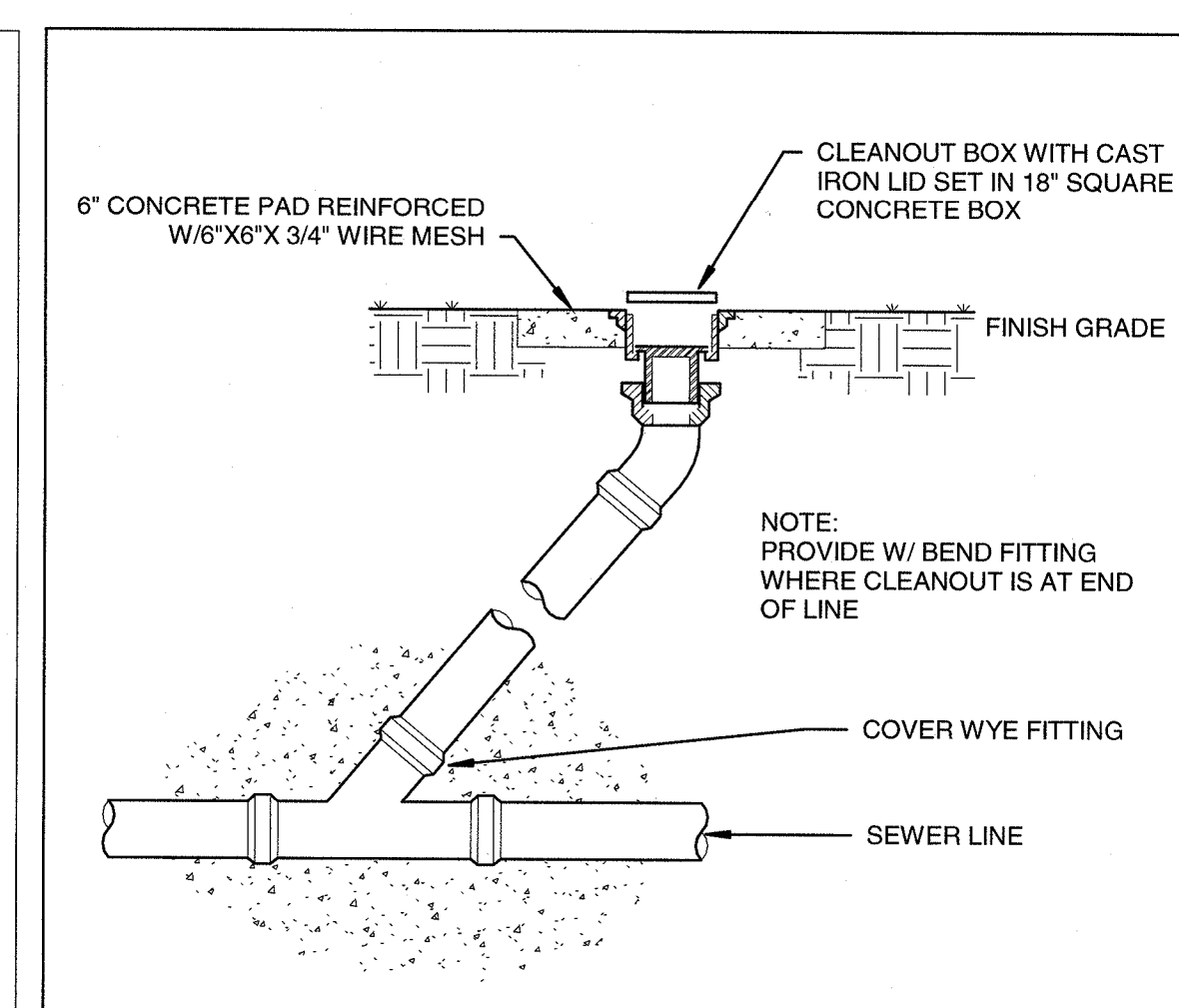
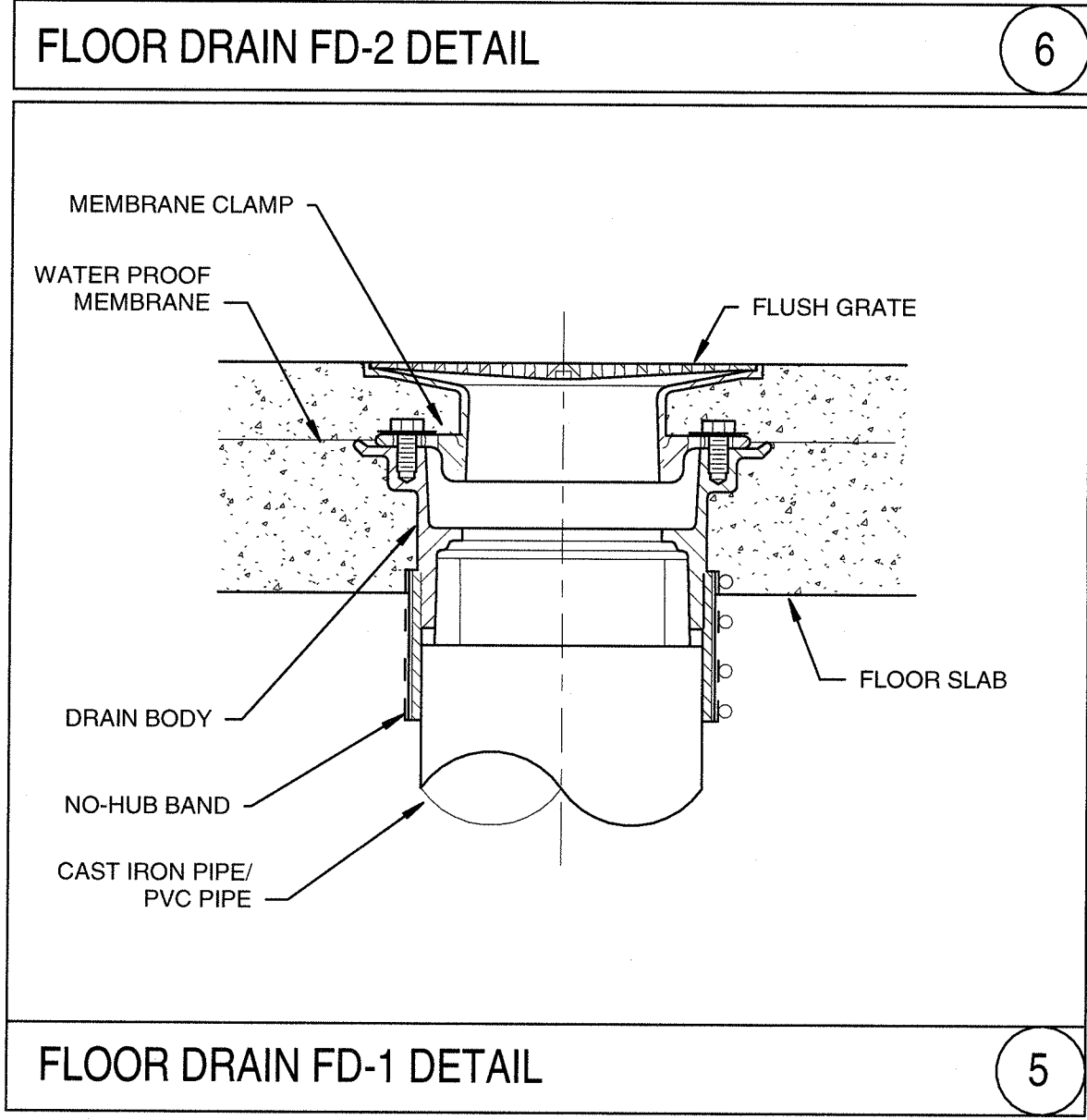
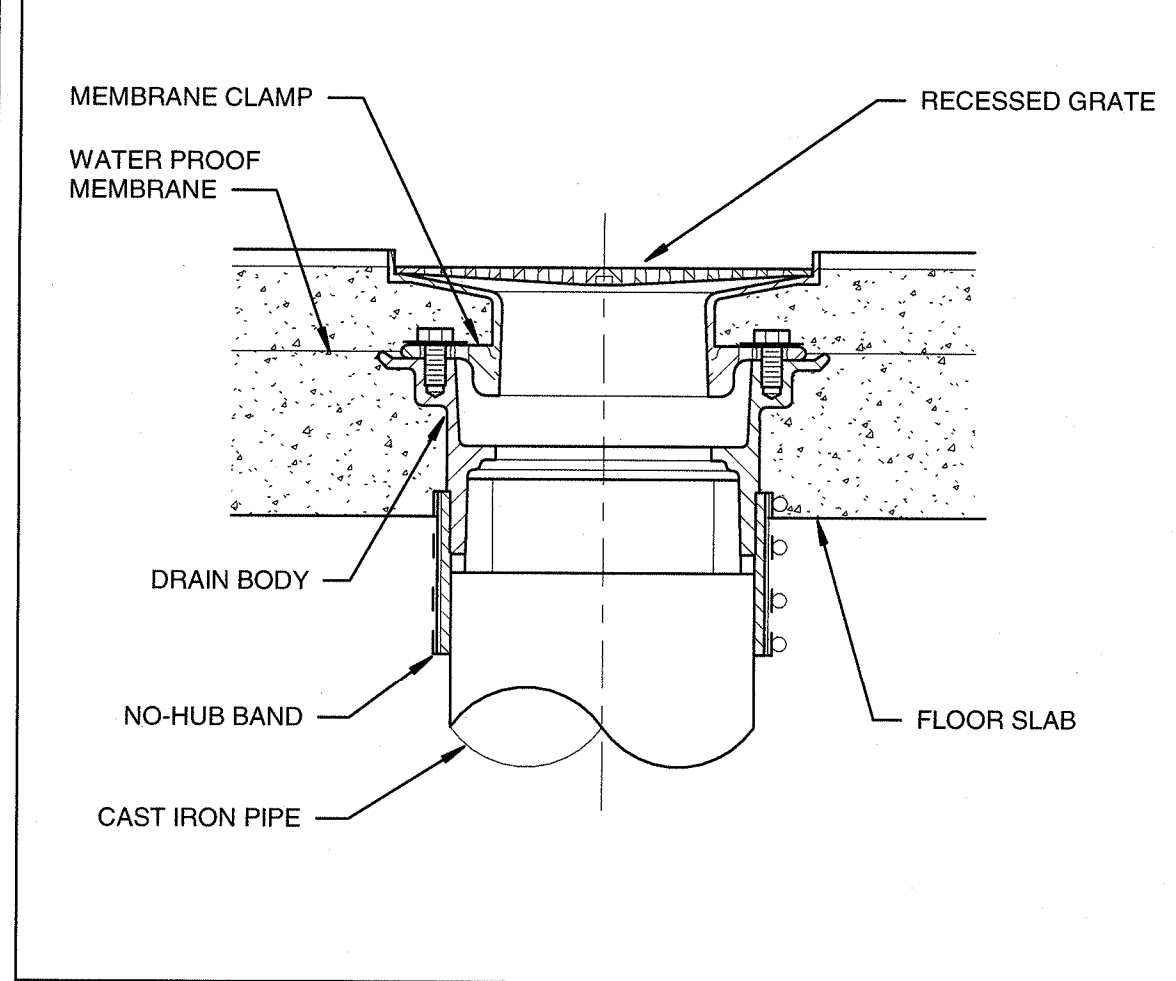
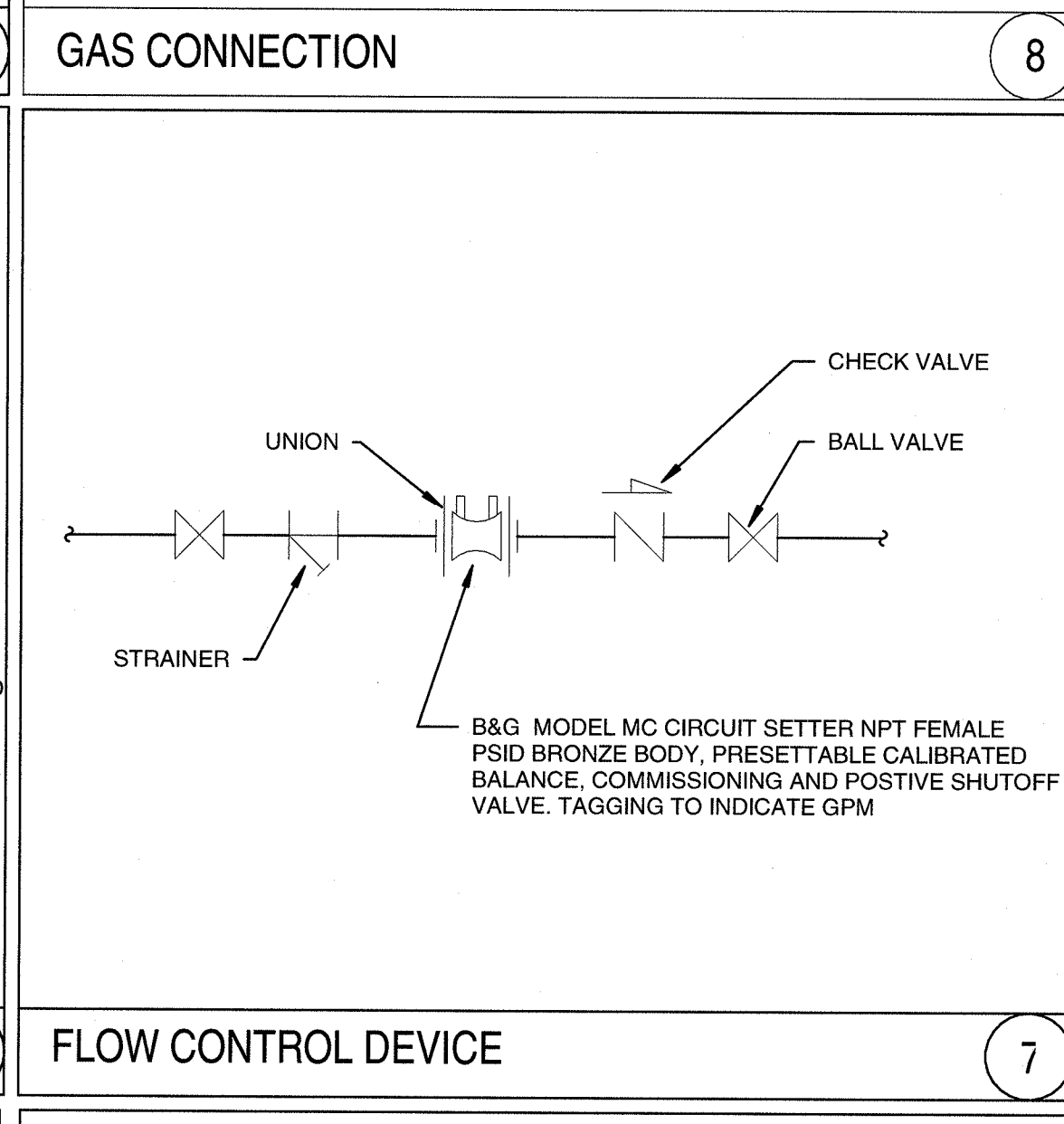
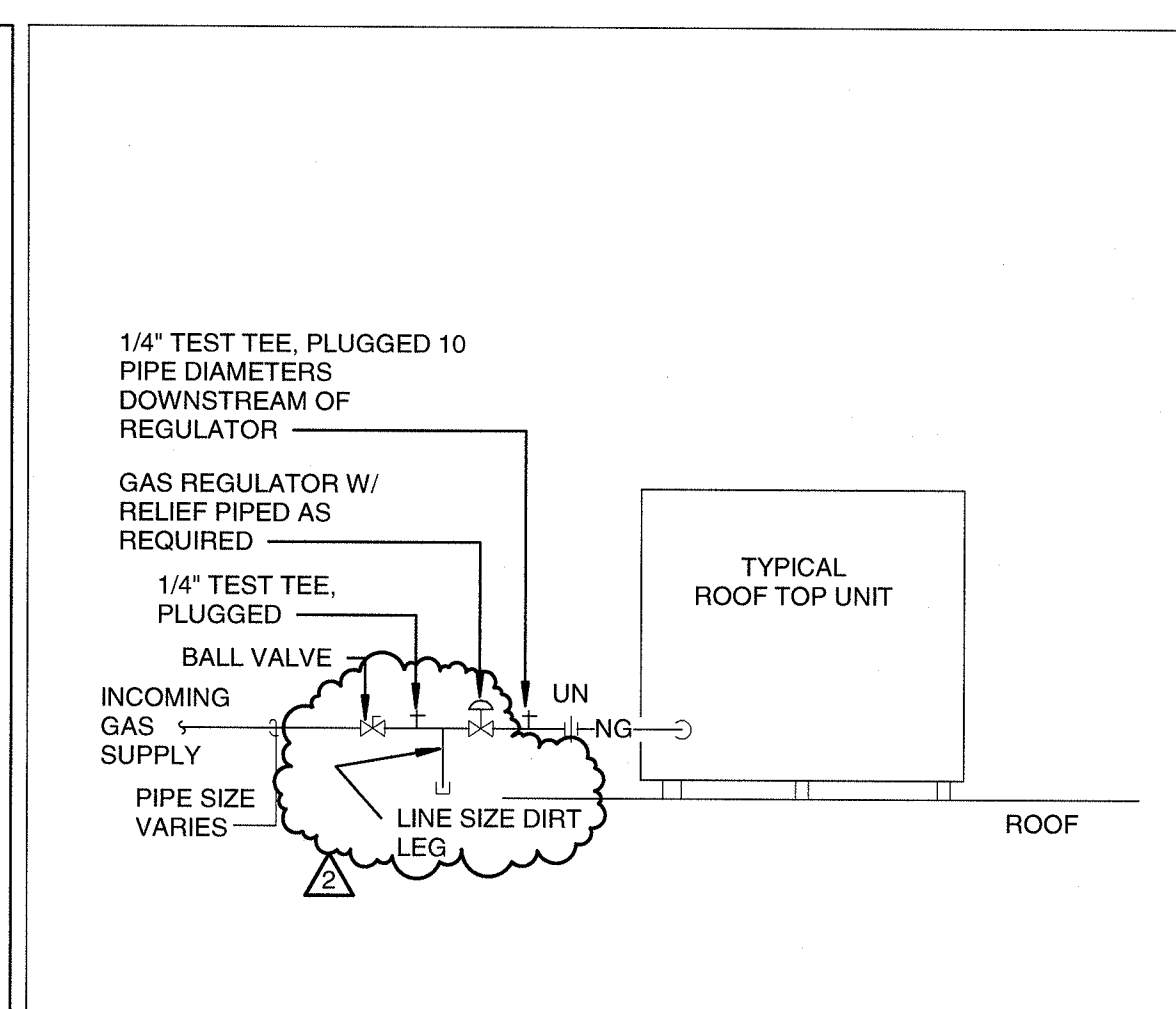
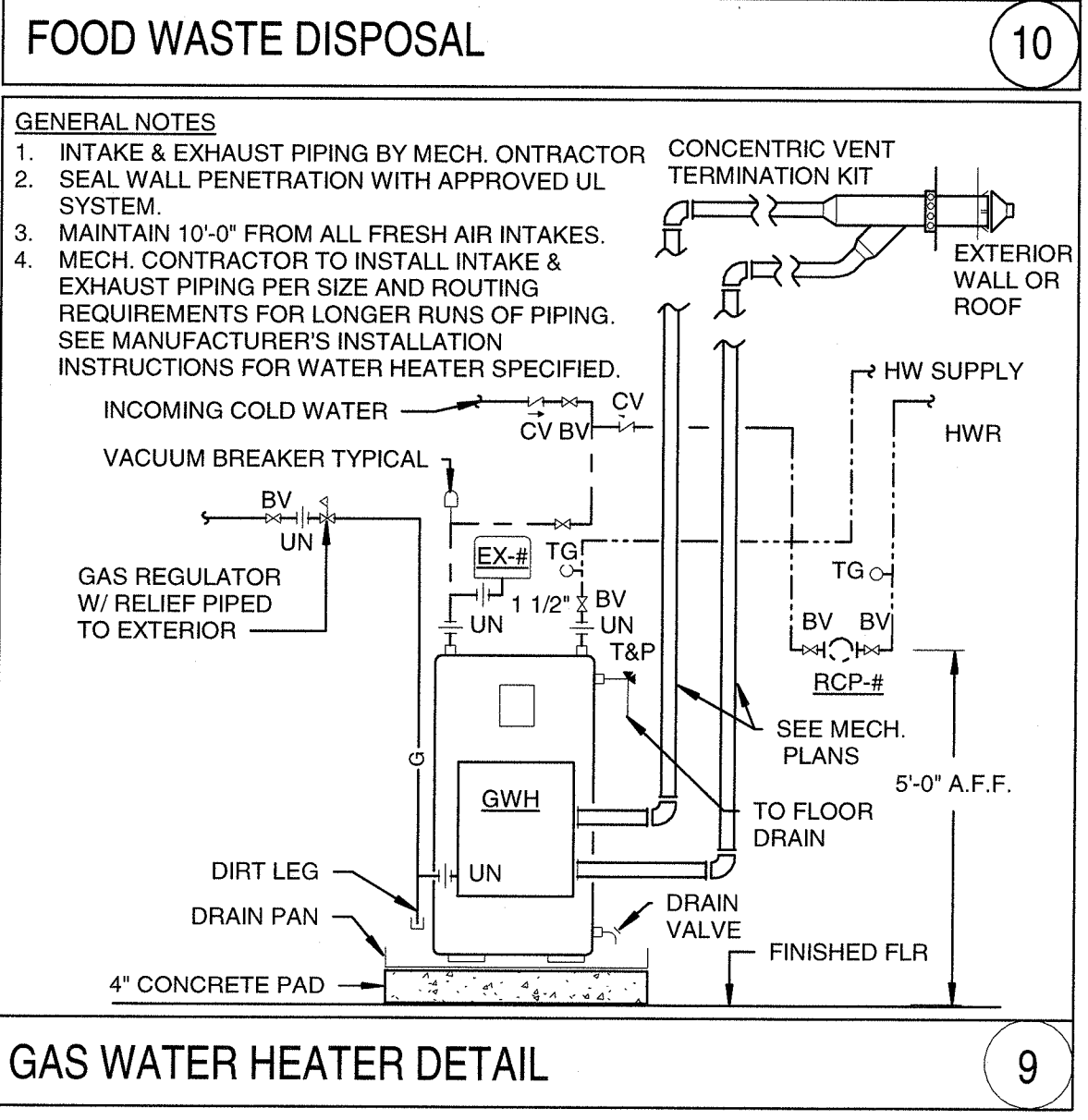
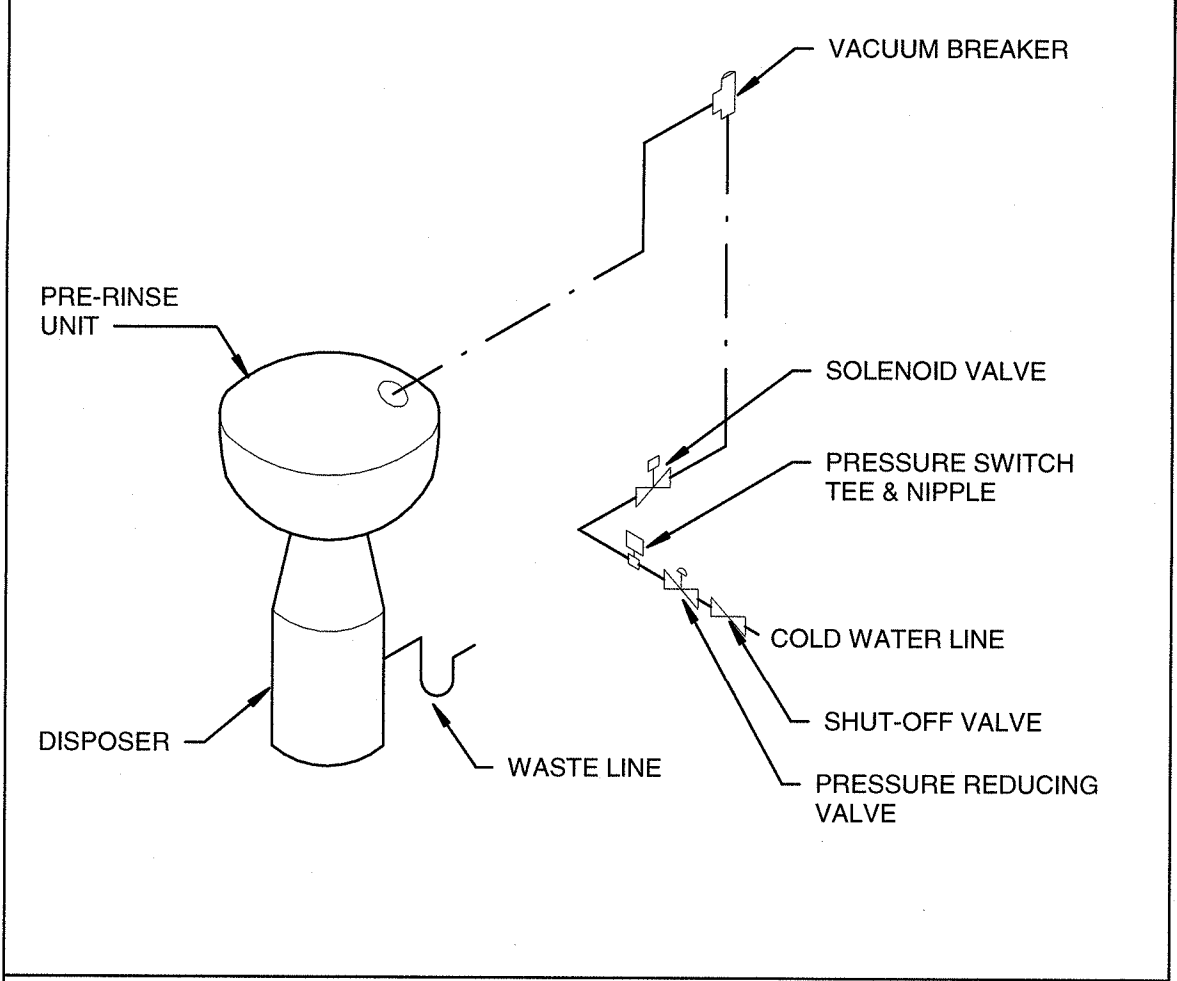
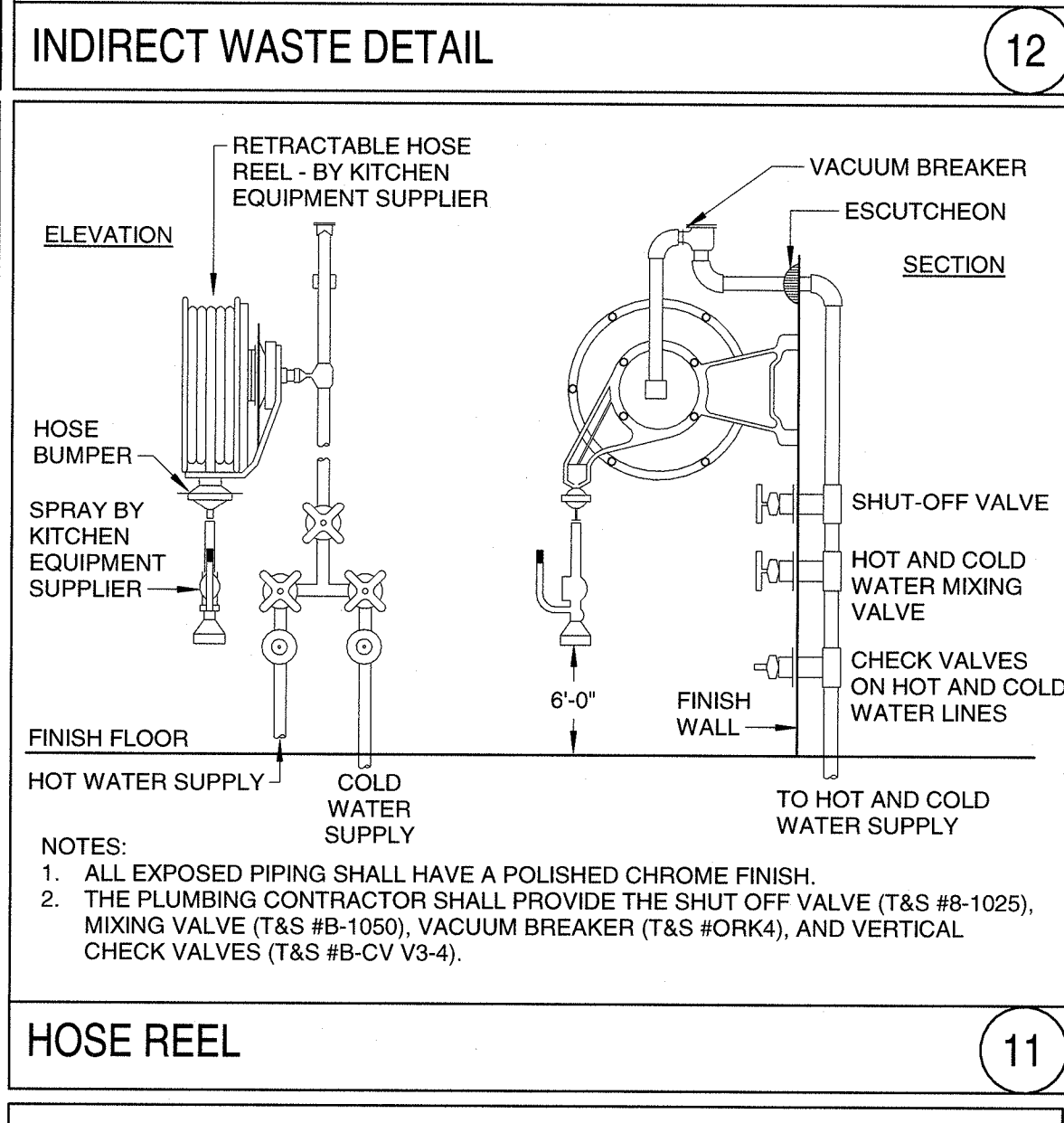
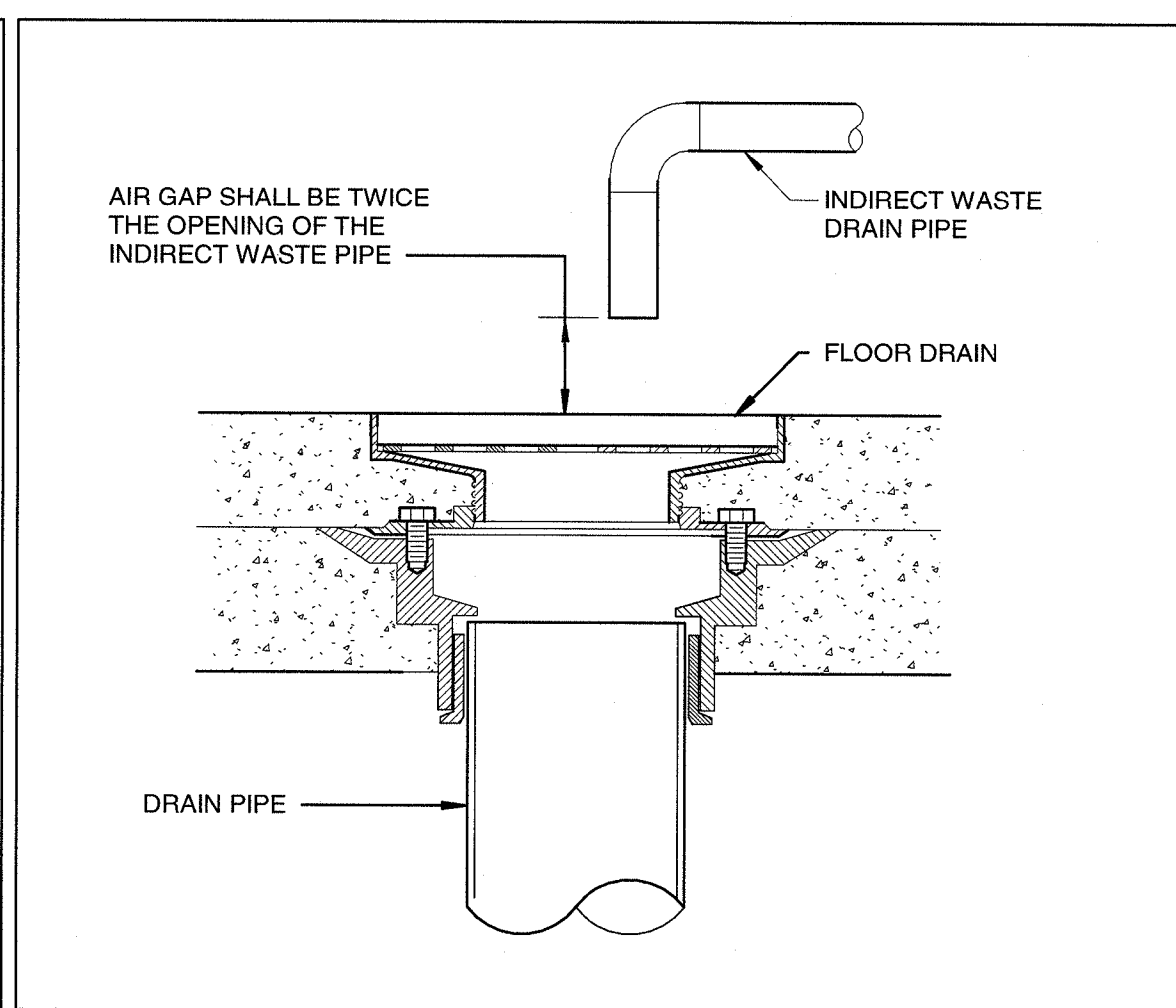
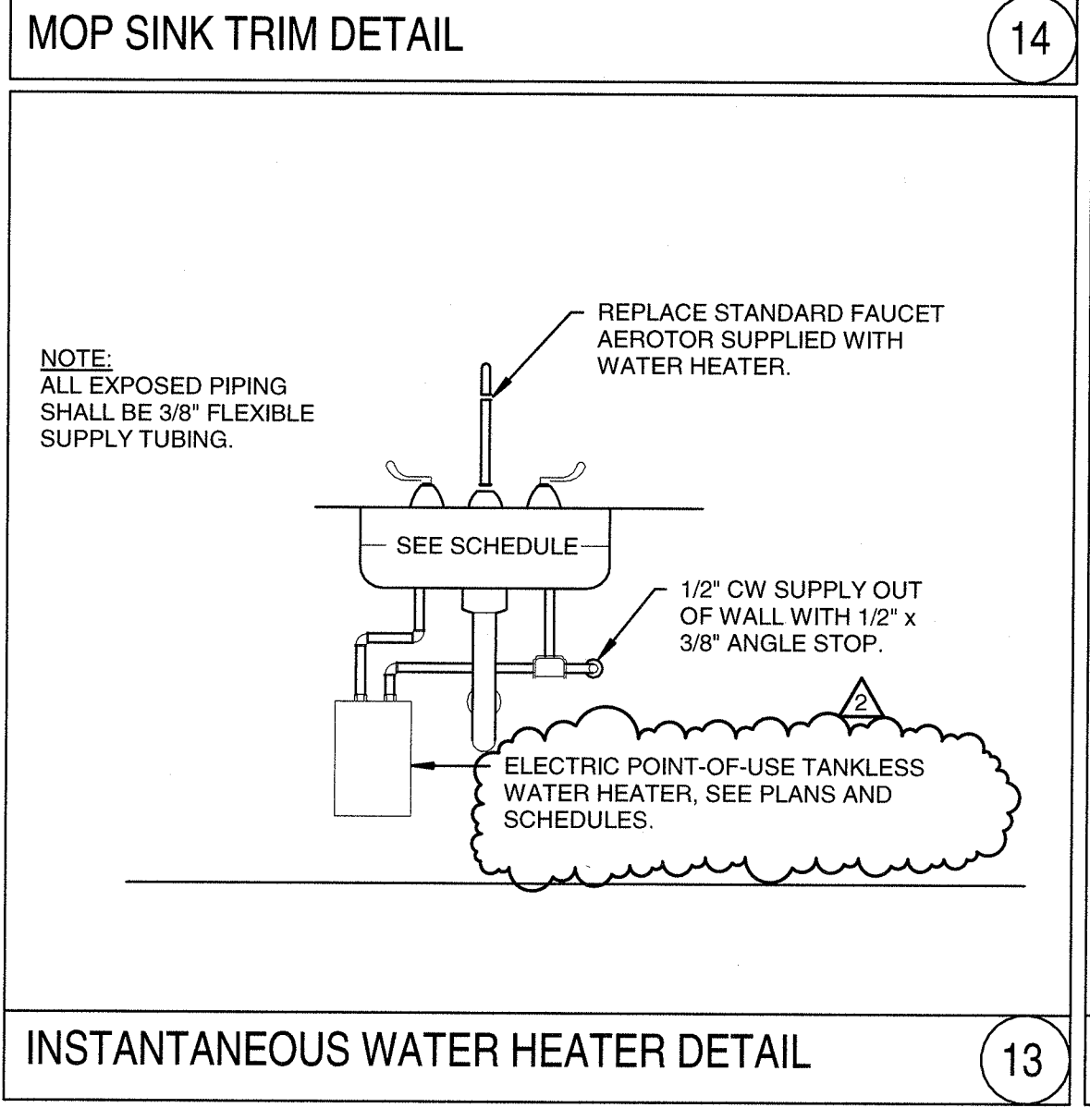
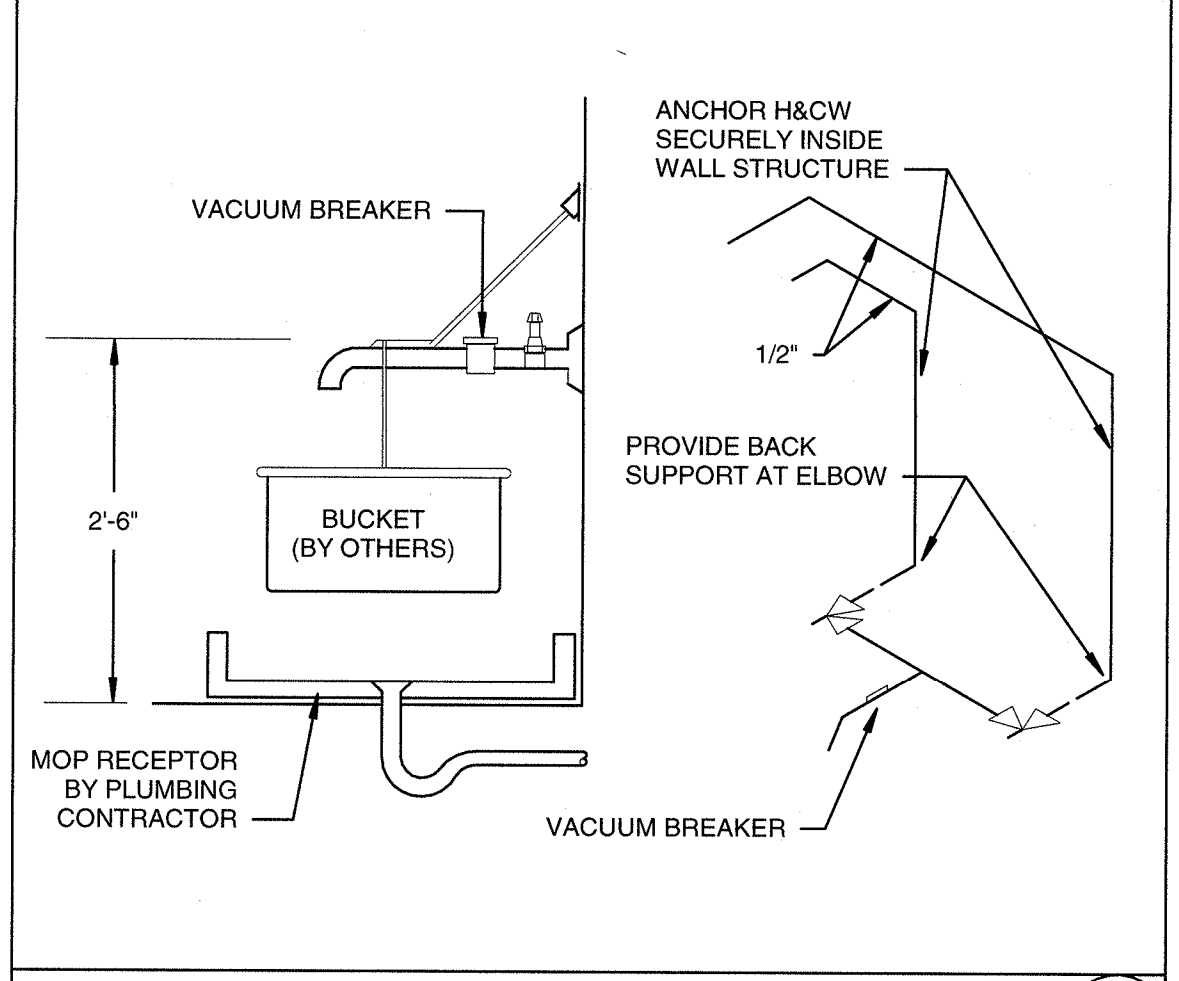
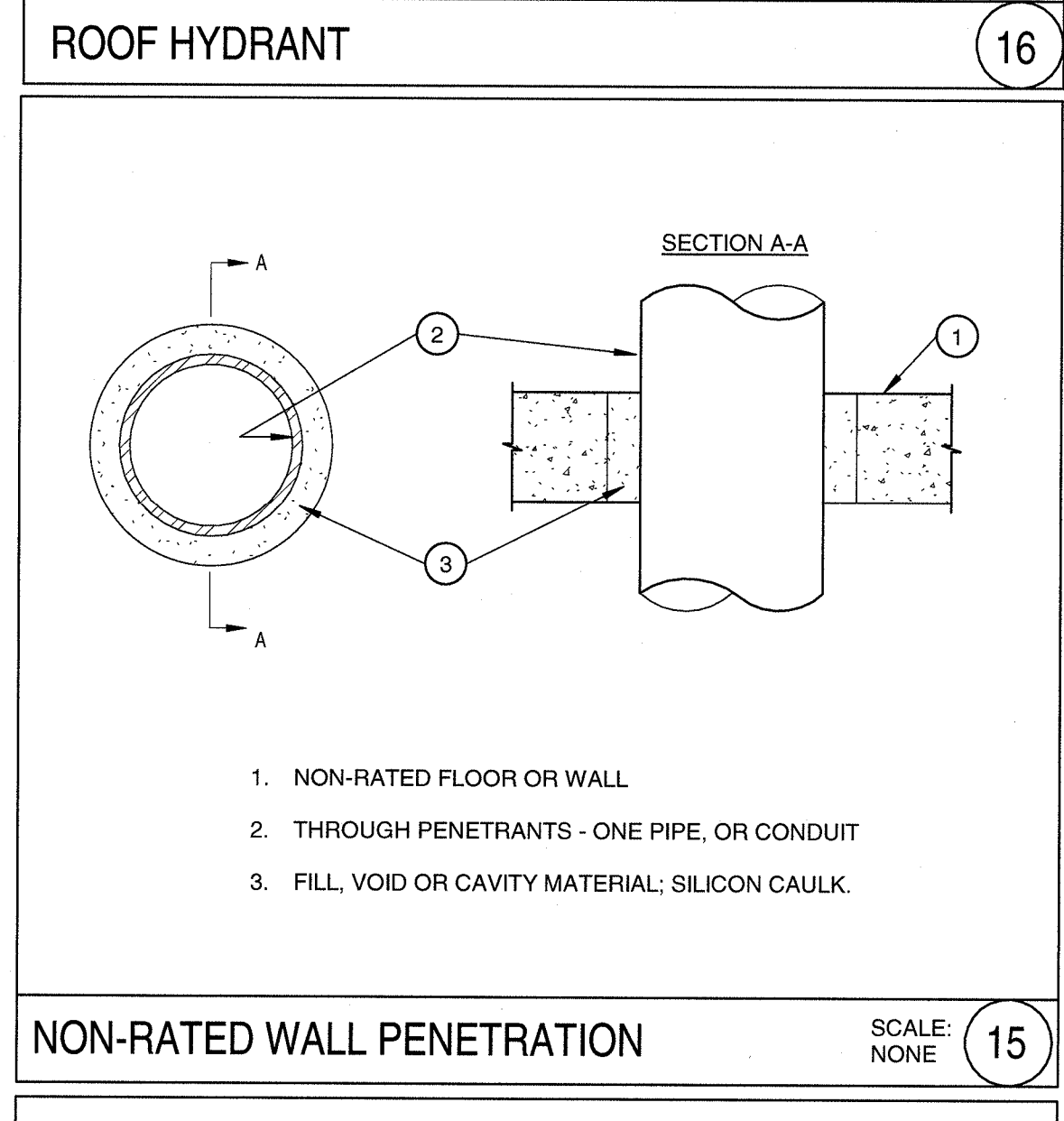
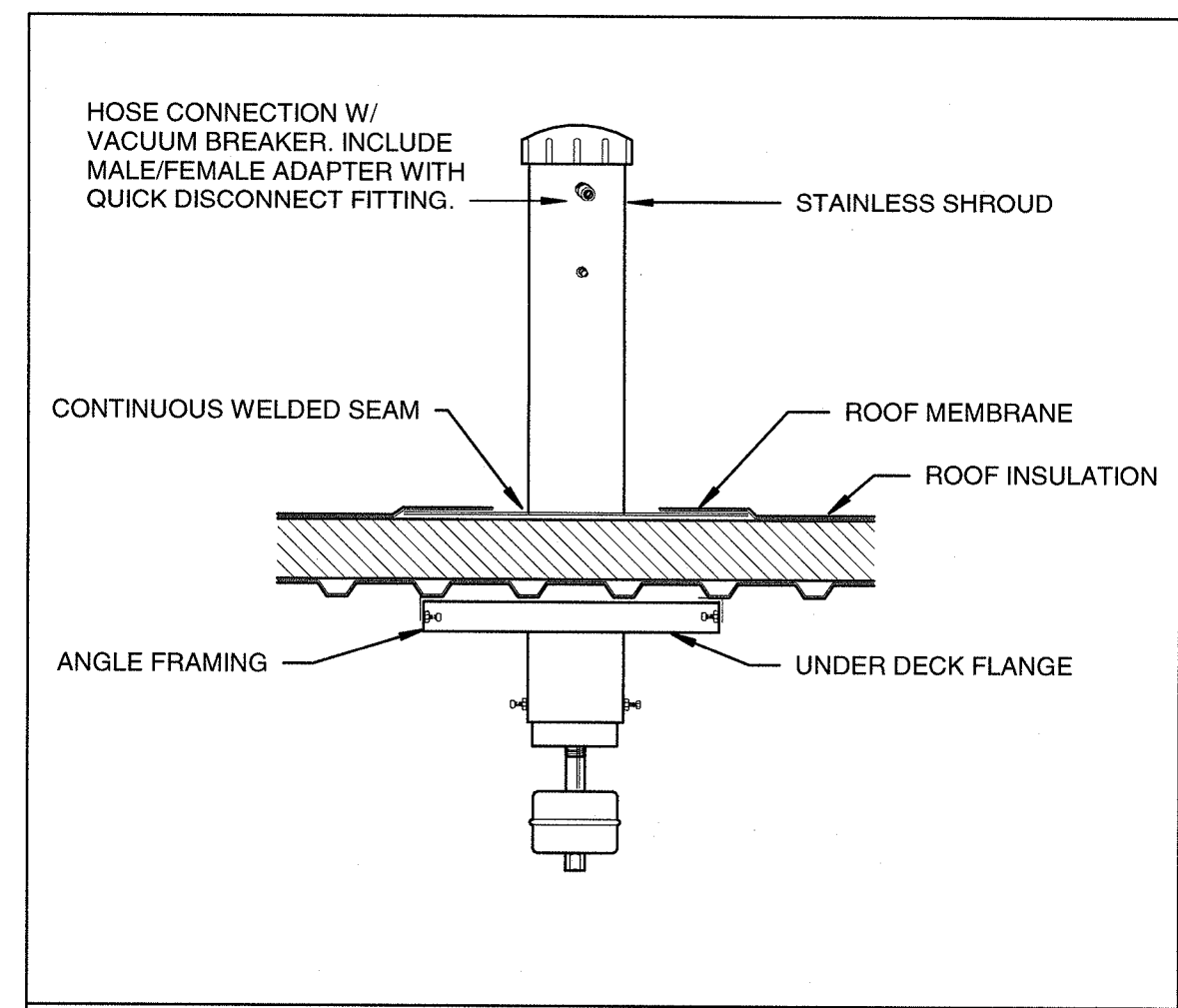
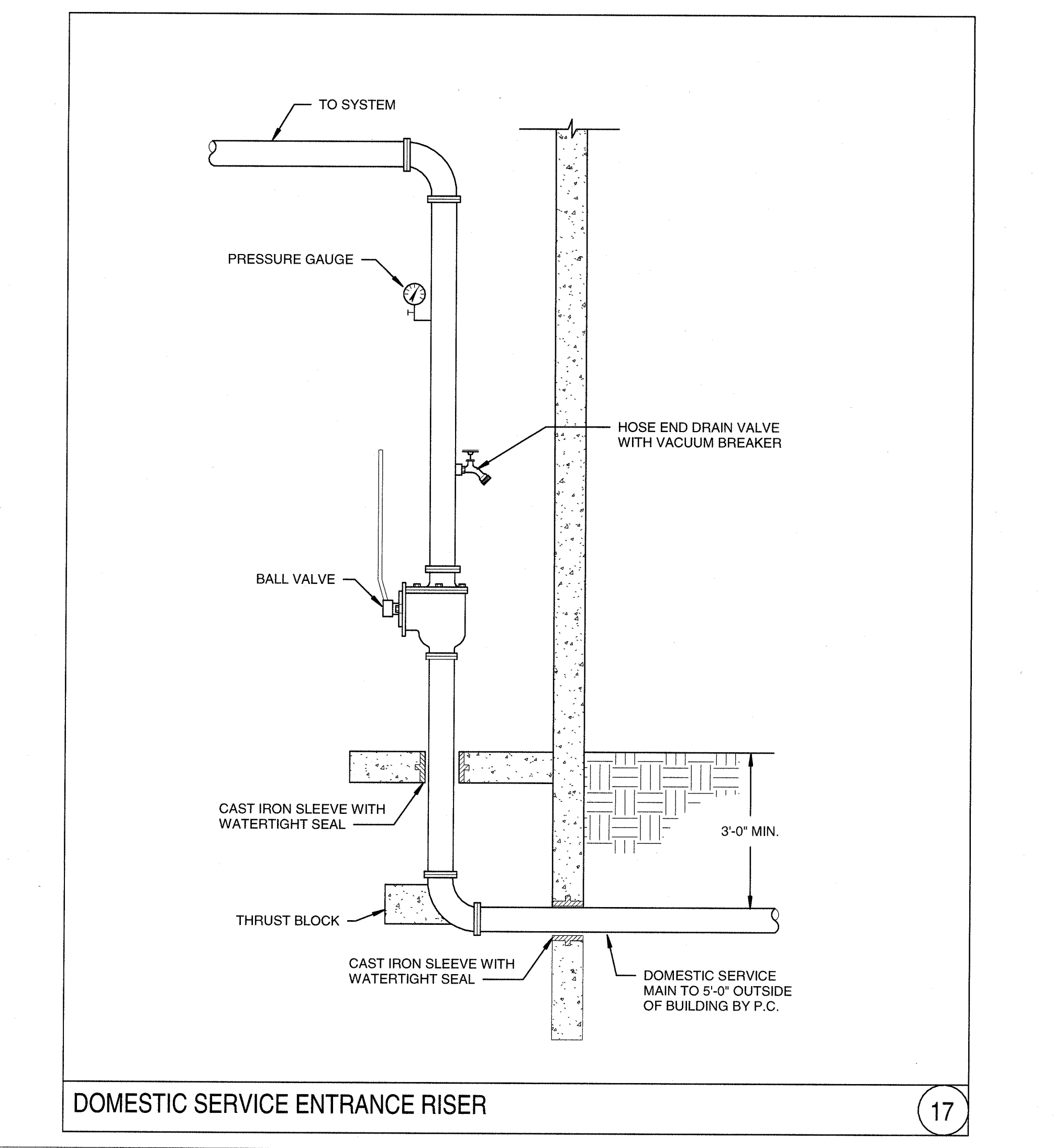
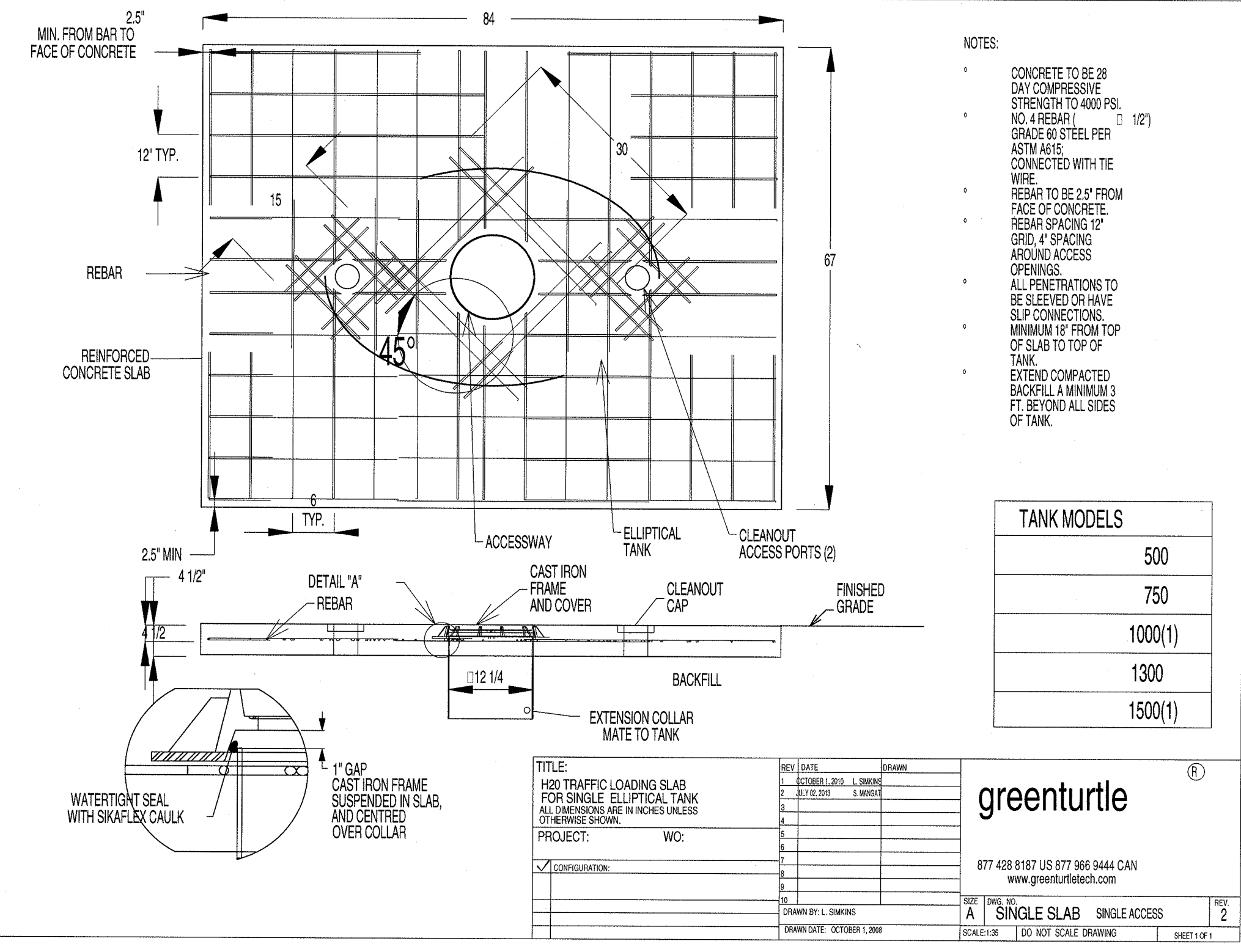
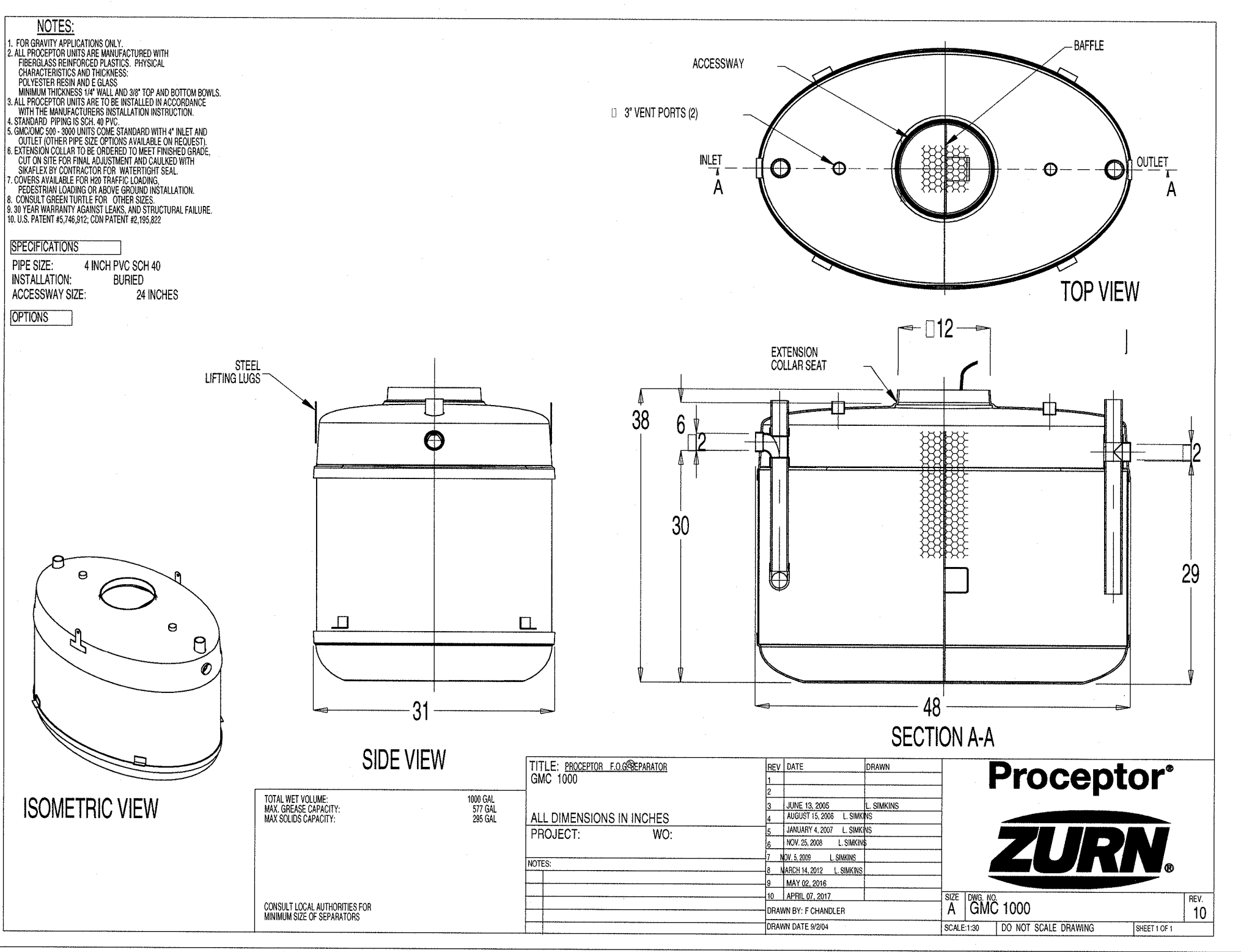
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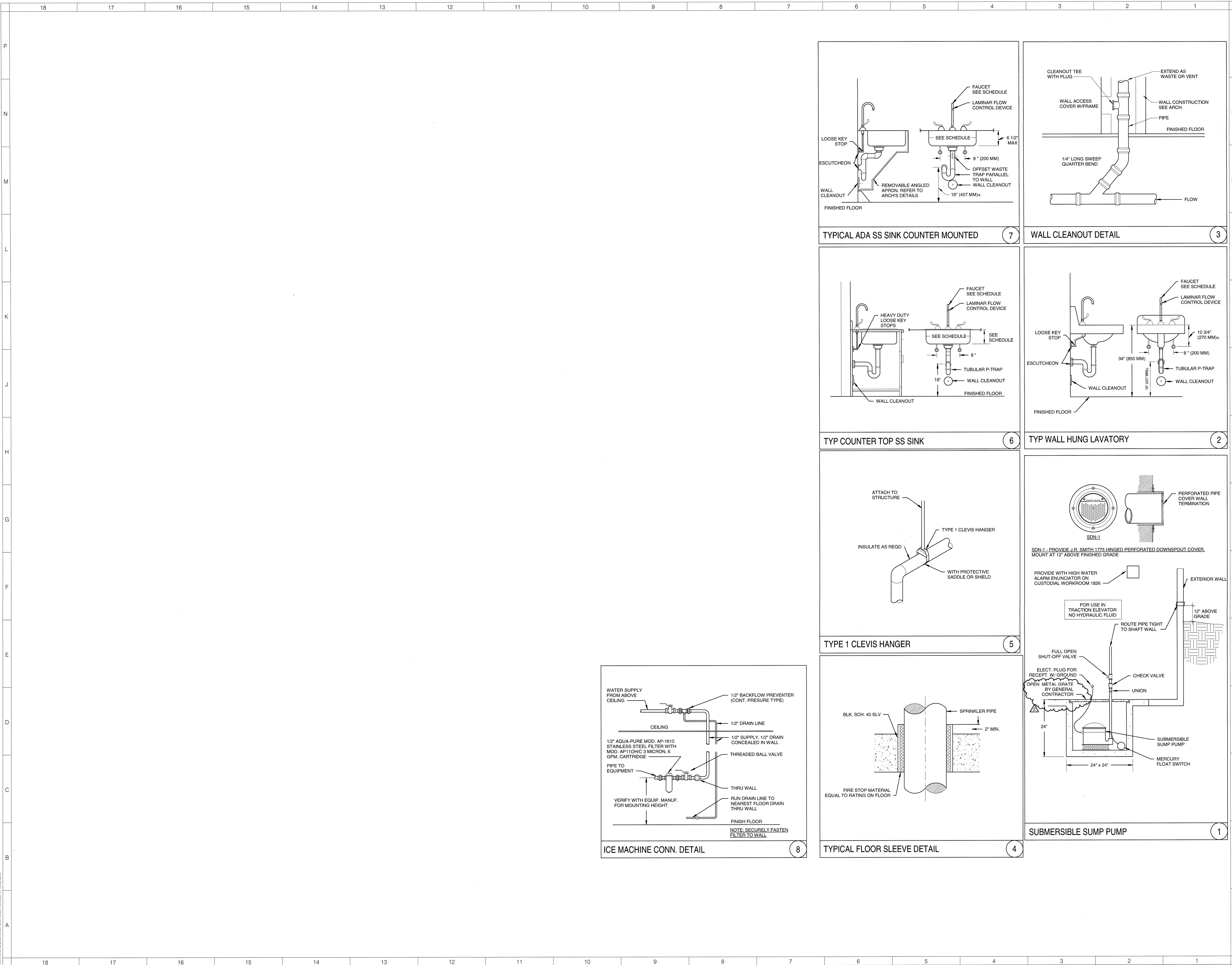
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REVISIONS table with columns: No., Description, Date. Row 2: ADDENDUM 2, 6/18/2018.

ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE: As indicated
SHEET NAME: PLUMBING DETAILS

SHEET NUMBER: P-401





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REVISIONS

No.	Description	Date
1	ADDENDUM 1	6/7/2018
2	ADDENDUM 2	6/18/2018

ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE: 12" = 1'-0"
SHEET NAME: PLUMBING DETAILS
SHEET NUMBER: P-402

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GREASE INTERCEPTOR SCHEDULE

SYMBOL	DESCRIPTION	REMARKS
GT-1	ZURN GREEN TURTLE PROCEPTOR GMC 1000 - 1000 GALLON TOTAL WET VOLUME - 577 GALLON GREASE CAPACITY 295 GALLON MAX. SOLIDS CAPACITY CONSTRUCTED OF FIBERGLASS REINFORCED PLASTIC WITH A PVC PIPING ARRANGEMENT AND INTERNAL BAFFLE SEPARATING THE UNIT INTO TWO CHAMBERS. INTERCEPTOR IS LOCATED IN A TRAFFIC AREA AND WILL REQUIRE REINFORCED CONCRETE AND RELIEVING SLAB TO HANDLE TRAFFIC LOADS.	PROVIDE EXTENSIONS AS REQUIRED. INSTALLATION SHALL BE PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
ACCEPTED EQUALS - WATTS ROCKFORD SEPARATOR		
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.		

SOLIDS INTERCEPTOR SCHEDULE

SYMBOL	DESCRIPTION	REMARKS
SI-1	ZURN GREEN TURTLE PROCEPTOR SMC 500 - 500 GALLON SOLIDS INTERCEPTOR CONSTRUCTED OF FIBERGLASS REINFORCED PLASTIC WITH A PVC PIPING ARRANGEMENT AND INTERNAL BAFFLE SEPARATING THE UNIT INTO TWO CHAMBERS. INTERCEPTOR IS LOCATED IN A TRAFFIC AREA AND WILL REQUIRE REINFORCED CONCRETE AND RELIEVING SLAB TO HANDLE TRAFFIC LOADS.	PROVIDE EXTENSIONS AS REQUIRED. INSTALLATION SHALL BE PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
ACCEPTED EQUALS - WATTS ROCKFORD SEPARATOR		
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.		

BACKFLOW PREVENTER SCHEDULE

SYMBOL	DESCRIPTION	REMARKS
BFP-1	WATTS SERIES 009QT-S REDUCED PRESSURE BACKFLOW PREVENTER. PROVIDE DRAIN FITTING. ASSE 1013 COMPLIANT.	PIPE RELIEF FULL SIZE TO FLOOR DRAIN
ACCEPTED EQUALS - WATTS FEBCO		
COMPLIANCE NOTE: CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.		

SUMP PUMP SCHEDULE

PUMP	SERVICE	TYPE	CAPACITY		VOLTAGE PHASE AND CYCLES	HORSE POWER	MFG. AND MODEL NO. UNIT IS BASED ON	PUMP CONTROL
			GPM.	HEAD (FEET)				
SP-1	SUMP PUMP	ELEVATOR SUMP PUMP	50	33	115V/1P/60	0.5	STANCOR MODEL SE-50 W/ REMOTE ALARM	SEE DETAIL ON SHEET P-401
ACCEPTED EQUALS - GRUNDOS, LITTLE GIANT								
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.								

DOMESTIC WATER BOOSTER PUMP SCHEDULE

PUMP	SERVICE	TYPE	CAPACITY		VOLTAGE PHASE, CYCLE	HP	MFG. & MODEL NO. UNIT IS BASED ON	PUMP LOCATION	NOTES
			G.P.M.	BOOST					
DWBP-1	DOMESTIC BOOSTER PUMP	VARIABLE SPEED	170	48 PSI	480/3/60	7.5 EACH	HYFAB MODEL 875 DUPLEX	MOUNTED IN FIRE PUMP HOUSE PACKAGE	COORDINATE WITH FIRE PUMP HOUSE PACKAGE ORDER. BOOSTER PUMP TO BE PART OF FIRE PUMP PACKAGE
ACCEPTED EQUALS - BELL & GOSSETT, GOULDS, ITT									
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.									

ROOF HYDRANT

SYMBOL	DESCRIPTION
EPRH-1	MAPA PRODUCTS MPH-24FP-24/9 PEDESTAL HYDRANT WITH 1" BRONZE VALVE WITHIN A FULLY INSULATED STAINLESS STEEL SHROUD. THE DRAIN DOWN OPERATES ON A VENTURI PRINCIPLE WHICH DRAINS TO AN INTEGRAL RESERVOIR TANK BELOW THE ROOF LINE. ONCE HYDRANT IS TURNED BACK ON THE RESERVOIR IS EVACUATED OUT THROUGH THE HYDRANT.
ACCEPTED EQUALS - JOSAM, J.R. SMITH, MIFAB	
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.	

THERMOSTATIC MIXING VALVE SCHEDULE

SYMBOL	REQUIRED GPM	PRESSURE DROP	MFG. AND MODEL NO.	MIXED OUTLET	HOT INLET	COLD INLET	FLOW RANGE GPM	REMARKS
MV-1	35 GPM	10	SYMMONS-THERMOSTATIC-MIXER 7-500-102-PRV	1-1/4"	1"	1"	GPM @ 5MIN - (38.0)MAX	SET TO DELIVER 110° HW INCOMING TEMP TO VALVE 140°.
ACCEPTED EQUALS - SYMMONS, LAWLER, ARMSTRONG								
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.								

GAS FIRED WATER HEATER SCHEDULE

HEATER	STORAGE CAPACITY (GALLONS)	RECOVERY @ 70° RISE (G.P.H.)	NATURAL GAS INPUT (BTUH)	MFG. AND MODEL NO. UNIT IS BASED ON	LOCATION	REMARKS
GWH-1	100	235	199,900 BTUH	AO SMITH CYCLONE MXI BTH-199 CONDENSING HEATER - DIRECT VENT/INTAKE	PLUMBING 1311	INSTALL PER MANUFACTURERS SPECIFICATIONS. MECHANICAL CONTRACTOR TO PROVIDE EXHAUST/INTAKE ROUTING AND CONNECTION. SEE MECHANICAL PLANS.
GWH-2	60	197	120,000 BTUH	AO SMITH CYCLONE MXI BTH-120 CONDENSING HEATER - DIRECT VENT/INTAKE	STORAGE 1209	INSTALL PER MANUFACTURERS SPECIFICATIONS. MECHANICAL CONTRACTOR TO PROVIDE EXHAUST/INTAKE ROUTING AND CONNECTION. SEE MECHANICAL PLANS.
GWH-3	100	255	150,000 BTUH	AO SMITH CYCLONE MXI BTH-150 CONDENSING HEATER - DIRECT VENT/INTAKE	CUSTODIAN WORKROOM 1826	INSTALL PER MANUFACTURERS SPECIFICATIONS. MECHANICAL CONTRACTOR TO PROVIDE EXHAUST/INTAKE ROUTING AND CONNECTION. SEE MECHANICAL PLANS.
GWH-4	119	RECOVERY @ 70° RISE (G.P.H.) 658	399,900 BTUH	AO SMITH CYCLONE MXI BTH-400 CONDENSING HEATER - DIRECT VENT/INTAKE	JANITOR 1707	INSTALL PER MANUFACTURERS SPECIFICATIONS. MECHANICAL CONTRACTOR TO PROVIDE EXHAUST/INTAKE ROUTING AND CONNECTION. SEE MECHANICAL PLANS.
GWH-5	119	RECOVERY @ 70° RISE (G.P.H.) 658	399,900 BTUH	AO SMITH CYCLONE MXI BTH-400 CONDENSING HEATER - DIRECT VENT/INTAKE	JANITOR 2914	INSTALL PER MANUFACTURERS SPECIFICATIONS. MECHANICAL CONTRACTOR TO PROVIDE EXHAUST/INTAKE ROUTING AND CONNECTION. SEE MECHANICAL PLANS.
ACCEPTED EQUALS - RHEEM, STATE, LOCHINVAR						
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.						

EXPANSION TANK SCHEDULE

SYMBOL	LOCATION	NO. OF TANKS	TANK VOLUME	DIMENSION (INCHES)	MINIMUM OPERATING PRESSURE	MFG. AND MODEL No.
EX-1	AT WATER HEATER	1	6.4 GAL.	12"Dx18"H	50	AMTROL THERM-X-TROL MODEL ST-12-C
EX-2	AT WATER HEATER	1	2.0 GAL.	8"Dx14"H	50	AMTROL THERM-X-TROL MODEL ST-5-C
EX-3	AT WATER HEATER	1	2.0 GAL.	8"Dx14"H	50	AMTROL THERM-X-TROL MODEL ST-5-C
EX-4	AT WATER HEATER	1	2.0 GAL.	8"Dx14"H	50	AMTROL THERM-X-TROL MODEL ST-5-C
EX-5	AT WATER HEATER	1	2.0 GAL.	8"Dx14"H	50	AMTROL THERM-X-TROL MODEL ST-5-C
ACCEPTED EQUALS - WATTS, B&G, BRADFORD-WHITE						
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.						

INSTANTANEOUS ELECTRIC WATER HEATER SCHEDULE

HEATER	TEMPERATURE RISE AT GPM	ELECTRICAL REQUIREMENTS	MFG. AND MODEL NO. UNIT IS BASED ON	LOCATION	REMARKS
EWH-1	56 DEG F @ 0.5 GPM TURN ON 0.3 GPM	277 V / 1PH / 60 HZ 4.1 KW 15 AMPS	EEMAX MODEL EX4277	TOILET 1206B TOILET 1208B	ENSURE INSTALLATION OF 0.5 GPM OUTLET INTEGRAL WITH INSTALLED FAUCET
EWH-2	46 DEG F @ 1.5 GPM TURN ON 0.9 GPM	277 V / 1PH / 60 HZ 10 KW 38 AMPS	EEMAX MODEL EX100 SL	ART 1413	ENSURE INSTALLATION OF 1.5 GPM OUTLET INTEGRAL WITH INSTALLED FAUCET
ACCEPTED EQUALS - RHEEM, STATE, LOCHINVAR					
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.					

BALANCING VALVE ASSEMBLY

DESCRIPTION
BELL AND GOSSETT - CIRCUIT SETTER PLUS - MODEL MC, BRASS CONSTRUCTION EPDM "O" RINGS. TWO PRESSURE AND TEMPERATURE MEASURING POINTS. CALIBRATED BALANCING UNIT WITH POSITIVE SHUT-OFF. UNIT SHALL BE MOUNTED IN A ACCESSIBLE LOCATION.
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY RESEMBLES AND PERFORMS EQUAL TO SPECIFIED PRODUCT. ONLY THE MANUFACTURES LISTED WILL BE ACCEPTED UNLESS THE PROCEDURES FOR SUBSTITUTION AS INDICATED BY THE SPECIFICATIONS, ARE FOLLOWED.

CLEANOUT SCHEDULE

SYMBOL	DESCRIPTION
WCO	JAY R. SMITH 4530 CLEANOUT TEE. DURA-COATED CAST IRON BODY, NO-HUB CONNECTION, GAS AND WATERTIGHT TAPERED THREADED ABS PLUG AND SMOOTH STAINLESS STEEL WALL ACCESS COVER. LOCATE 24" OR LESS ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
FCO	JAY R. SMITH MODEL 4020 CLEANOUT, DURA-COATED CAST IRON BODY, HUB CONNECTION, GAS AND WATERTIGHT TAPERED THREADED ABS PLUG AND ROUND SCORATED NICKEL BRONZE TOP.
ACCEPTED EQUALS - JOSAM, ZURN, MIFAB	



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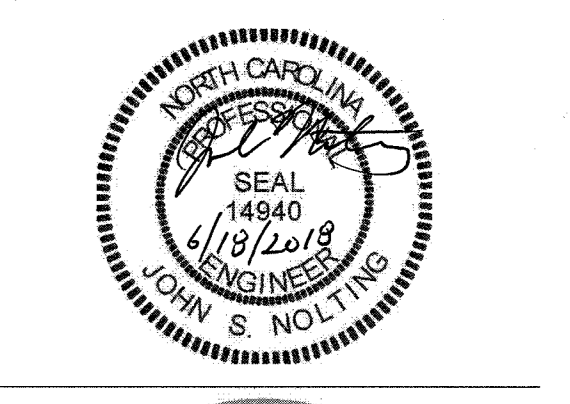
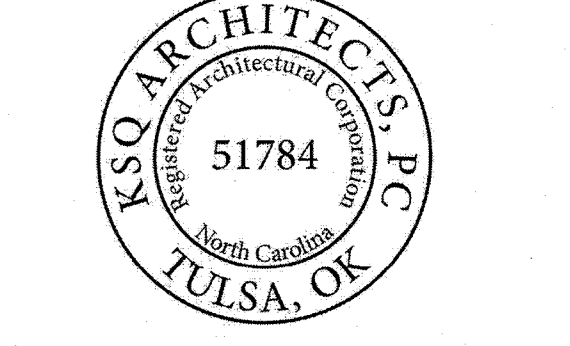
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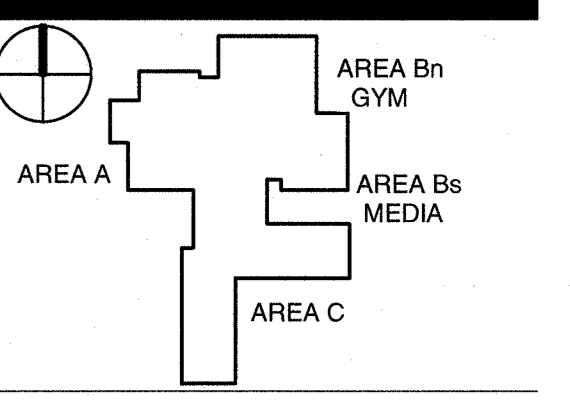
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TOWN CREEK MIDDLE SCHOOL

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WINNABOW, NC 28479



No.	Description	Date
2	ADDENDUM 2	6/18/2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 12" = 1'-0"
SHEET NAME: PLUMBING SCHEDULES

SHEET NUMBER:



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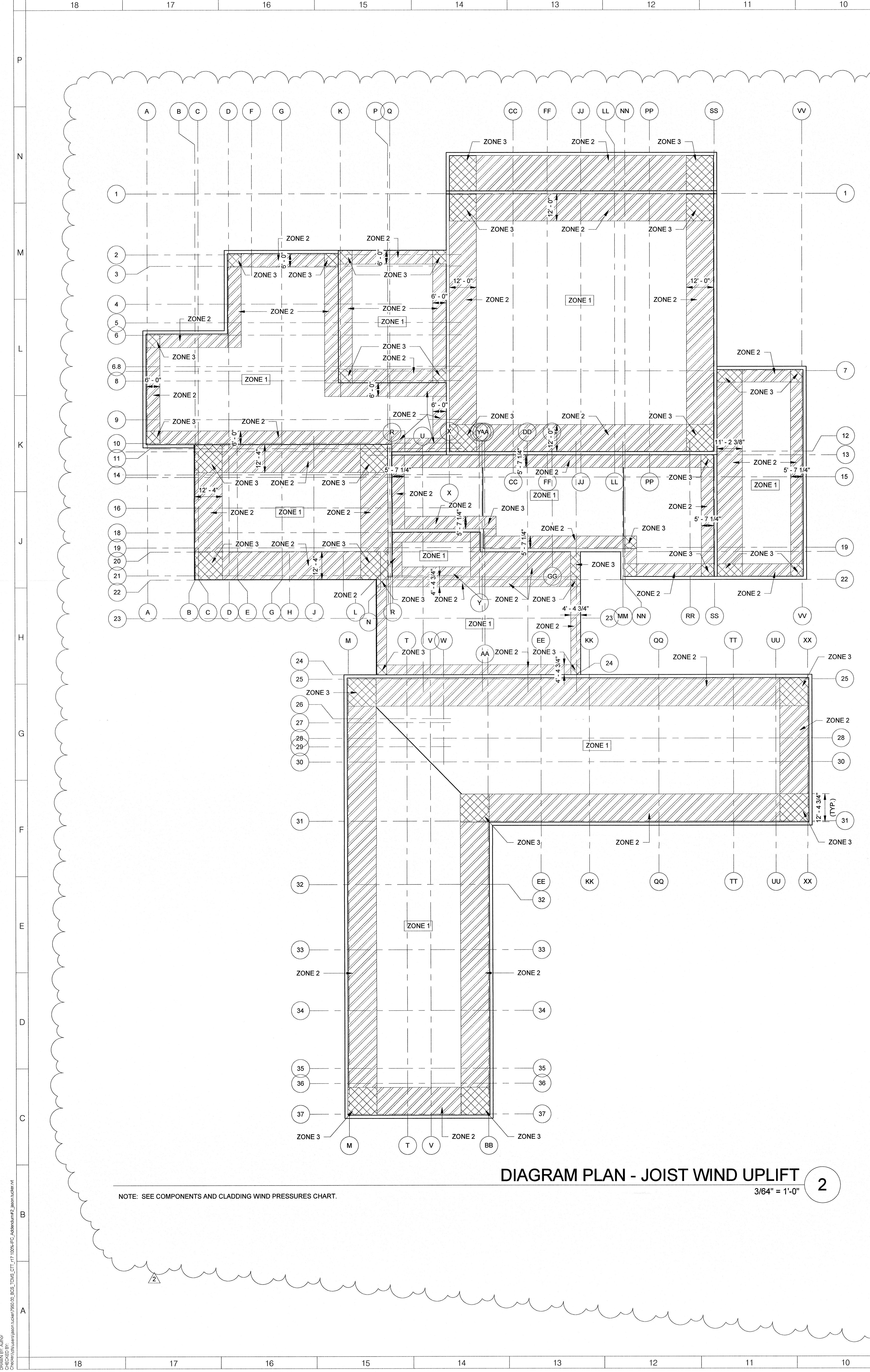


DIAGRAM PLAN - JOIST WIND UPLIFT
3/64" = 1'-0" 2

NOTE: SEE COMPONENTS AND CLADDING WIND PRESSURES CHART.

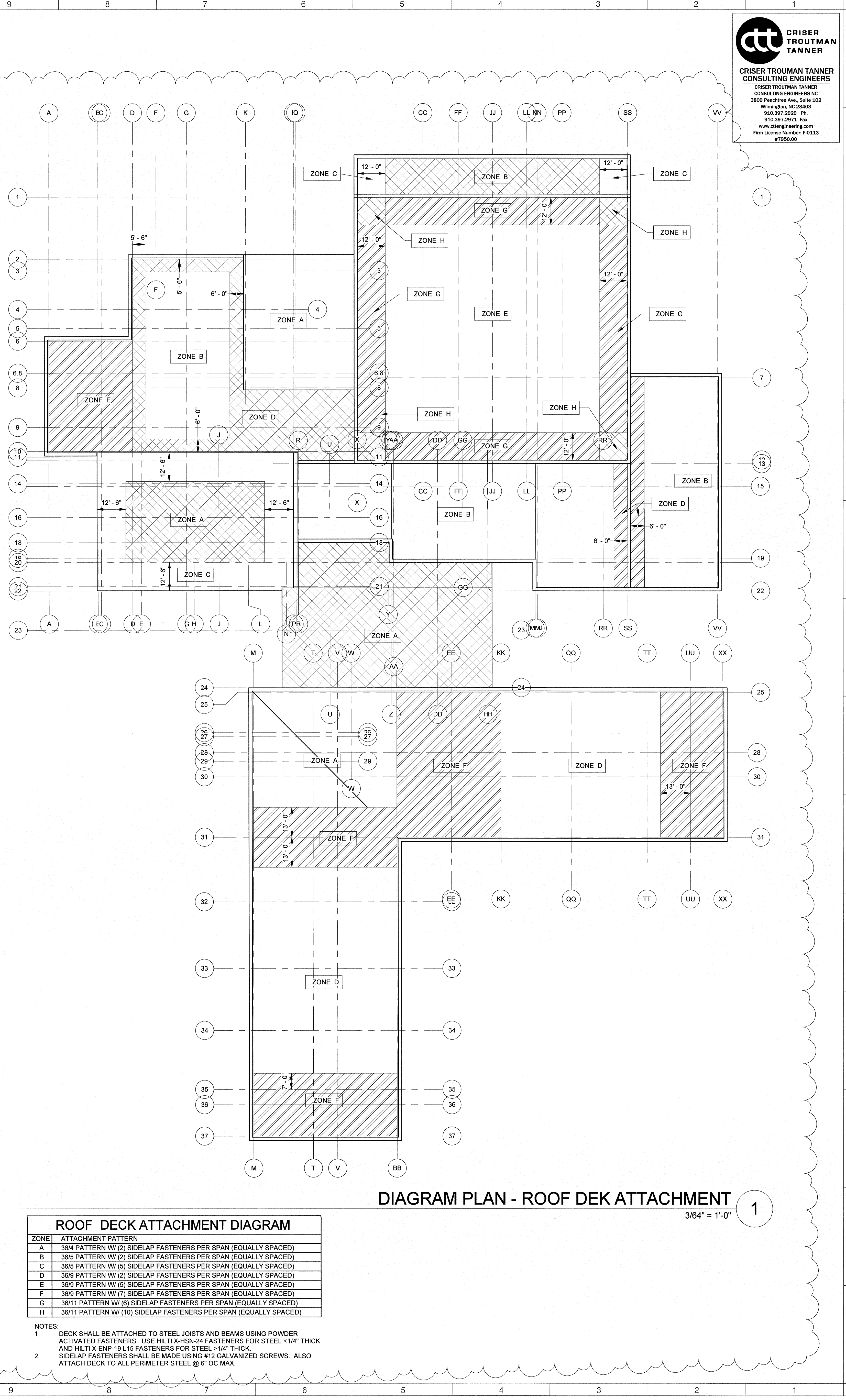
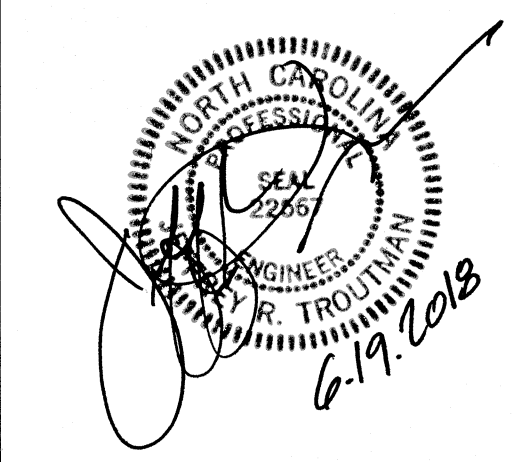


DIAGRAM PLAN - ROOF DECK ATTACHMENT
3/64" = 1'-0" 1

ROOF DECK ATTACHMENT DIAGRAM

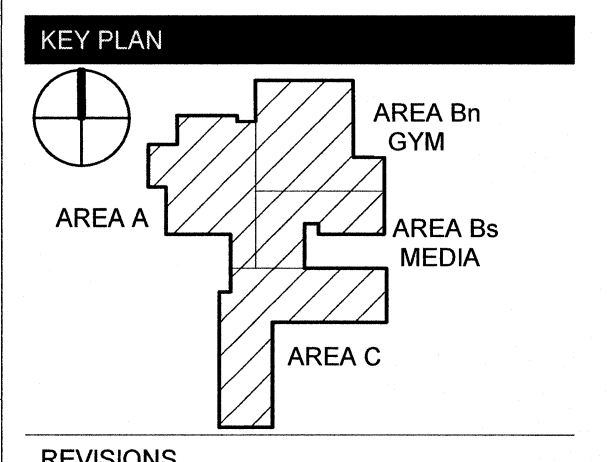
ZONE	ATTACHMENT PATTERN
A	36/4 PATTERN W/ (2) SIDELAP FASTENERS PER SPAN (EQUALLY SPACED)
B	36/5 PATTERN W/ (2) SIDELAP FASTENERS PER SPAN (EQUALLY SPACED)
C	36/5 PATTERN W/ (3) SIDELAP FASTENERS PER SPAN (EQUALLY SPACED)
D	36/9 PATTERN W/ (2) SIDELAP FASTENERS PER SPAN (EQUALLY SPACED)
E	36/9 PATTERN W/ (5) SIDELAP FASTENERS PER SPAN (EQUALLY SPACED)
F	36/9 PATTERN W/ (7) SIDELAP FASTENERS PER SPAN (EQUALLY SPACED)
G	36/11 PATTERN W/ (6) SIDELAP FASTENERS PER SPAN (EQUALLY SPACED)
H	36/11 PATTERN W/ (10) SIDELAP FASTENERS PER SPAN (EQUALLY SPACED)

NOTES:
1. DECK SHALL BE ATTACHED TO STEEL JOISTS AND BEAMS USING POWDER ACTIVATED FASTENERS. USE HILTI X-HSN-24 FASTENERS FOR STEEL $1/4''$ THICK AND HILTI X-EMP-19 L15 FASTENERS FOR STEEL >math>1/4''</math> THICK.
2. SIDELAP FASTENERS SHALL BE MADE USING #12 GALVANIZED SCREWS. ALSO ATTACH DECK TO ALL PERIMETER STEEL @ 6' OC MAX.



TOWN CREEK MIDDLE SCHOOL

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REVISIONS

No.	Description	Date
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: As indicated
SHEET NAME: DIAGRAM PLANS - DECK ATTACHMENT

SHEET NUMBER: S-003



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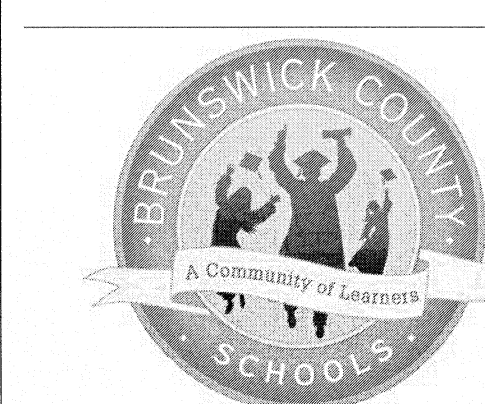
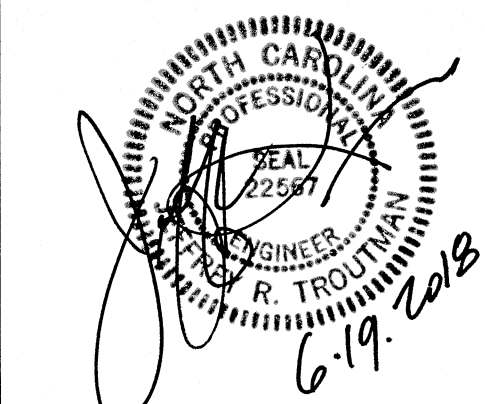
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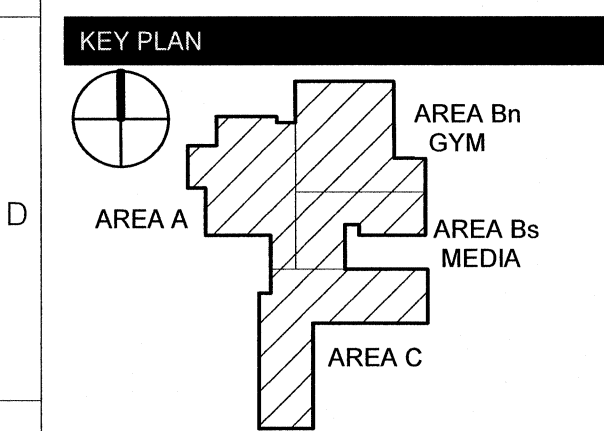
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ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018

SCALE: 12" = 1'-0"

SHEET NAME:
COMPONENTS AND CLADDING WALL WIND ZONES CHARTS

SHEET NUMBER:
S-004

AREA A ADMIN COMPONENTS & CLADDING WIND PRESSURES UNFACTORED GROSS (PSF)

ROOF AREA	SURFACE PRESSURES (PSF)		
	ZONE 1	ZONE 2	ZONE 3
ROOFING	+39.4/-43.0	+39.4/-72.2	+39.4/-72.2
ROOF DECK	+39.4/-43.0	+39.4/-72.2	+39.4/-72.2
ROOF JOIST (LONG)	+31.6/-39.4	+31.6/-46.7	+31.6/-46.7
ROOF JOIST (SHORT)	+34.3/-39.8	+34.3/-49.9	+34.3/-49.9

WALL AREA	SURFACE PRESSURES (PSF)	
	ZONE 4	ZONE 5
METAL STUDS	+33.5/-36.8	+33.5/-40.8
BRICK VENEER/MTL PANEL	+39.4/-42.7	+39.4/-52.5
PARAPET	±101.7	±101.7
FASCIA	+39.4/-52.5	
PARAPET CAP	+39.4/-72.2	
WINDOW D	+36.7/-40.0	+36.7/-47.2
DBL ENTRANCE DOOR	+35.5/-38.8	+35.5/-44.8
SINGLE DOOR	+29.5/-32.8	

WIND ZONE WIDTH, a = 6.0 FT

NOTES:
A. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM BUILDING SURFACES, RESPECTIVELY.
B. LOADS MAY BE INTERPOLATED BETWEEN THE WIND AREAS.
C. REFER TO FIGURES 6-11A THROUGH 6-17 IN ASCE 7 FOR COMPONENT AND CLADDING WIND LOAD DIAGRAMS AND DEFINITIONS OF WIND ZONES 1 THROUGH 5.

AREA A DINING COMPONENTS & CLADDING WIND PRESSURES UNFACTORED GROSS (PSF)

ROOF AREA	SURFACE PRESSURES (PSF)		
	ZONE 1	ZONE 2	ZONE 3
ROOFING	+18.8/-50.2	+18.8/-58.1	+18.8/-77.7
ROOF DECK	+18.8/-50.2	+18.8/-58.1	+18.8/-77.7
ROOF JOIST	+14.9/-50.2	+14.9/-54.1	+14.9/-54.1

WALL AREA	SURFACE PRESSURES (PSF)	
	ZONE 4	ZONE 5
METAL STUDS	+36.4/-43.6	+36.4/-48.8
BRICK VENEER/MTL PANEL	+42.4/-50.2	+42.4/-62.0
FASCIA	+42.4/-62.0	
STOREFRONT (TYPE V)	+38.6/-46.0	+38.6/-53.6
STOREFRONT (TYPE U)	+38.1/-45.4	+38.1/-52.4
DBL ENTRANCE DOOR	+37.5/-51.1	

WIND ZONE WIDTH, a = 12.4 FT

NOTES:
A. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM BUILDING SURFACES, RESPECTIVELY.
B. LOADS MAY BE INTERPOLATED BETWEEN THE WIND AREAS.
C. REFER TO FIGURES 6-11A THROUGH 6-17 IN ASCE 7 FOR COMPONENT AND CLADDING WIND LOAD DIAGRAMS AND DEFINITIONS OF WIND ZONES 1 THROUGH 5.

AREA Bn GYM COMPONENTS & CLADDING WIND PRESSURES UNFACTORED GROSS (PSF)

ROOF AREA	SURFACE PRESSURES (PSF)		
	ZONE 1	ZONE 2	ZONE 3
ROOFING	+20.2/-49.7	+20.2/-83.3	+20.2/-125.4
ROOF DECK	+20.2/-49.7	+20.2/-83.3	+20.2/-125.4
ROOF JOIST	+16.0/-45.4	+16.0/-53.9	+16.0/-53.9

WALL AREA	SURFACE PRESSURES (PSF)	
	ZONE 4	ZONE 5
CMU WALL	+35.1/-38.9	+35.1/-39.8
BRICK VENEER	+45.4/-49.2	+45.4/-60.6
PARAPET	±114.1	±156.3
FASCIA	+45.4/-60.6	
PARAPET CAP	+20.2/-125.4	
KALWALL (TYPE M)	+37.7/-41.5	
SINGLE ENTRANCE DOOR	+42.8/-46.6	
DBL ENTRANCE DOOR	+41.0/-44.8	

WIND ZONE WIDTH, a = 12 FT

NOTES:
A. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM BUILDING SURFACES, RESPECTIVELY.
B. LOADS MAY BE INTERPOLATED BETWEEN THE WIND AREAS.
C. REFER TO FIGURES 6-11A THROUGH 6-17 IN ASCE 7 FOR COMPONENT AND CLADDING WIND LOAD DIAGRAMS AND DEFINITIONS OF WIND ZONES 1 THROUGH 5.

AREA Bs MEDIA CTR COMPONENTS & CLADDING WIND PRESSURES UNFACTORED GROSS (PSF)

ROOF AREA	SURFACE PRESSURES (PSF)		
	ZONE 1	ZONE 2	ZONE 3
ROOFING	+18.8/-50.1	+18.8/-57.9	+18.8/-77.4
ROOF DECK	+18.8/-50.1	+18.8/-57.9	+18.8/-77.4
ROOF JOIST (LONG)	+14.9/-50.1	+14.9/-54.0	+14.9/-54.0
ROOF JOIST (SHORT)	+14.9/-50.1	+14.9/-54.0	+14.9/-54.0

WALL AREA	SURFACE PRESSURES (PSF)	
	ZONE 4	ZONE 5
METAL STUDS	+37.4/-44.7	+37.4/-51.1
BRICK VENEER/MTL PANEL	+42.2/-50.1	+42.2/-61.8
FASCIA	+42.2/-61.8	
STOREFRONT (TYPE L)	+37.1/-44.4	+37.1/-50.4
STOREFRONT (TYPE T)	+38.9/-46.4	+38.9/-54.4
DBL ENTRANCE DOOR	+37.4/-44.6	

WIND ZONE WIDTH, a = 4.4 FT

NOTES:
A. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM BUILDING SURFACES, RESPECTIVELY.
B. LOADS MAY BE INTERPOLATED BETWEEN THE WIND AREAS.
C. REFER TO FIGURES 6-11A THROUGH 6-17 IN ASCE 7 FOR COMPONENT AND CLADDING WIND LOAD DIAGRAMS AND DEFINITIONS OF WIND ZONES 1 THROUGH 5.

AREA Bs MUSIC COMPONENTS & CLADDING WIND PRESSURES UNFACTORED GROSS (PSF)

ROOF AREA	SURFACE PRESSURES (PSF)		
	ZONE 1	ZONE 2	ZONE 3
ROOFING	+17.7/-43.5	+17.7/-73.0	+17.7/-109.9
ROOF DECK	+17.7/-43.5	+17.7/-73.0	+17.7/-109.9
ROOF JOIST (LONG)	+15.4/-41.2	+15.4/-56.9	+15.4/-70.8
ROOF JOIST (SHORT)	+14.0/-39.8	+14.0/-47.2	+14.0/-47.2

WALL AREA	SURFACE PRESSURES (PSF)	
	ZONE 4	ZONE 5
METAL STUDS	+33.5/-36.8	+33.5/-40.8
BRICK VENEER/MTL PANEL	+33.8/-37.1	+33.8/-41.0
PARAPET < 3'0"	±101.1	±101.1
PARAPET > 3'0" TO 13'0"	±111.4	±111.4
FASCIA	+39.8/-53.1	
PARAPET CAP	+29.9/-109.9	
STOREFRONT (TYPE S)	+32.5/-35.6	+32.5/-38.4
DBL ENTRANCE DOOR	+35.9/-39.2	+35.9/-45.3
SINGLE DOOR	+29.9/-33.2	

WIND ZONE WIDTH, a = 5.6 FT

NOTES:
A. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM BUILDING SURFACES, RESPECTIVELY.
B. LOADS MAY BE INTERPOLATED BETWEEN THE WIND AREAS.
C. REFER TO FIGURES 6-11A THROUGH 6-17 IN ASCE 7 FOR COMPONENT AND CLADDING WIND LOAD DIAGRAMS AND DEFINITIONS OF WIND ZONES 1 THROUGH 5.

AREA A/Bs COMMONS CORRIDOR COMPONENTS & CLADDING WIND PRESSURES UNFACTORED GROSS (PSF)

ROOF AREA	SURFACE PRESSURES (PSF)		
	ZONE 1	ZONE 2	ZONE 3
ROOFING	+19.4/-51.8	+19.4/-59.9	+19.4/-80.2
ROOF DECK	+19.4/-51.8	+19.4/-59.9	+19.4/-80.2
ROOF JOIST	+15.4/-51.8	+15.4/-55.9	+15.4/-55.9

WALL AREA	SURFACE PRESSURES (PSF)	
	ZONE 4	ZONE 5
METAL STUDS	+39.8/-47.5	+39.8/-55.3
BRICK VENEER/MTL PANEL	+43.7/-51.8	+43.7/-64.0
FASCIA	+43.7/-64.0	
STOREFRONT (TYPE A)	+39.9/-47.6	+39.9/-55.4
WINDOW D	+40.8/-48.6	+40.8/-57.4
DBL ENTRANCE DOOR	+38.5/-46.0	

WIND ZONE WIDTH, a = 4.8 FT

NOTES:
A. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM BUILDING SURFACES, RESPECTIVELY.
B. LOADS MAY BE INTERPOLATED BETWEEN THE WIND AREAS.
C. REFER TO FIGURES 6-11A THROUGH 6-17 IN ASCE 7 FOR COMPONENT AND CLADDING WIND LOAD DIAGRAMS AND DEFINITIONS OF WIND ZONES 1 THROUGH 5.

AREA C CLASSROOMS COMPONENTS & CLADDING WIND PRESSURES UNFACTORED GROSS (PSF)

ROOF AREA	SURFACE PRESSURES (PSF)		
	ZONE 1	ZONE 2	ZONE 3
ROOFING	+20.4/-50.1	+20.4/-84.1	+20.4/-126.5
ROOF DECK	+20.4/-50.1	+20.4/-84.1	+20.4/-126.5
ROOF JOIST (LONG)	+16.1/-45.9	+16.1/-54.3	+16.1/-54.3
ROOF JOIST (SHORT)	+17.9/-47.6	+17.9/-66.6	

WALL AREA	SURFACE PRESSURES (PSF)	
	ZONE 4	ZONE 5
METAL STUDS	+39.8/-43.6	+39.8/-49.1
BRICK VENEER/MTL PANEL	+45.9/-49.7	+45.9/-61.1
PARAPET	±115.0	±157.6
FASCIA	+45.9/-61.1	
PARAPET CAP	+20.3/-126.5	
STOREFRONT (TYPE Y)	+43.1/-46.9	+43.1/-55.5
DBL ENTRANCE DOOR	+41.3/-45.2	+41.3/-52.1
WINDOW (TYPE N)	+41.2/-45.0	+41.2/-51.8
WINDOW (TYPE P)	+43.2/-47.0	
WINDOW (TYPE Q)	+44.2/-45.0	+44.2/-57.9
WINDOW (TYPE R)	+40.4/-44.2	
DOOR (TYPE W)	+40.5/-44.4	+40.5/-50.5

WIND ZONE WIDTH, a = 12.4 FT

NOTES:
A. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM BUILDING SURFACES, RESPECTIVELY.
B. LOADS MAY BE INTERPOLATED BETWEEN THE WIND AREAS.
C. REFER TO FIGURES 6-11A THROUGH 6-17 IN ASCE 7 FOR COMPONENT AND CLADDING WIND LOAD DIAGRAMS AND DEFINITIONS OF WIND ZONES 1 THROUGH 5.

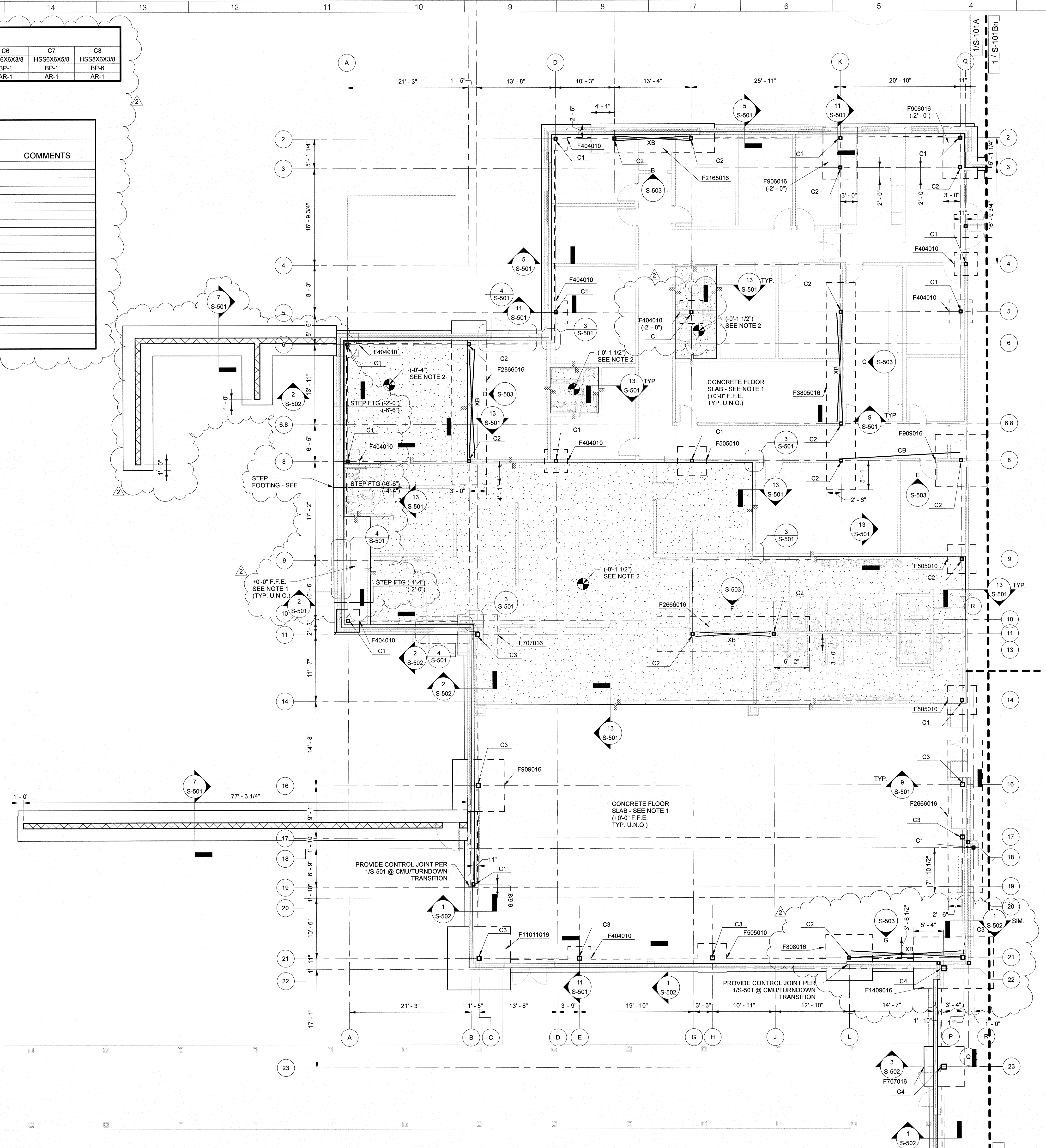
COMPONENTS AND CLADDING WALL WIND ZONES CHARTS

DRAWN BY: AUBRY
CHECKED BY: JAMES T. TANNER
DATE: 05/24/2018

COLUMN SCHEDULE								
MARK	C1	C2	C3	C4	C5	C6	C7	C8
COLUMN SIZE	HSS6x6x1/4	HSS6x6x3/8	HSS8x8x5/8	HSS10x10x1/2	W12x50	HSS6x6x3/8	HSS6x6x5/8	HSS8x8x3/8
BASE PLATE MARK	BP-1	BP-2	BP-3	BP-4	BP-5	BP-1	BP-1	BP-6
ANCHOR BOLT MARK	AR-1 (U.N.O.)	AR-2	AR-2	AR-2	AR-2	AR-1	AR-1	AR-1

NOTE: SEE S-502 FOR BASE PLATE AND ANCHOR BOLT DETAILS.

STRUCTURAL FOUNDATION SCHEDULE					
MARK	LENGTH	WIDTH	THICKNESS	REINF.	COMMENTS
F303010	7'-0"	7'-0"	1'-0"	(9) #5 EACH WAY	(3) #5 E.W. BOTT.
F404010	4'-0"	4'-0"	1'-0"	(8) #5 E.W. BOTT.	(5) #5 E.W. BOTT.
F505010	5'-0"	5'-0"	1'-0"	(9) #5 E.W. BOTT.	(5) #5 E.W. BOTT.
F606016	6'-0"	6'-0"	1'-6"	(11) #5 E.W. T&B	(9) #5 E.W. T&B
F707016	7'-0"	7'-0"	1'-6"	(16) #4 E.W. T&B	(9) #5 E.W. T&B
F808016	8'-0"	8'-0"	1'-6"	(5) #7 T&B LONG., (9) #6 BOTT. TRANS.	(14) #5 E.W. T&B
F909016	9'-0"	9'-0"	1'-6"	(16) #5 LONG. T&B, (22) #6 TRANS. T&B	(4) #7 T&B LONG., (23) #6 T&B TRANS.
F2666016	26'-6"	6'-0"	1'-6"	(5) #9 T&B LONG., (44) #6 T&B TRANS.	(5) #9 T&B LONG., (44) #6 T&B TRANS.
F2666016	26'-6"	6'-0"	1'-6"	(5) #9 T&B LONG., (44) #6 T&B TRANS.	(5) #9 T&B LONG., (44) #6 T&B TRANS.
F3666020	36'-0"	5'-0"	2'-0"	(4) #10 T&B LONG., (37) #6 T&B TRANS.	(4) #10 T&B LONG., (37) #6 T&B TRANS.
F4307020	43'-0"	7'-0"	2'-0"	(8) #8 T&B LONG., (43) #6 T&B TRANS.	(8) #8 T&B LONG., (43) #6 T&B TRANS.
F4607020	46'-0"	7'-0"	2'-0"	(7) #8 TOP LONG., (21) #6 BOTT. LONG., (46) #6 T&B TRANS.	(7) #8 TOP LONG., (21) #6 BOTT. LONG., (46) #6 T&B TRANS.
F11011016	11'-0"	11'-0"	1'-6"	(8) #7 E.W. T&B	(8) #7 E.W. T&B
F14014020	14'-0"	14'-0"	2'-0"	(10) #8 E.W. T&B	(10) #8 E.W. T&B
F-ELEVATOR	11'-11 1/4"	10'-3 1/4"	1'-6"	#8 @ 9" E.W. TOP & BOT.	#8 @ 9" E.W. TOP & BOT.



FOUNDATION AND SLAB PLAN - AREA A

- FOUNDATION PLAN NOTES:
- TYPICAL SLAB-ON-GRADE SHALL BE 4" 3000 PSI CONCRETE REINFORCED W/ 6x6 W2.9 WWR ON VAPOR RETARDER OVER 6" POROUS STONE FILL ON COMPACTED SUBGRADE/FILL, U.N.O.
 - HATCHED AREA DENOTES SLAB DEPRESSIONS. SEE ARCHITECTURAL DRAWINGS FOR EXTENTS VERIFY DEPRESSION DEPTH.
 - C - INDICATES COLUMN MARK - SEE COLUMN SCHEDULE.
 - F - INDICATES FOOTING MARK - SEE FOOTING SCHEDULE.
 - XB - INDICATES STEEL CROSS-BRACING.
 - CB - INDICATES STEEL COMPRESSION BRACING.
 - FINISH FLOOR ELEVATION - SEE ARCH DRAWINGS.
 - TYPICAL TOP OF FOOTING DEPTH AT EXTERIOR IS [2'-0"] BELOW FINISHED FLOOR & [1'-0"] AT INTERIOR, U.N.O.
 - PROVIDE CONTROL JOINTS (C.J.) USING SAWED JOINTS (S.J.) OR KEED JOINTS (K.J.) AS REQUIRED BY CONCRETE PLACEMENT, DETAILS 1/S-501 RESPECTIVELY, BUT SHALL NOT BE LOCATED MORE THAN 15' APART AND SHALL HAVE AREAS LIMITED TO A MAXIMUM LENGTH-TO-WIDTH RATIO OF 1.5 OR LESS, U.N.O., FOR SLABS, SAWCUT PER SPECIFICATIONS.
 - SEE ARCHITECTURAL DRAWINGS FOR MASONRY WALL JOINT LOCATIONS. SEE 1/S-504 FOR JOINT DETAIL.
 - PROVIDE COLUMN ISOLATION JOINTS AT EACH COLUMN PER 4/S-501.

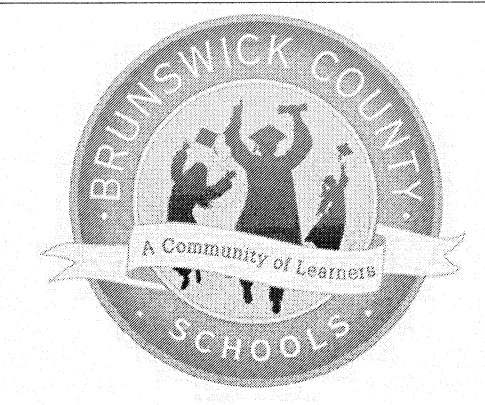
1/8" = 1'-0" 1

1/S-101A
1 / S-101Bs



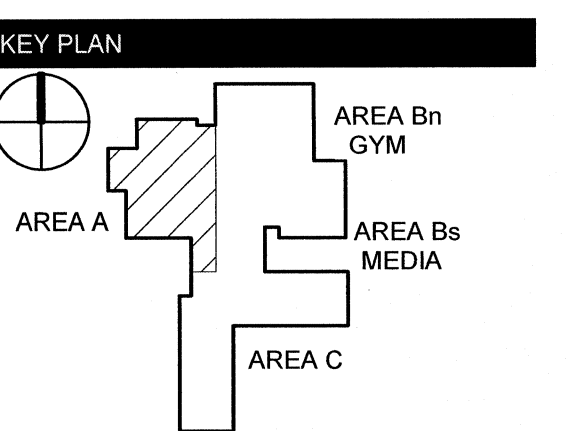
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WINNABOW, NC 28479



REVISIONS		
No.	Description	Date
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE: As indicated
SHEET NAME: FOUNDATION PLAN - AREA A
SHEET NUMBER: S-101A

COLUMN SCHEDULE								
MARK	C1	C2	C3	C4	C5	C6	C7	C8
COLUMN SIZE	HSS6x6x1/4	HSS6x6x3/8	HSS8x8x5/8	HSS10x10x1/2	W12x50	HSS6x6x3/8	HSS6x6x5/8	HSS8x8x3/8
BASE PLATE MARK	BP-1	BP-2	BP-3	BP-4	BP-5	BP-1	BP-1	BP-6
ANCHOR BOLT MARK	AR-1 (U.N.O.)	AR-2	AR-2	AR-2	AR-2	AR-1	AR-1	AR-1

NOTE: SEE S-502 FOR BASE PLATE AND ANCHOR BOLT DETAILS.

STRUCTURAL FOUNDATION SCHEDULE				
MARK	LENGTH	WIDTH	THICKNESS	COMMENTS
F303010	7'-0"	7'-0"	1'-0"	(9) #5 EACH WAY
F404010	3'-0"	3'-0"	1'-0"	(3) #5 E.W. BOTT.
F505010	4'-0"	4'-0"	1'-0"	(6) #5 E.W. BOTT.
F606010	5'-0"	5'-0"	1'-0"	(5) #5 E.W. BOTT.
F606016	6'-0"	6'-0"	1'-6"	(11) #5 E.W. T&B
F707016	7'-0"	7'-0"	1'-6"	(9) #5 E.W. T&B
F808016	8'-0"	8'-0"	1'-6"	(16) #4 E.W. T&B
F909016	9'-0"	9'-0"	1'-6"	(5) #7 T&B LONG, (9) #6 BOTT. TRANS.
F909016	9'-0"	9'-0"	1'-6"	(14) #5 E.W. T&B
F1409020	14'-0"	9'-0"	2'-0"	(16) #5 LONG. T&B, (22) #6 TRANS. T&B
F2165016	21'-6"	5'-0"	1'-6"	(4) #7 T&B LONG, (23) #6 T&B TRANS.
F2866016	28'-6"	6'-0"	1'-6"	(5) #9 T&B LONG, (44) #6 T&B TRANS.
F2866016	28'-6"	6'-0"	1'-6"	(5) #9 T&B LONG, (44) #6 T&B TRANS.
F3506020	35'-0"	6'-0"	2'-0"	(5) #9 T&B LONG, (39) #6 T&B TRANS.
F3605020	36'-0"	5'-0"	2'-0"	(4) #10 T&B LONG, (37) #6 T&B TRANS.
F4307020	43'-0"	7'-0"	2'-0"	(8) #8 T&B LONG, (43) #8 T&B TRANS.
F4607020	46'-0"	7'-0"	2'-0"	(7) #8 TOP LONG, (21) #8 BOTT. LONG, (49) #8 T&B TRANS.
F11011016	11'-0"	11'-0"	1'-6"	(8) #7 E.W. T&B
F14014020	14'-0"	14'-0"	2'-0"	(10) #8 E.W. T&B
F-ELEVATOR	11'-11 1/4"	10'-3 1/4"	1'-6"	#6 @ 9" E.W. TOP & BOT, #8 @ 9" O.C. E.W. T&B

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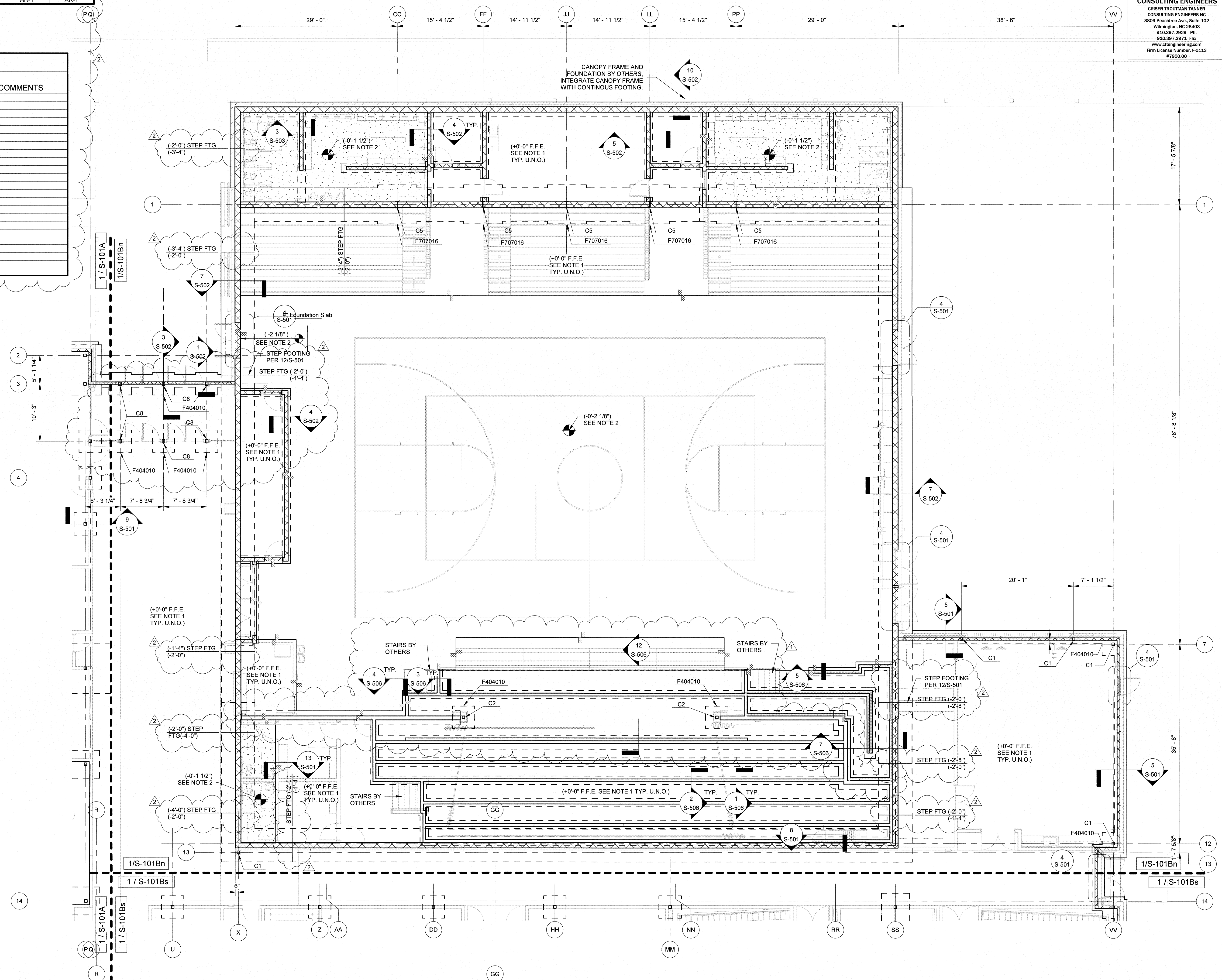
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FOUNDATION AND SLAB PLAN - AREA B NORTH
1/8" = 1'-0" 1

- FOUNDATION PLAN NOTES:**
- TYPICAL SLAB-ON-GRADE SHALL BE 6" IN THE GYM AND 4" U.N.O. 3000 PSI CONCRETE REINFORCED W/ 6x6-W2 8xW2.9 WWR ON VAPOR RETARDER OVER 6" POROUS STONE FILL ON COMPACTED SUBGRADE/FILL U.N.O.
 - HATCHED AREA DENOTES SLAB DEPRESSIONS. SEE ARCHITECTURAL DRAWINGS FOR EXTENTS VERIFY DEPRESSION DEPTH.
 - C - INDICATES COLUMN MARK - SEE COLUMN SCHEDULE.
 - F - INDICATES FOOTING MARK - SEE FOOTING SCHEDULE.
 - XB - INDICATES STEEL CROSS-BRACING.
 - CB - INDICATES STEEL COMPRESSION BRACING.
 - FINISH FLOOR ELEVATION - SEE ARCH DRAWINGS.
 - TYPICAL TOP OF FOOTING DEPTH AT EXTERIOR IS [-2'-0"] BELOW FINISHED FLOOR & [-1'-0"] AT INTERIOR, U.N.O.
 - PROVIDE CONTROL JOINTS (C.J.) USING SAWED JOINTS (S.J.) OR KEYED JOINTS (K.J.) AS REQUIRED BY CONCRETE PLACEMENT DETAILS 115-501 RESPECTIVELY, BUT SHALL NOT BE LOCATED MORE THAN 15' APART AND SHALL HAVE AREAS LIMITED TO A MAXIMUM LENGTH-TO-WIDTH RATIO OF 1.5 OR LESS, U.N.O. FOR SLABS. SAWCUT PER SPECIFICATIONS.
 - SEE ARCHITECTURAL DRAWINGS FOR MASONRY WALL, JOINT LOCATIONS. SEE 115-504 FOR JOINT DETAIL.
 - PROVIDE COLUMN ISOLATION JOINTS AT EACH COLUMN PER 405-501.
 - COORDINATE THICKENED FOOTING FOR LOAD-BEARING STAGE KNEEWALLS WITH SECTIONS ON SHEET S-506.
 - 12" CMU GYM WALLS IN THE "FIELD" ZONE SHALL BE REINFORCED WITH #8 @ 32" O.C. FULL HEIGHT AND FULLY GROUTED. 12" CMU WALLS WITHIN 12'-0" OF GYM WALL CORNERS SHALL BE REINFORCED WITH #8 @ 16" O.C. AND FULLY GROUTED.
 - 12" LOCKER ROOM WALLS SHALL BE REINFORCED WITH #4 @ 48" O.C. FULL HEIGHT AND GROUTED AT VERTICAL BAR LOCATIONS ABOVE GRADE AND IN ALL CELLS BELOW GRADE.

Professional Engineer Seal for **BRUNSWICK COUNTY SCHOOLS**, State of North Carolina, License No. 22767, dated 6-19-2018.

TOWN CREEK MIDDLE SCHOOL
6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479

KEY PLAN

REVISIONS

No.	Description	Date
1	Addendum #1	TBD
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: As Indicated

SHEET NAME:
FOUNDATION PLAN - GYM - AREA B NORTH

SHEET NUMBER:

S-101Bn



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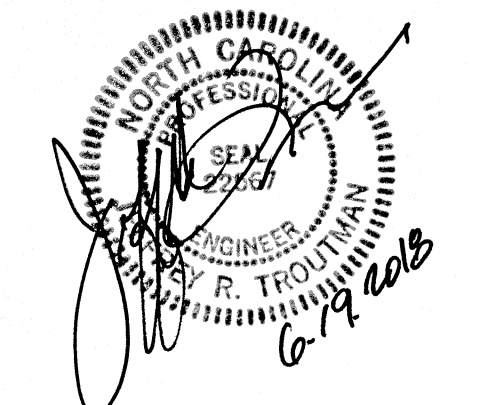
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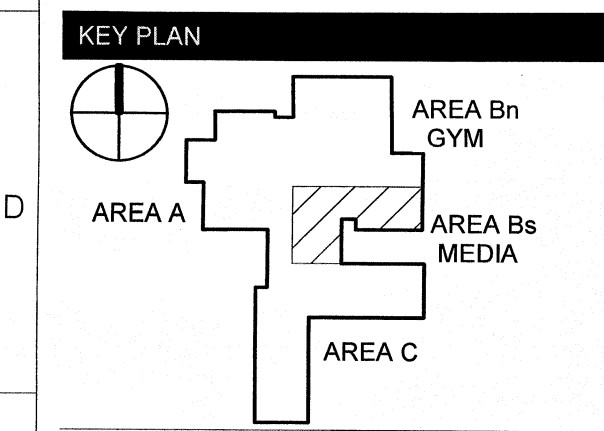
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REVISIONS

No.	Description	Date
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS

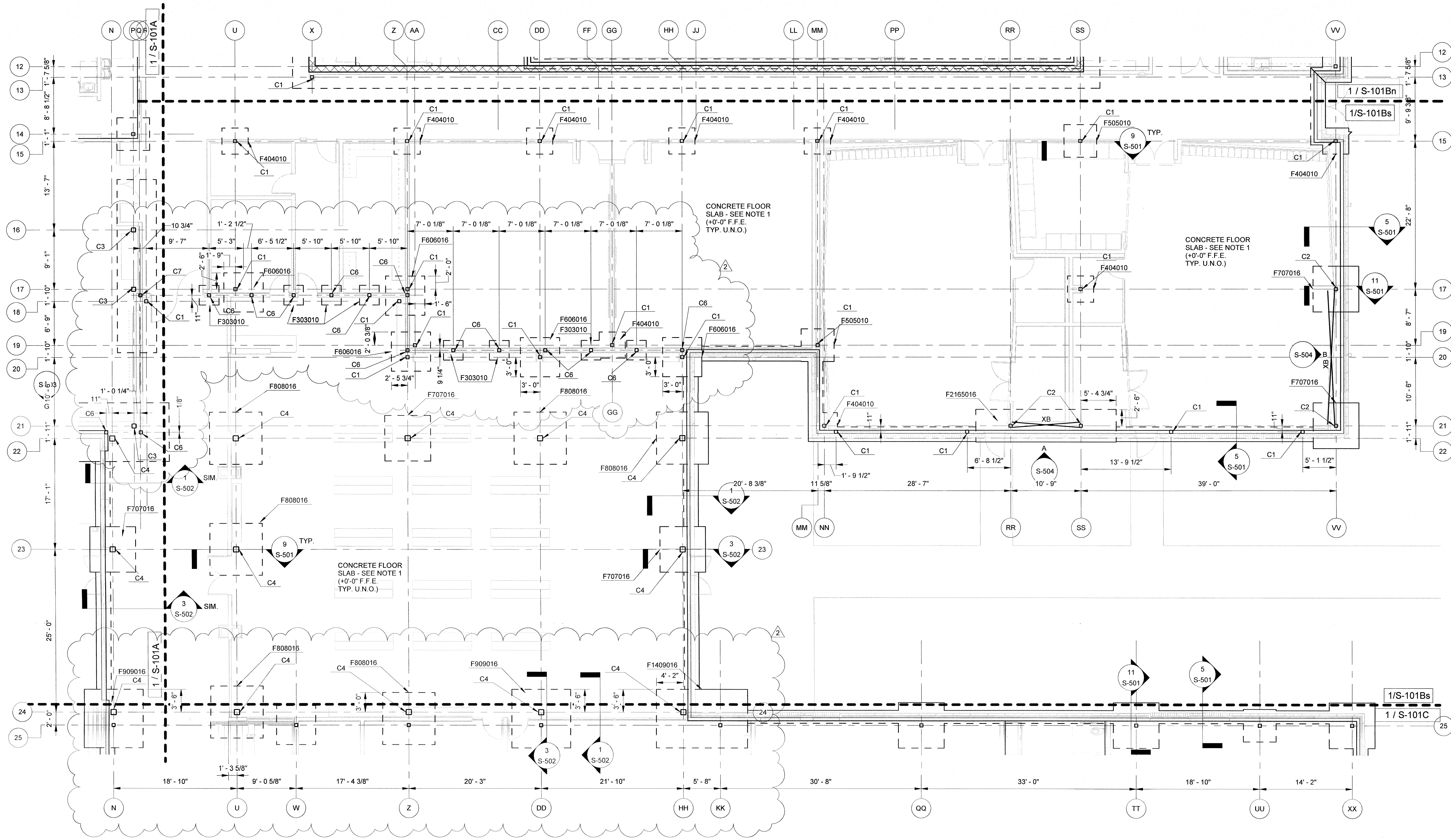
DATE: 05/24/2018

SCALE: As indicated

SHEET NAME: FOUNDATION PLAN - AREA B SOUTH

SHEET NUMBER:

S-101Bs



FOUNDATION AND SLAB PLAN - AREA B SOUTH

1/8" = 1'-0" 1

- FOUNDATION PLAN NOTES:**
- TYPICAL SLAB-ON-GRADE SHALL BE 4", 3000 PSI CONCRETE REINFORCED W/ 6x6-W2.9xW2.9 WWR ON VAPOR RETARDER OVER 6" POROUS STONE FILL ON COMPACTED SUBGRADE/FILL, U.N.O.
 - HATCHED AREA DENOTES SLAB DEPRESSIONS. SEE ARCHITECTURAL DRAWINGS FOR EXTENTS VERIFY DEPRESSION DEPTH.
 - C - INDICATES COLUMN MARK - SEE COLUMN SCHEDULE.
 - F - INDICATES FOOTING MARK - SEE FOOTING SCHEDULE.
 - XB - INDICATES STEEL CROSS-BRACING.
 - CB - INDICATES STEEL COMPRESSION BRACING.
 - FINISH FLOOR ELEVATION - SEE ARCH. DRAWINGS.
 - TYPICAL TOP OF FOOTING DEPTH AT EXTERIOR IS [2'-0"] BELOW FINISHED FLOOR & [1'-0"] AT INTERIOR, U.N.O.
 - PROVIDE CONTROL JOINTS (C.J.) USING SAWS JOINTS (S.J.) OR KEYS JOINTS (K.J.) AS REQUIRED BY CONCRETE PLACEMENT. DETAILS 1/S-501 RESPECTIVELY BUT SHALL NOT BE LOCATED MORE THAN 16" APART AND SHALL HAVE AREAS LIMITED TO A MAXIMUM LENGTH-TO-WIDTH RATIO OF 1.5 OR LESS, U.N.O. FOR SLABS. SAWCUT PER SPECIFICATIONS.
 - SEE ARCHITECTURAL DRAWINGS FOR MASONRY WALL JOINT LOCATIONS. SEE 1/S-504 FOR JOINT DETAIL.
 - PROVIDE COLUMN ISOLATION JOINTS AT EACH COLUMN PER 4/S-501.

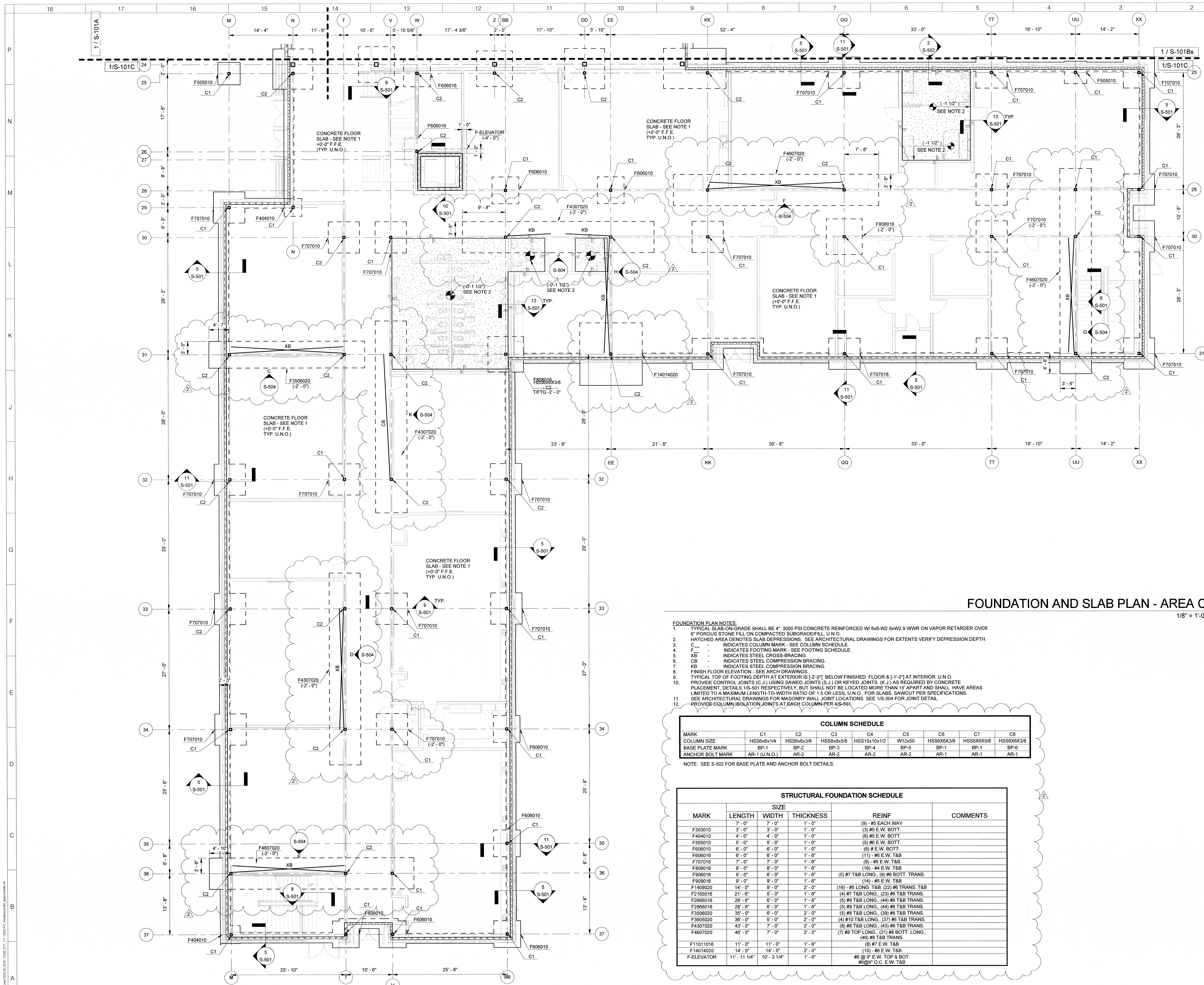
COLUMN SCHEDULE

MARK	C1	C2	C3	C4	C5	C6	C7	C8
COLUMN SIZE	HSS60x6x1/4	HSS56x6x3/8	HSS56x6x5/8	HSS10x10x1/2	W12x50	HSS56x6x3/8	HSS56x6x3/8	HSS56x6x3/8
BASE PLATE MARK	BP-1	BP-2	BP-3	BP-4	BP-5	BP-1	BP-1	BP-6
ANCHOR BOLT MARK	AR-1 (U.N.O.)	AR-2	AR-2	AR-2	AR-2	AR-1	AR-1	AR-1

NOTE: SEE S-502 FOR BASE PLATE AND ANCHOR BOLT DETAILS.

STRUCTURAL FOUNDATION SCHEDULE

MARK	SIZE			REINF.	COMMENTS
	LENGTH	WIDTH	THICKNESS		
F303010	7'-0"	7'-0"	1'-0"	(8) #5 EACH WAY	
F404010	4'-0"	4'-0"	1'-0"	(3) #5 E.W. BOTT.	
F505010	5'-0"	5'-0"	1'-0"	(5) #5 E.W. BOTT.	
F606010	6'-0"	6'-0"	1'-0"	(6) #5 E.W. BOTT.	
F606016	6'-0"	6'-0"	1'-6"	(11) #6 E.W. T&B	
F707016	7'-0"	7'-0"	1'-6"	(9) #5 E.W. T&B	
F808016	8'-0"	8'-0"	1'-6"	(16) #4 E.W. T&B	
F909016	9'-0"	9'-0"	1'-6"	(5) #7 T&B LONG, (9) #6 BOTT. TRANS.	
F909016	9'-0"	9'-0"	1'-6"	(14) #5 E.W. T&B	
F1409020	14'-0"	9'-0"	2'-0"	(16) #6 LONG T&B, (22) #6 TRANS. T&B	
F2165016	21'-6"	5'-0"	1'-6"	(4) #7 T&B LONG, (23) #6 T&B TRANS.	
F2866016	28'-6"	6'-0"	1'-6"	(5) #9 T&B LONG, (44) #6 T&B TRANS.	
F2866016	28'-6"	6'-0"	1'-6"	(5) #9 T&B LONG, (44) #6 T&B TRANS.	
F3506020	35'-0"	6'-0"	2'-0"	(5) #8 T&B LONG, (39) #6 T&B TRANS.	
F3505020	35'-0"	5'-0"	2'-0"	(4) #10 T&B LONG, (37) #6 T&B TRANS.	
F4307020	43'-0"	7'-0"	2'-0"	(8) #6 T&B LONG, (43) #6 T&B TRANS.	
F4607020	46'-0"	7'-0"	2'-0"	(7) #6 TOP LONG, (21) #6 BOTT. LONG, (46) #6 T&B TRANS.	
F1101010	11'-0"	11'-0"	1'-6"	(8) #7 E.W. T&B	
F14014020	14'-0"	14'-0"	2'-0"	(10) #6 E.W. T&B	
F-ELEVATOR	11'-11 1/4"	10'-3 1/4"	1'-6"	#6 @ 9" E.W. TOP & BOT. #6 @ 9" C.E.W. T&B	



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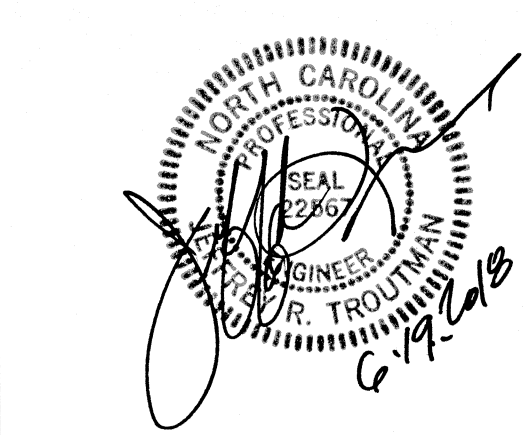
FOUNDATION AND SLAB PLAN - AREA C
 1/8" = 1'-0" 1

- FOUNDATION PLAN NOTES:**
1. TYPICAL SLAB-ON-GRADE SHALL BE 4" 3000 PSI CONCRETE REINFORCED W/ 6x6-W2.9xW2.9 WWR ON VAPOR RETARDER OVER 6" POROUS STONE FILL ON COMPACTED SUBGRADE/FILL, U.N.O.
 2. HATCHED AREA DENOTES SLAB DEPRESSIONS. SEE ARCHITECTURAL DRAWINGS FOR EXTENTS VERIFY DEPRESSION DEPTH.
 3. C - INDICATES COLUMN MARK - SEE COLUMN SCHEDULE.
 4. F - INDICATES FOOTING MARK - SEE FOOTING SCHEDULE.
 5. XB - INDICATES STEEL CROSS-BRACING.
 6. CB - INDICATES STEEL COMPRESSION BRACING.
 7. KB - INDICATES STEEL COMPRESSION BRACING.
 8. FINISH FLOOR ELEVATION - SEE ARCH DRAWINGS.
 9. TYPICAL TOP OF FOOTING DEPTH AT EXTERIOR IS (-2'-0") BELOW FINISHED FLOOR & (-1'-0") AT INTERIOR, U.N.O.
 10. PROVIDE CONTROL JOINTS (C.J.) USING SAWED JOINTS (S.J.) OR KEVED JOINTS (K.J.) AS REQUIRED BY CONCRETE PLACEMENT DETAILS 1/S-501 RESPECTIVELY, BUT SHALL NOT BE LOCATED MORE THAN 15' APART AND SHALL HAVE AREAS LIMITED TO A MAXIMUM LENGTH-TO-WIDTH RATIO OF 1.5 OR LESS, U.N.O. FOR SLABS, SAWCUT PER SPECIFICATIONS.
 11. SEE ARCHITECTURAL DRAWINGS FOR MASONRY WALL JOINT LOCATIONS. SEE 1/S-504 FOR JOINT DETAIL.
 12. PROVIDE COLUMN ISOLATION JOINTS AT EACH COLUMN PER 4/S-501.

COLUMN SCHEDULE								
MARK	C1	C2	C3	C4	C5	C6	C7	C8
COLUMN SIZE	HSS6x6x1/4	HSS6x6x3/8	HSS8x8x5/8	HSS10x10x1/2	W12x50	HSS6x6x3/8	HSS6x6x5/8	HSS8x8x3/8
BASE PLATE MARK	BP-1	BP-2	BP-3	BP-4	BP-5	BP-1	BP-1	BP-6
ANCHOR BOLT MARK	AR-1 (U.N.O.)	AR-2	AR-2	AR-2	AR-2	AR-1	AR-1	AR-1

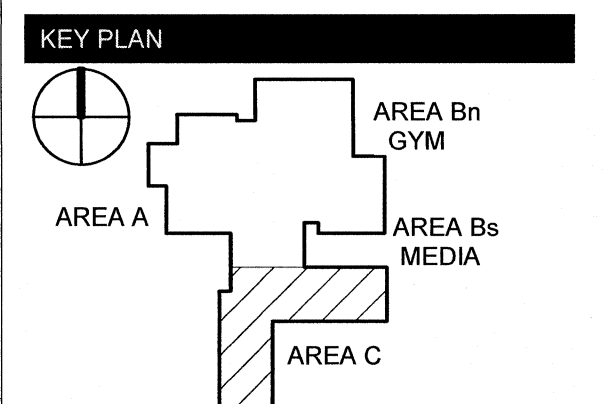
NOTE: SEE S-502 FOR BASE PLATE AND ANCHOR BOLT DETAILS.

STRUCTURAL FOUNDATION SCHEDULE					
MARK	SIZE			REINF	COMMENTS
	LENGTH	WIDTH	THICKNESS		
F303010	7'-0"	7'-0"	1'-0"	(9) - #5 EACH WAY	
F404010	3'-0"	3'-0"	1'-0"	(3) #5 E.W. BOTT.	
F404010	4'-0"	4'-0"	1'-0"	(6) #5 E.W. BOTT.	
F505010	5'-0"	5'-0"	1'-0"	(5) #5 E.W. BOTT.	
F505010	6'-0"	6'-0"	1'-0"	(6) #5 E.W. BOTT.	
F606016	6'-0"	6'-0"	1'-6"	(11) - #6 E.W. T&B	
F707016	7'-0"	7'-0"	1'-6"	(9) - #5 E.W. T&B	
F808016	8'-0"	8'-0"	1'-6"	(16) - #4 E.W. T&B	
F909016	9'-0"	9'-0"	1'-6"	(5) #7 T&B LONG., (9) #6 BOTT. TRANS.	
F909016	9'-0"	9'-0"	1'-6"	(14) - #5 E.W. T&B	
F1409020	14'-0"	9'-0"	2'-0"	(16) - #6 LONG. T&B, (22) #6 TRANS. T&B	
F2165016	21'-6"	5'-0"	1'-6"	(4) #7 T&B LONG., (23) #6 T&B TRANS.	
F2666016	26'-6"	6'-0"	1'-6"	(5) #9 T&B LONG., (44) #6 T&B TRANS.	
F2666016	26'-6"	6'-0"	1'-6"	(5) #9 T&B LONG., (44) #6 T&B TRANS.	
F3556020	35'-0"	6'-0"	2'-0"	(5) #8 T&B LONG., (39) #6 T&B TRANS.	
F3605020	36'-0"	5'-0"	2'-0"	(4) #10 T&B LONG., (37) #6 T&B TRANS.	
F4307020	43'-0"	7'-0"	2'-0"	(8) #8 T&B LONG., (43) #6 T&B TRANS.	
F4607020	46'-0"	7'-0"	2'-0"	(7) #8 TOP LONG., (21) #6 BOTT. LONG., (45) #6 T&B TRANS.	
F11011016	11'-0"	11'-0"	1'-6"	(8) #7 E.W. T&B	
F14014020	14'-0"	14'-0"	2'-0"	(10) - #8 E.W. T&B	
F-ELEVATOR	11'-11 1/4"	10'-3 1/4"	1'-6"	#6 @ 9" E.W. TOP & BOT. #6 @ 9" O.C. E.W. T&B	



TOWN CREEK MIDDLE SCHOOL

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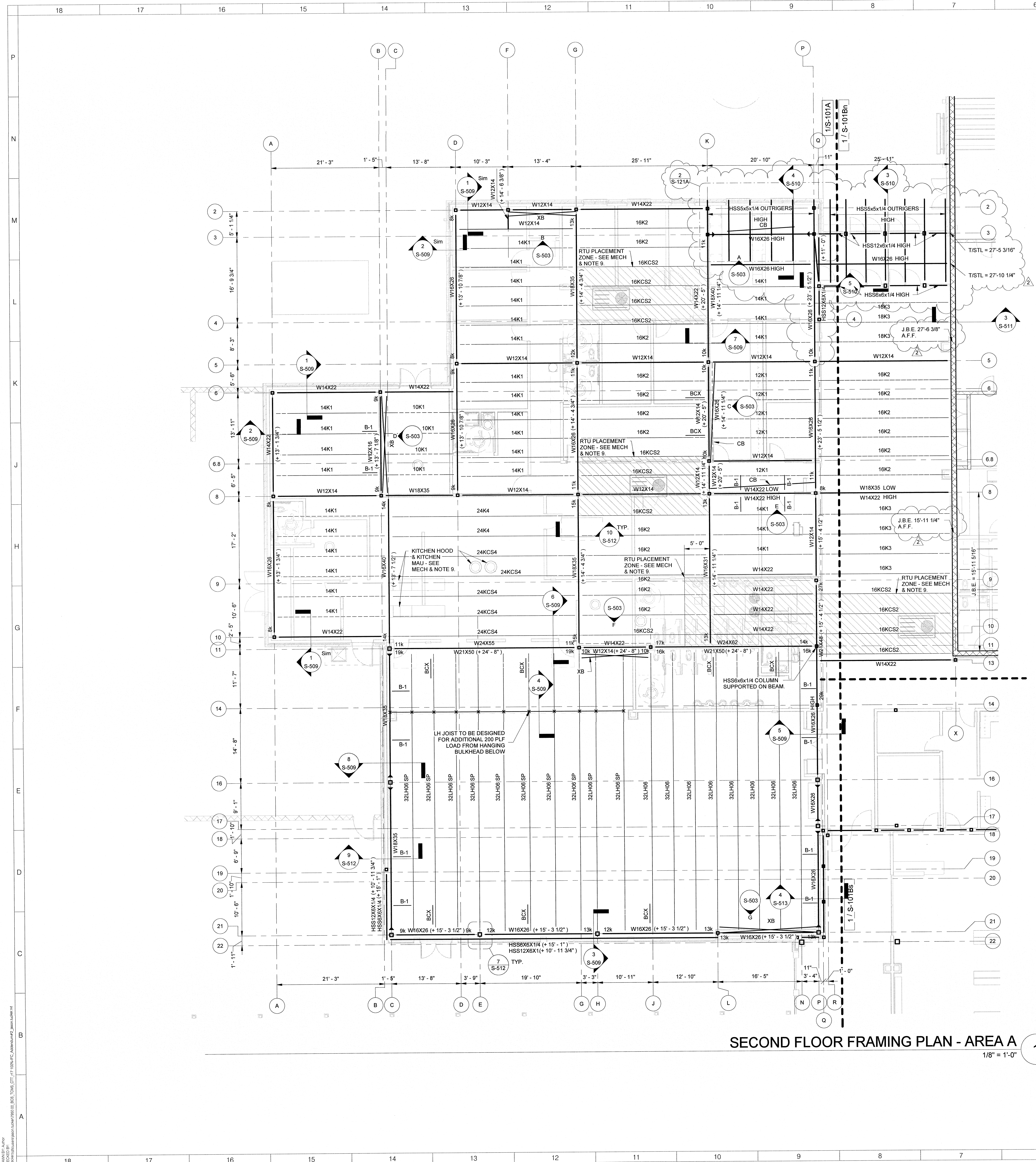
REVISIONS

No.	Description	Date
2	Addendum #2	6/19/18

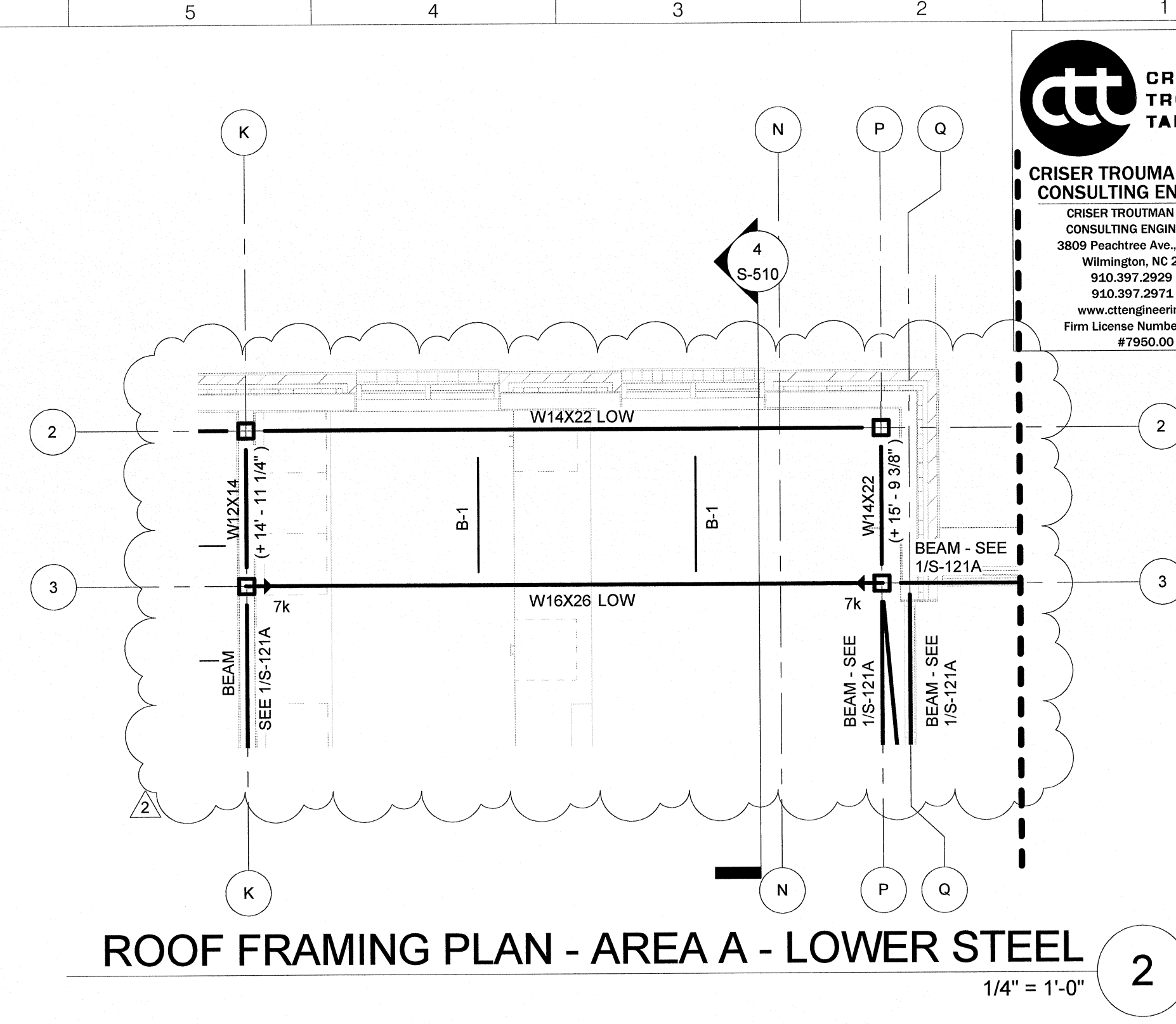
ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: As indicated
SHEET NAME: FOUNDATION PLAN - AREA C
SHEET NUMBER:

S-101C



SECOND FLOOR FRAMING PLAN - AREA A
1/8" = 1'-0"



ROOF FRAMING PLAN - AREA A - LOWER STEEL
1/4" = 1'-0"

- ROOF PLAN NOTES:**
- ENTIRE ROOF SHALL RECEIVE 1-1/2" x 22 GA. GALV. TYPE "B" DECK. GRADE 33. $S_{pmin} = 0.186 \text{ in}^3/\text{ft}$, $S_{lmin} = 0.192 \text{ in}^3/\text{ft}$, $I_{min} = 0.169 \text{ in}^4/\text{ft}$, $F_y = 33,000 \text{ psi}$. SEE SPECIFICATIONS FOR ATTACHMENT OF 3-SPAN CONDITION (MIN).
 - T/STL BEARING = AS NOTED A.F.F. TOP OF STEEL SHOWN (+, "-") IS ABOVE REFERENCED FINISHED FLOOR.
 - T/STL = TOP OF STEEL @ GRID LINE OR CENTER WALL.
 - J.B.E. = JOIST BEARING ELEVATION - REFERENCE A.F.F. @ WALL CENTERLINE.
 - XB = DENOTES STEEL X-BRACING - SEE S-503 & S-504.
 - INDICATES MOMENT FRAME CONNECTION - SEE S/S-507.
 - CB = DENOTES COMPRESSION BRACE.
 - HSS5 = INDICATE HSS5x5x1/4.
 - B-1 = DENOTES BOTTOM FLANGE BRACE. SEE S/S-512 FOR DETAIL.
 - VERIFY MECH. DUCT LOCATION & SIZE WITH FINAL RTU SELECTED. PLACE MECHANICAL UNITS IN ZONES INDICATED, ONLY.
 - FOR METAL STUD INFORMATION, SEE STUD NOTES ON SHEET SEE S-001.
 - FOR COLUMN INFORMATION, SEE FOUNDATION/SLAB PLAN & COLUMN SCHEDULE.
 - SEE S-508 FOR ROOF OPENING FRAMING. F.V. = FIELD VERIFY FINAL UNIT DUCT OPENING LOCATIONS WITH ARCHITECTURE AND MECHANICAL DRAWINGS.
 - SEE S-505 FOR MASONRY & LOOSE LINTEL SCHEDULE.
 - SEE S-507 FOR TYPICAL COLUMN TO BEAM CONNECTIONS.
 - SEE ARCHITECTURAL DRAWINGS TO VERIFY ALL DIMENSIONS.
- ROOF FRAMING NOTES:**
- FOR JOISTS BEARING ON EACH SIDE OF BEAM FLANGES LESS THAN 5-1/2" WIDE, JOIST MANUFACTURER SHALL FABRICATE SPECIAL JOIST BEARING SEATS IN ACCORDANCE WITH THE S/JI SPECIFICATIONS.
 - PROVIDE JOIST SEATS FOR ALL JOISTS AS FOLLOWS, U.N.O. 5" DEEP JOIST SEATS.
 - PROVIDE COMPOUND JOIST SEATS AS REQUIRED FOR SLOPED JOISTS SUPPORTED DIAGONALLY BY SLOPED BEAMS OR FLAT LOAD-BEARING WALLS.
 - JOISTS SHOWN FRAMING TO COLUMNS & JOISTS TO BEAM SHALL HAVE BOTTOM CHORDS EXTENSIONS (BCX) WHERE DENOTED ON SECTION TO COLUMN-BEAM & FIELD WELDED TO PLATE 3/8" AFTER ROOF DEAD LOAD HAS BEEN APPLIED.
 - ROOF JOISTS SHALL BE DESIGNED FOR THE GROSS WIND UPLIFT LOADS SHOWN ON S-003.
 - HORIZONTAL OR DIAGONAL JOIST BRIDGING BY JOIST MANUFACTURER AS REQUIRED BY THE STEEL JOIST INSTITUTE (SJI).
 - ALL JOIST BRIDGING & JOIST BRIDGING ANCHORS SHALL BE COMPLETELY INSTALLED PRIOR TO CONSTRUCTION LOADS BEING PLACED ON THE JOIST.
 - PROVIDE ADDITIONAL ROW OF DIAGONAL BRIDGING NEAR JOIST SUPPORT TO PROVIDE LATERAL STABILITY OF BOTTOM CHORDS AS REQUIRED TO RESIST UPLIFT LOADS AS SHOWN IN NOTE 4 ABOVE.
 - WHERE JOIST SPACING IS NOT NOTED, JOISTS SHALL BE EQUALLY SPACED BETWEEN COLUMN GRID LINES, AND/OR BETWEEN GRID & MECHANICAL FOR SIZE & LOCATION. SEE S/S-508 FOR TYPICAL OPENING FRAMING DETAIL.
 - COORDINATE ALL ROOF OPENINGS WITH ARCHITECTURAL & MECHANICAL FOR SIZE & LOCATION. SEE S/S-508 FOR TYPICAL OPENING FRAMING DETAIL.
 - SIZE BEAM CONNECTIONS FOR MAXIMUM REACTIONS AS SHOWN ON PLANS, U.N.O.
 - SUSPENDED LOADS SHALL NOT BE HUNG FROM METAL ROOF DECK.
 - METAL ROOF DECKING SHALL BE ATTACHED TO SUPPORTING STEEL PER THE PROJECT SPECIFICATIONS AND AS NOTED ON THE ROOF DECK ATTACHMENT DIAGRAM ON SHEET S-003.



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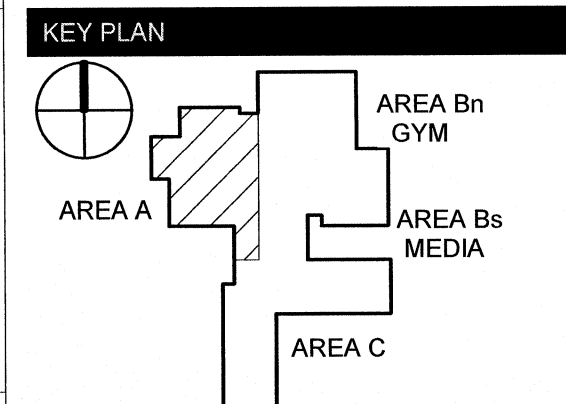
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ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018

SCALE: As indicated

SHEET NAME: ROOF FRAMING PLAN - AREA A

SHEET NUMBER: S-121A



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Firm License Number F-0113
#7950.00

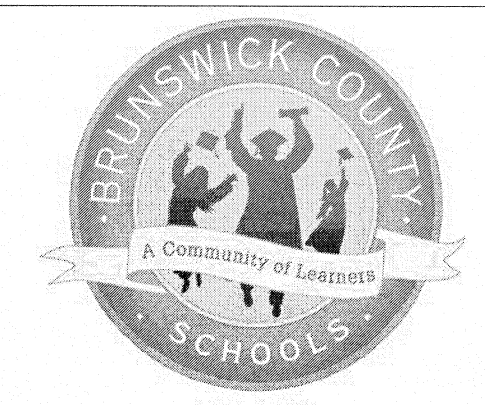
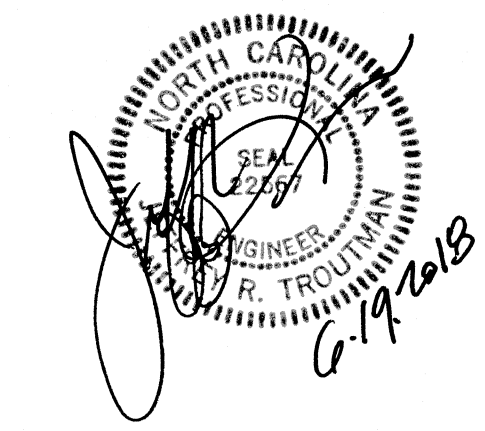
MEP Engineer
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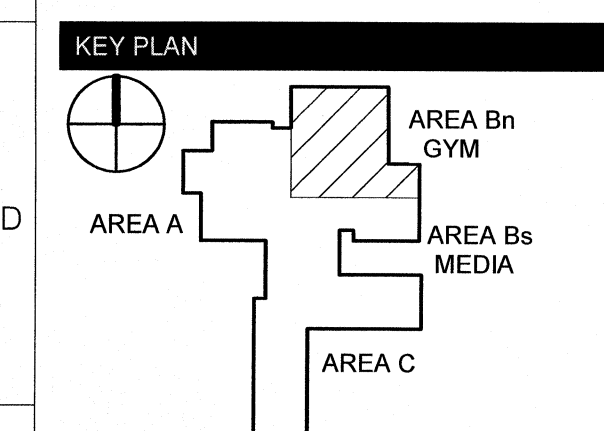
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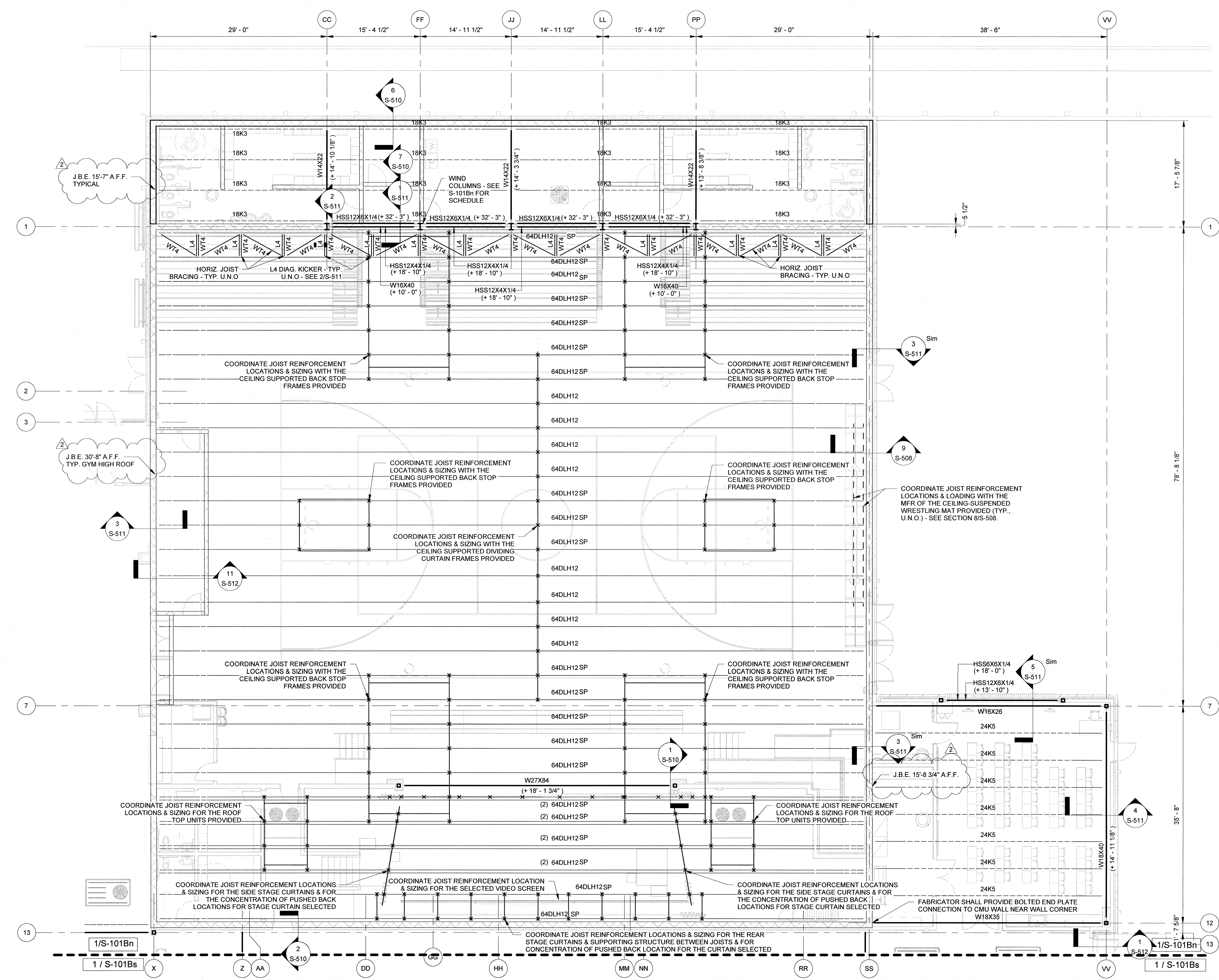


REVISIONS

No.	Description	Date
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1/8" = 1'-0"
SHEET NAME: ROOF FRAMING PLAN - GYM - AREA B NORTH
SHEET NUMBER: S-121Bn



ROOF FRAMING PLAN - AREA B NORTH
1/8" = 1'-0" 1

ROOF FRAMING NOTES:
1. SEE ROOF PLAN NOTES ON S-121A.



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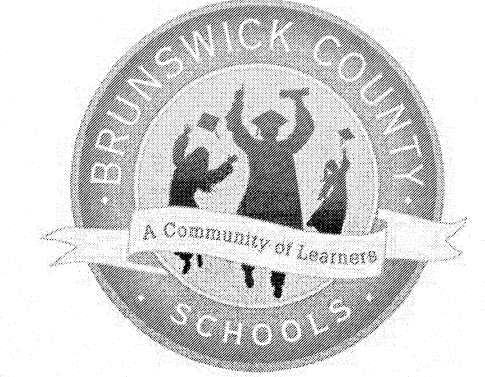
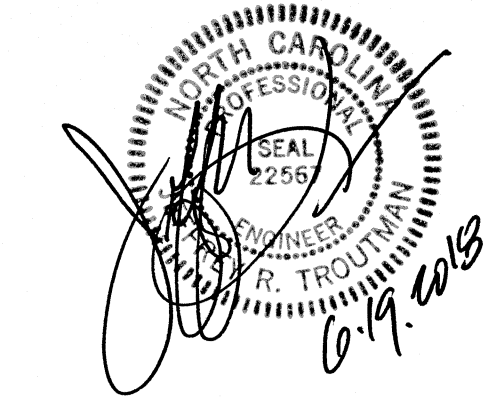
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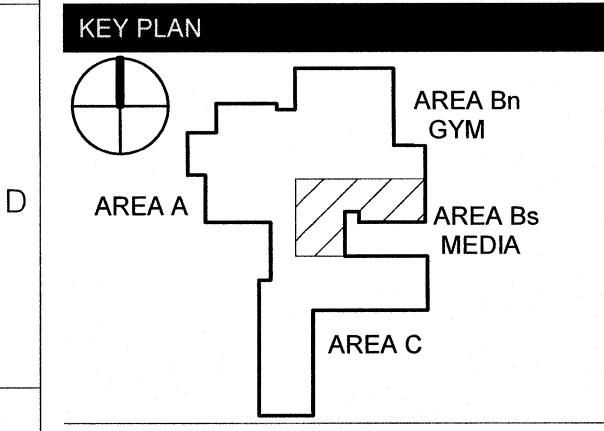
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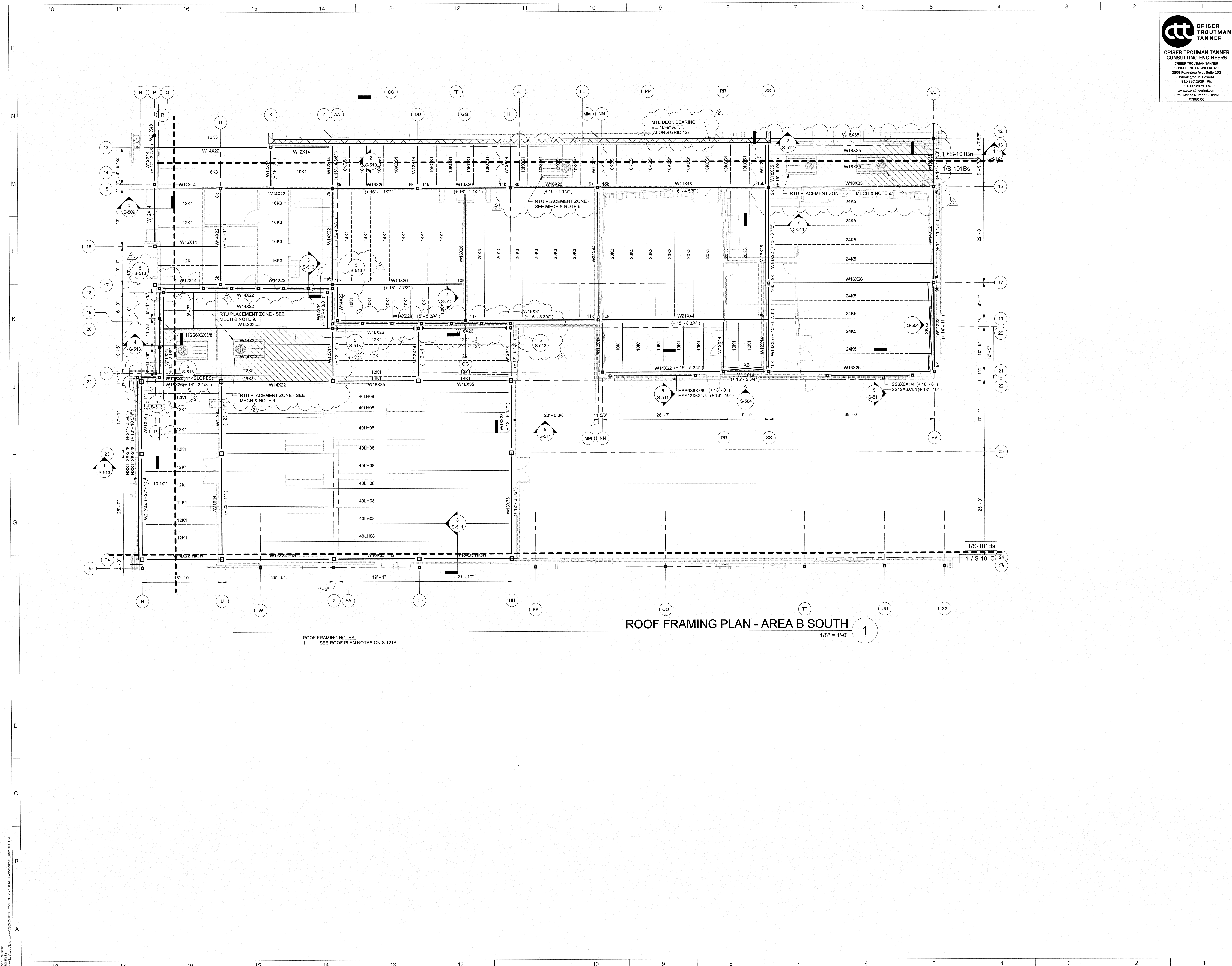
REVISIONS

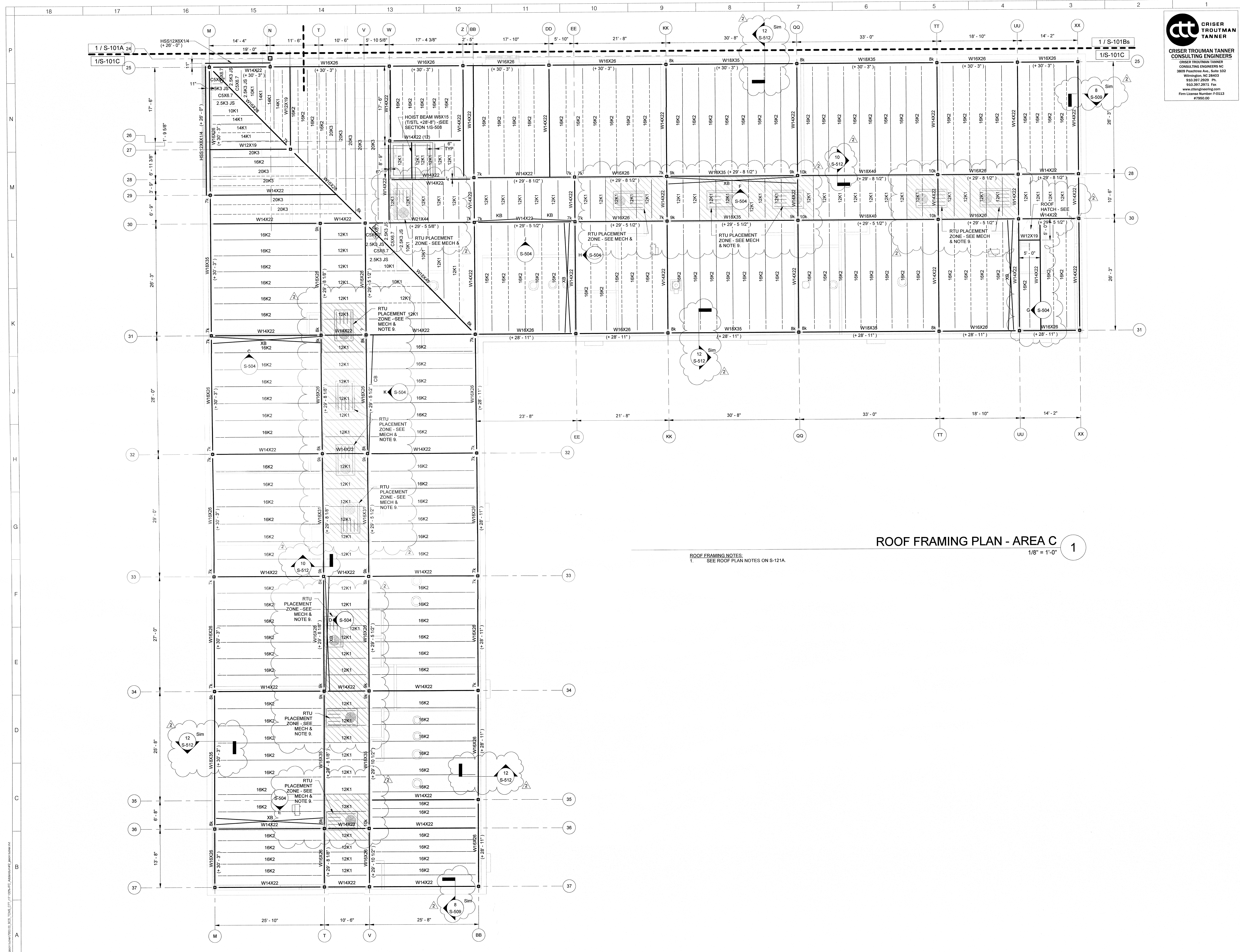
No.	Description	Date
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1/8" = 1'-0"
SHEET NAME: ROOF FRAMING PLAN - AREA B SOUTH
SHEET NUMBER:

S-121Bs





ROOF FRAMING PLAN - AREA C
1/8" = 1'-0" 1

ROOF FRAMING NOTES:
1. SEE ROOF PLAN NOTES ON S-121A.

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3809 Peachtree Ave., Suite 102
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Firm License Number: F-0113
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Structural Engineer
CRISER TROUTMAN TANNER
3809 Peachtree Ave., Suite 102
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910.397.2971 office
www.ctengineering.com

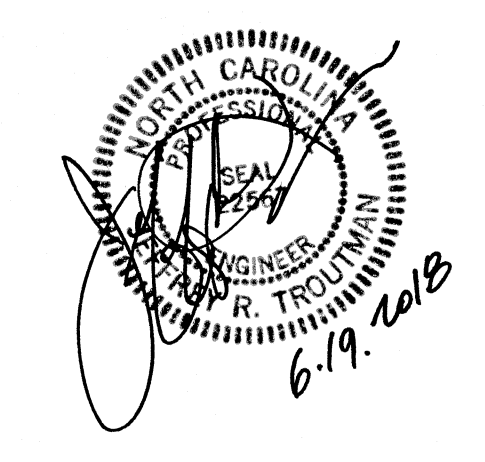
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qlone@qualityconsultingengineers.com

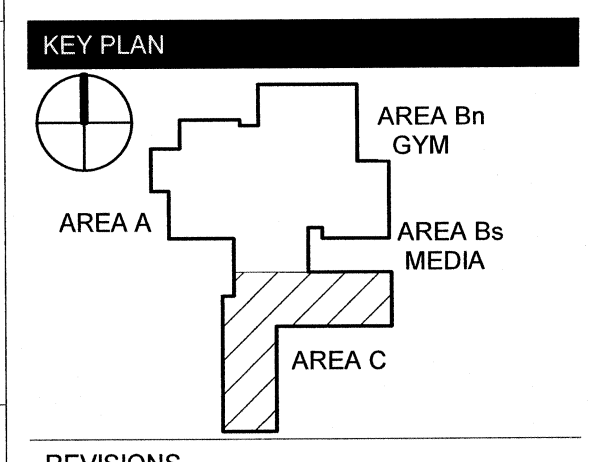
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REVISIONS

No.	Description	Date
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1/8" = 1'-0"
SHEET NAME: ROOF FRAMING PLAN - AREA C
SHEET NUMBER: S-121C

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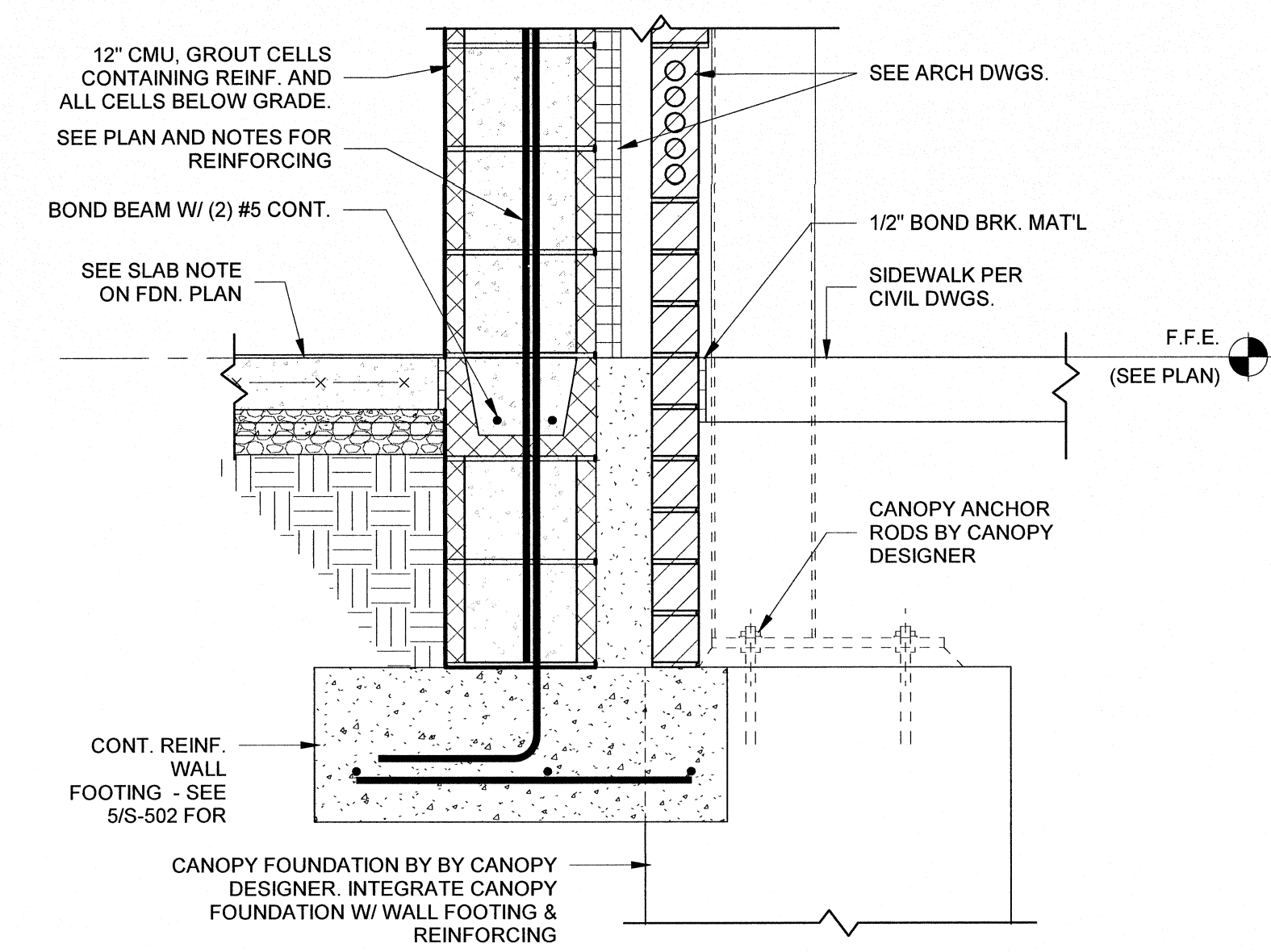
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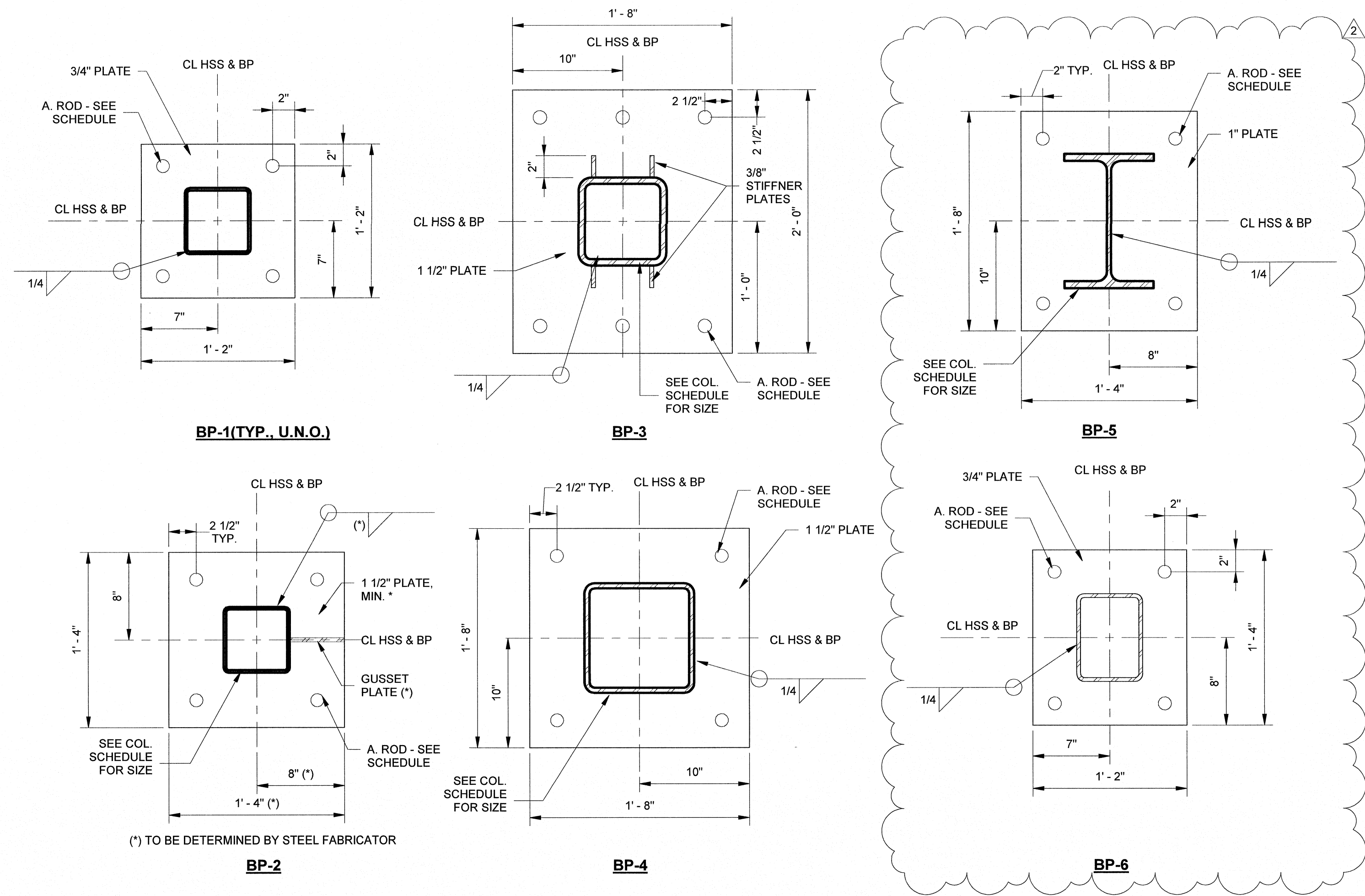
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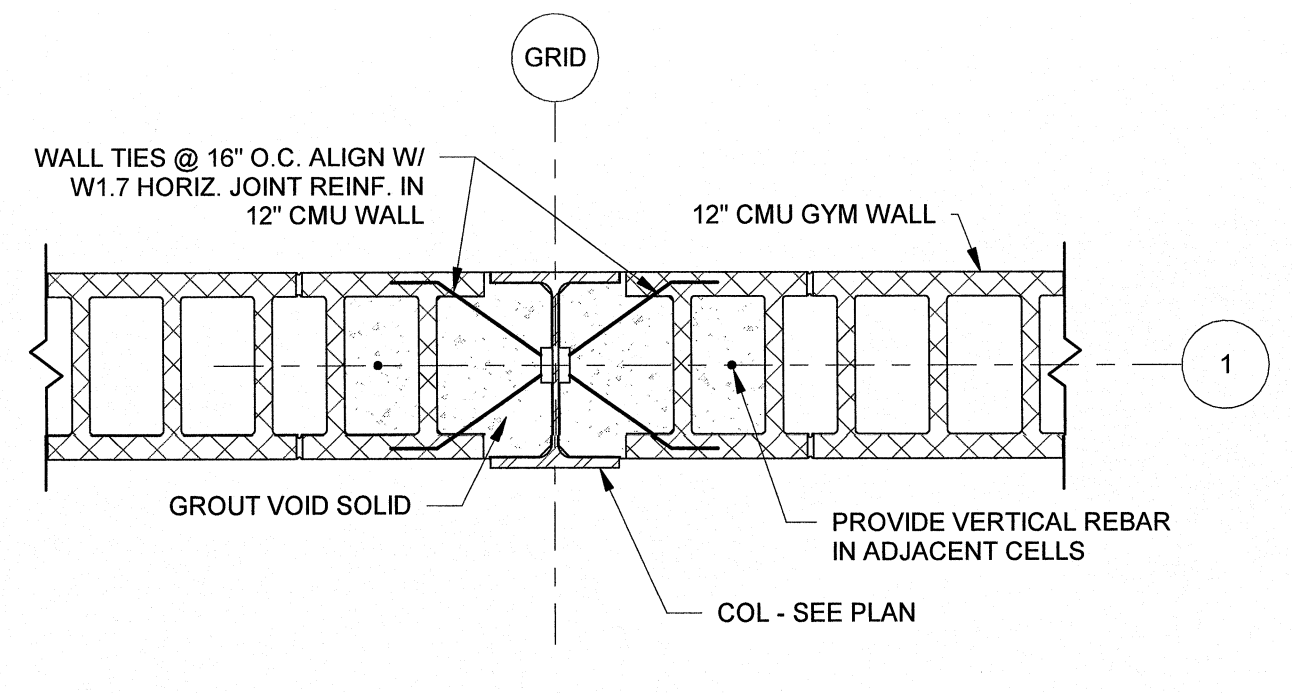
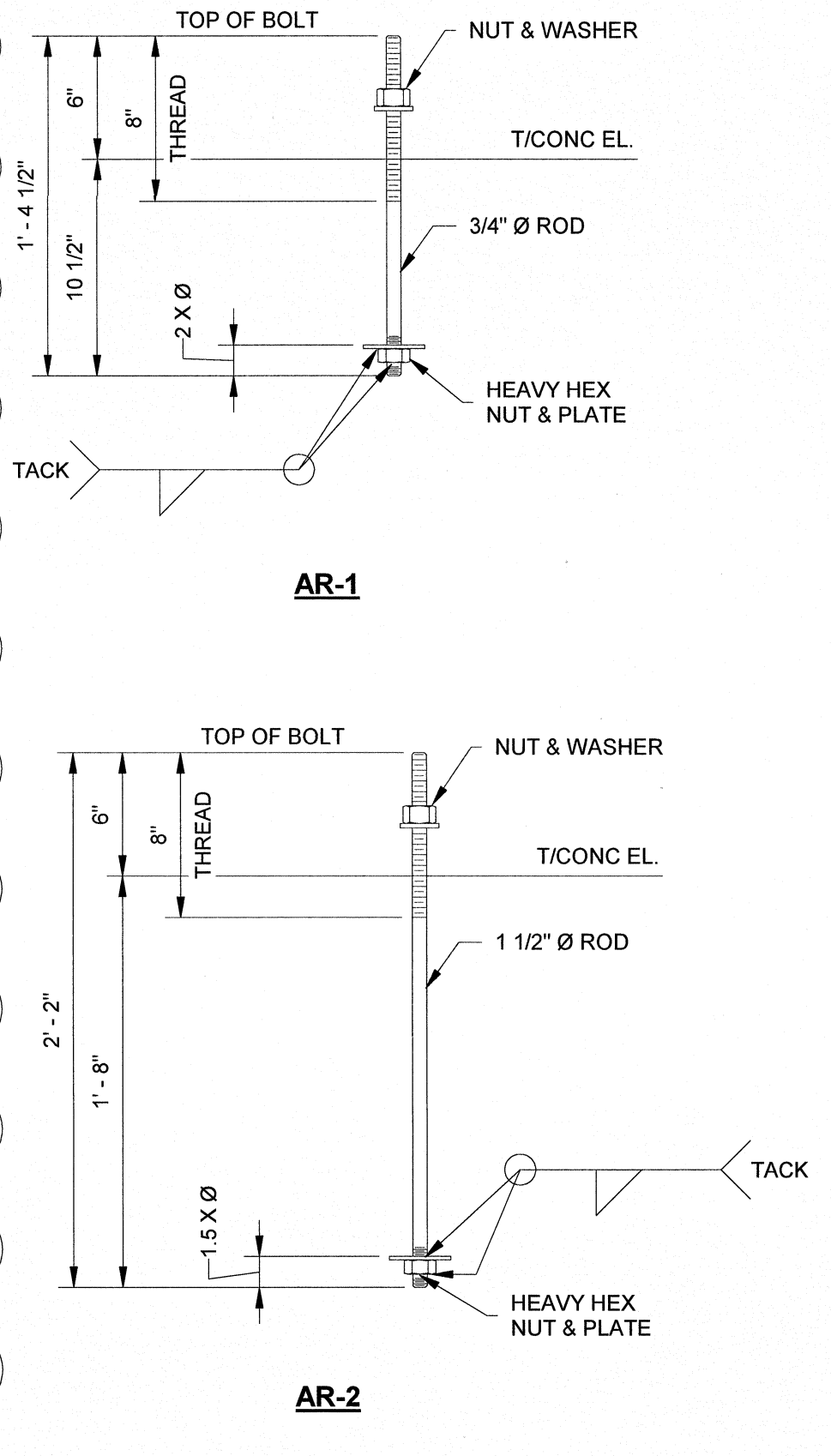
Food Service Consultant
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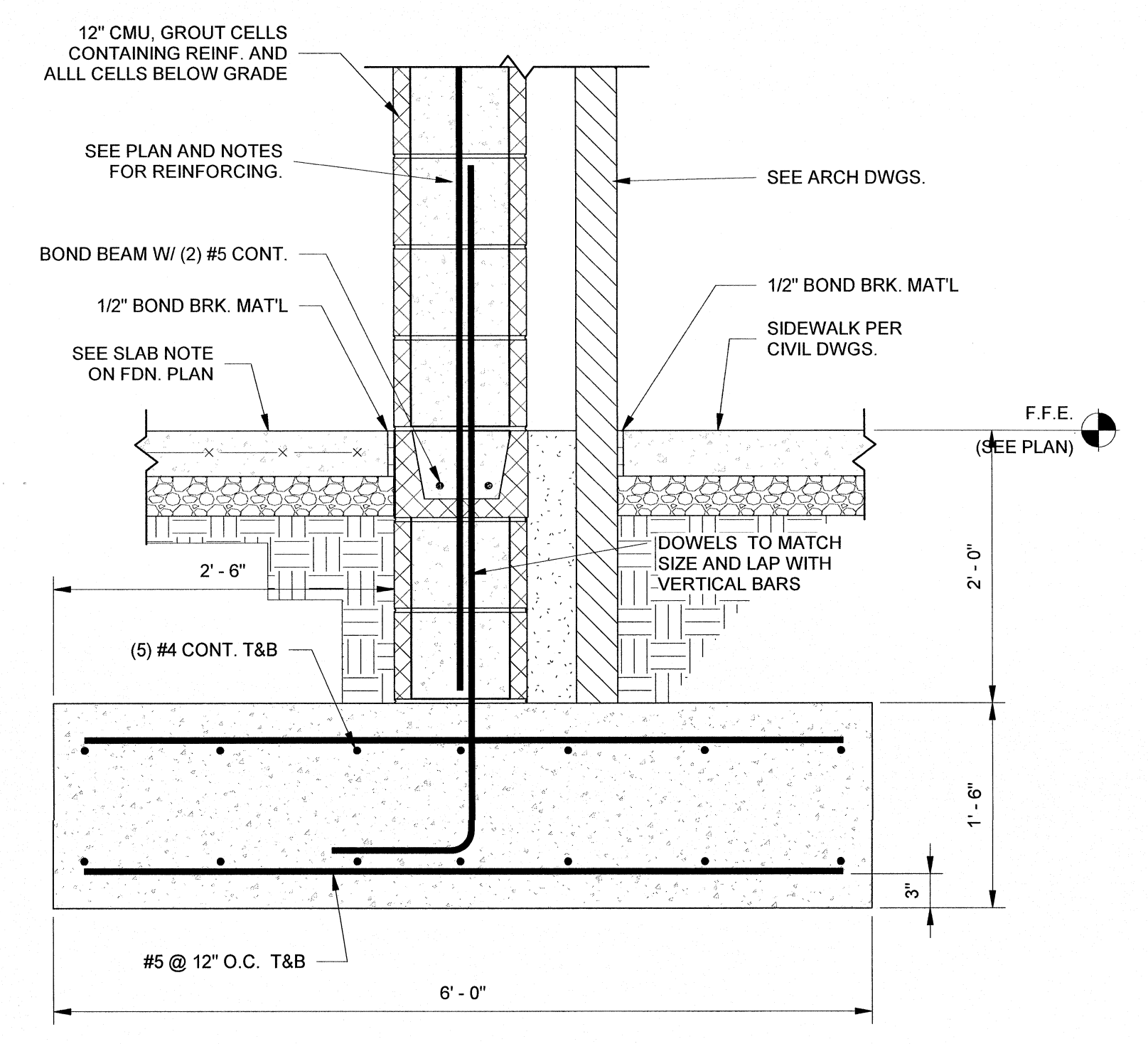
WALKWAY CANOPY FND @ LOCKER ROOM
 1" = 1'-0" 10



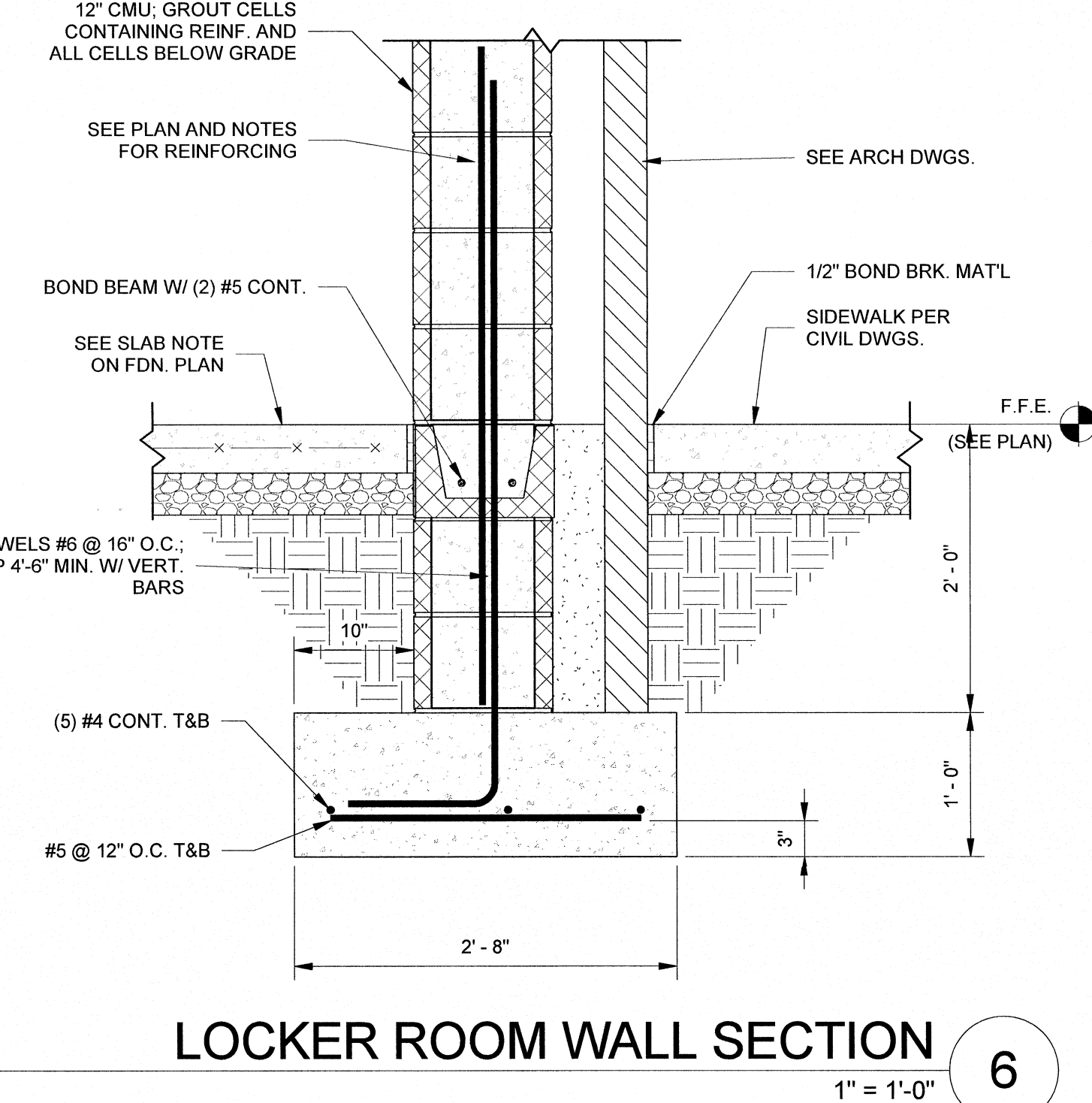
DETAIL - BASE PLATES & ANCHOR BOLTS
 1 1/2" = 1'-0" 9



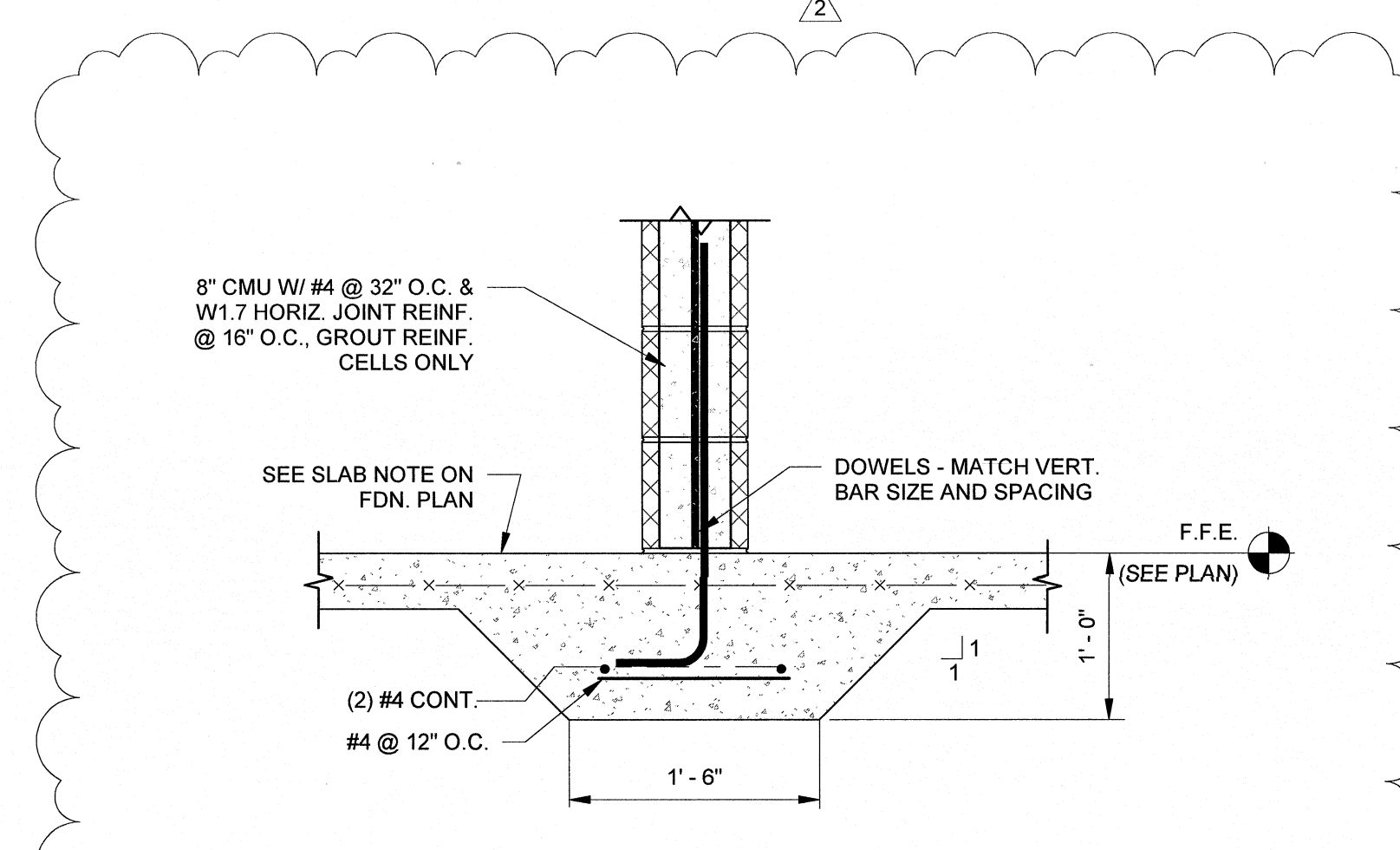
PLAN - GYM WALL @ COLUMN
 1" = 1'-0" 8



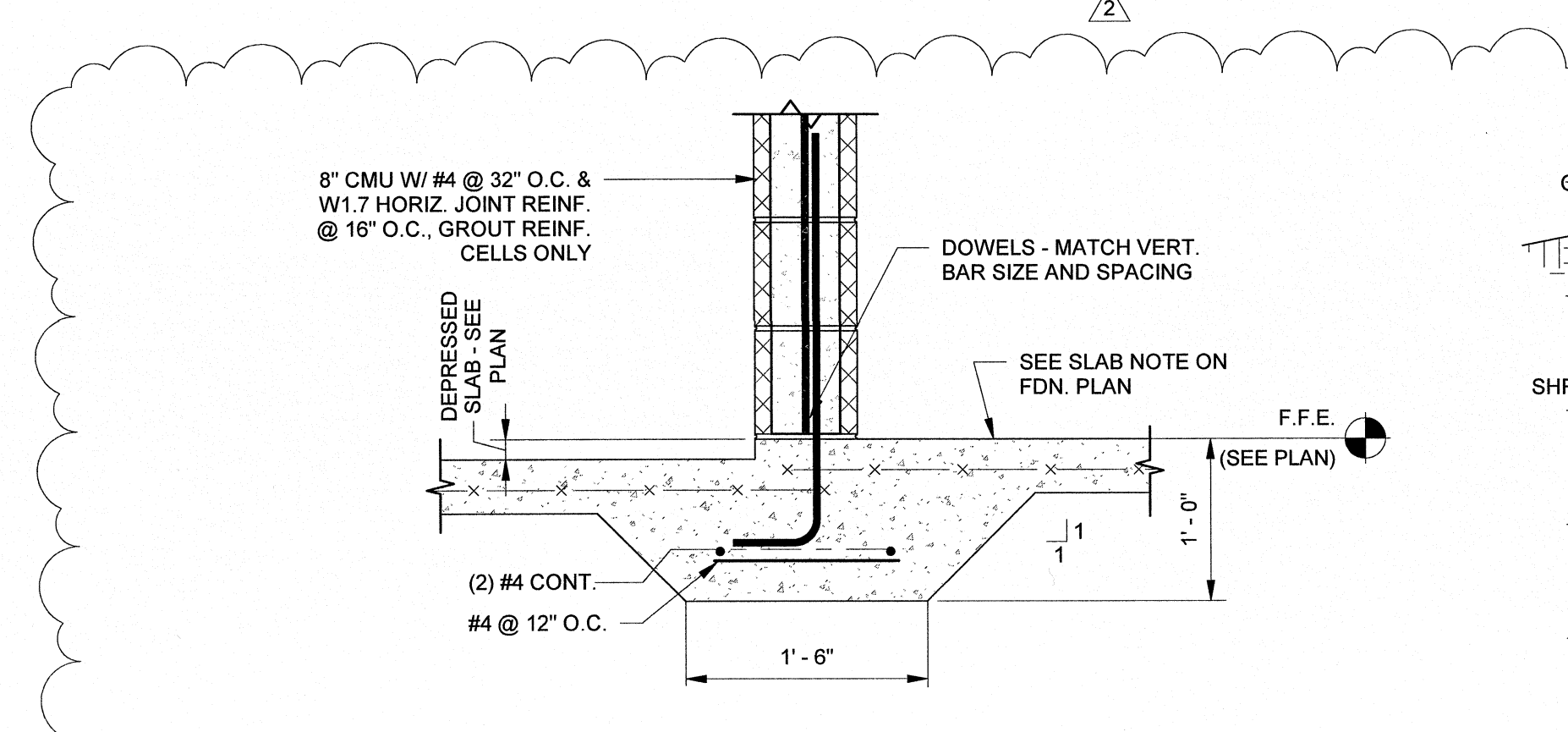
SECTION GYM WALL FOUNDATION
 1" = 1'-0" 7



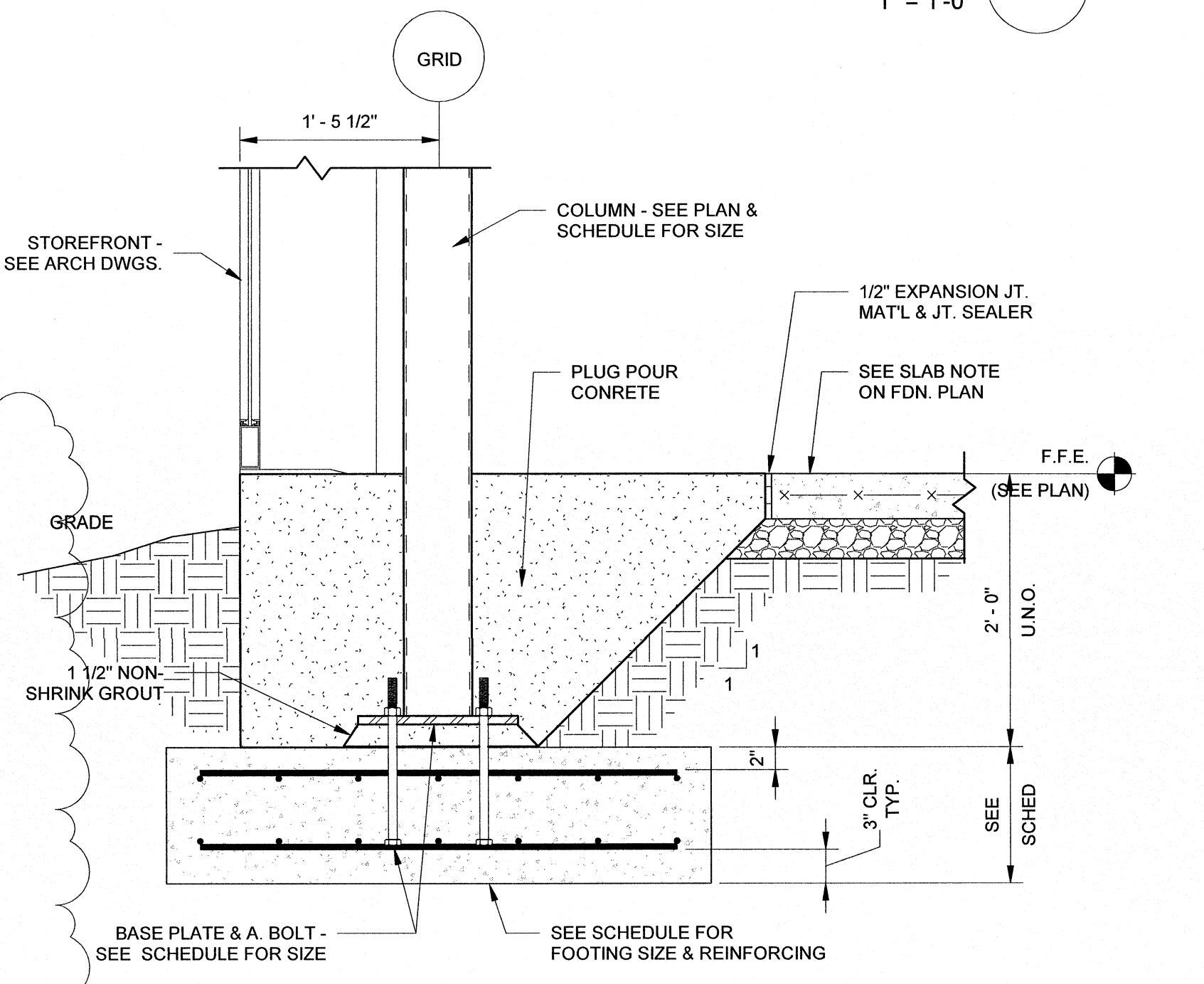
LOCKER ROOM WALL SECTION
 1" = 1'-0" 6



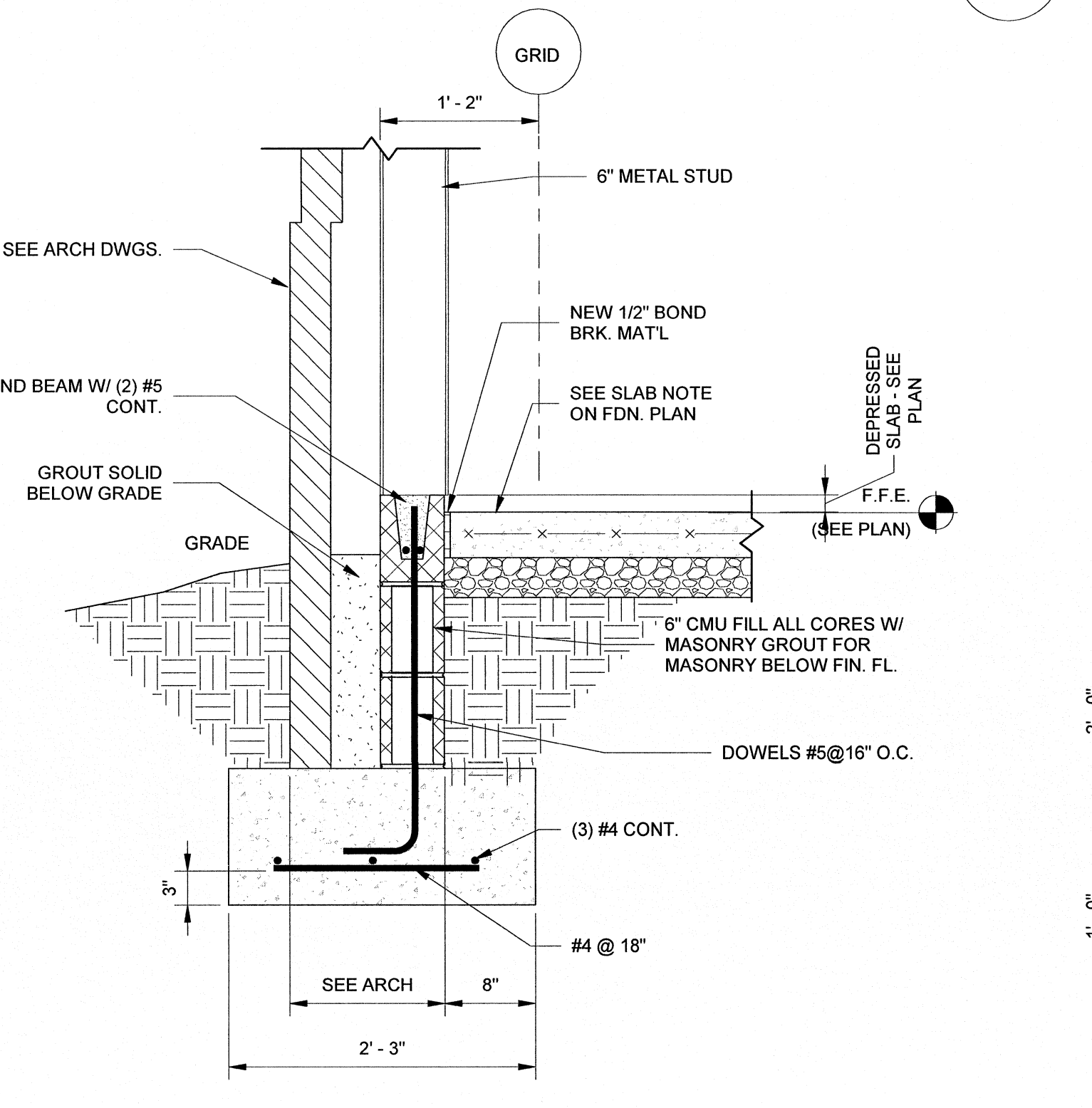
SECTION THICKENED SLAB
 1" = 1'-0" 5



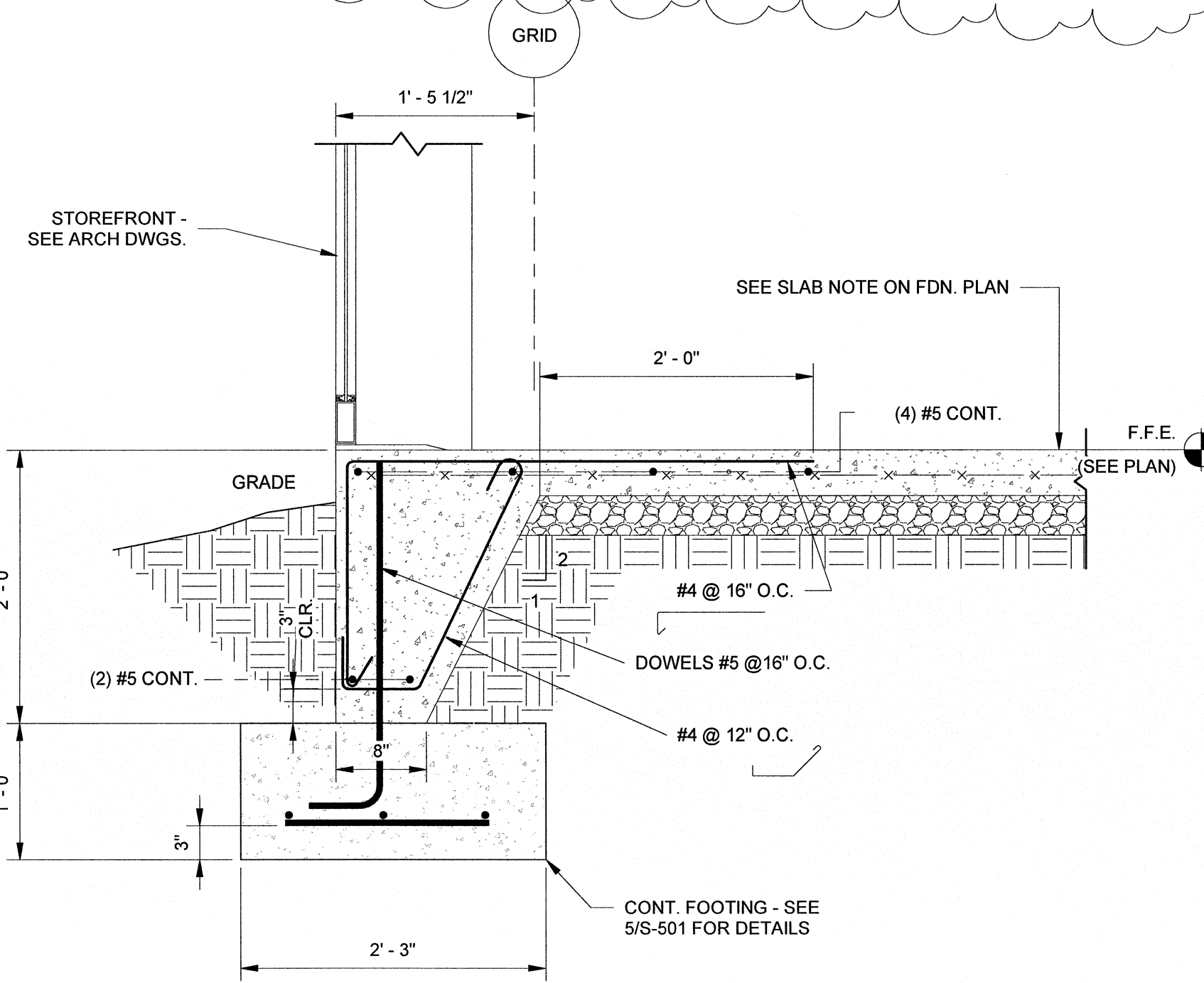
SECTION THICKENED SLAB @ SLAB DEPRESSION
 1" = 1'-0" 4



TURN DOWN SLAB SECTION AT COL.
 1" = 1'-0" 3



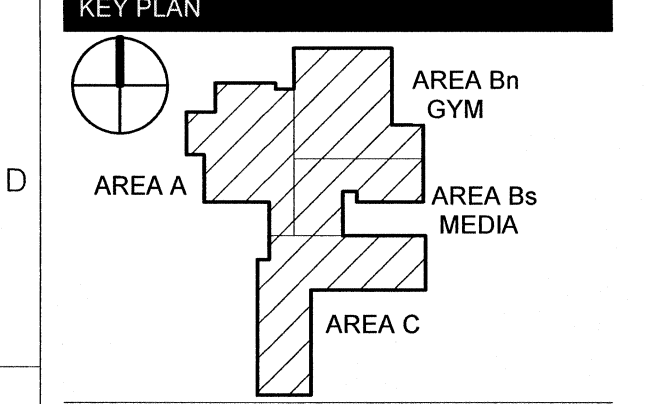
TYP. WALL SECTION @ SLAB DEPRESSION
 1" = 1'-0" 2



TURN DOWN SLAB SECTION
 1" = 1'-0" 1

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No.	Description	Date
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS
 DATE: 05/24/2018
 SCALE: As indicated
 SHEET NAME: FOUNDATION DETAILS AND SECTIONS

SHEET NUMBER: S-502

Owner
BRUNSWICK COUNTY SCHOOLS
199 SESSIONS DRIVE
BOLIVIA, NC 28422
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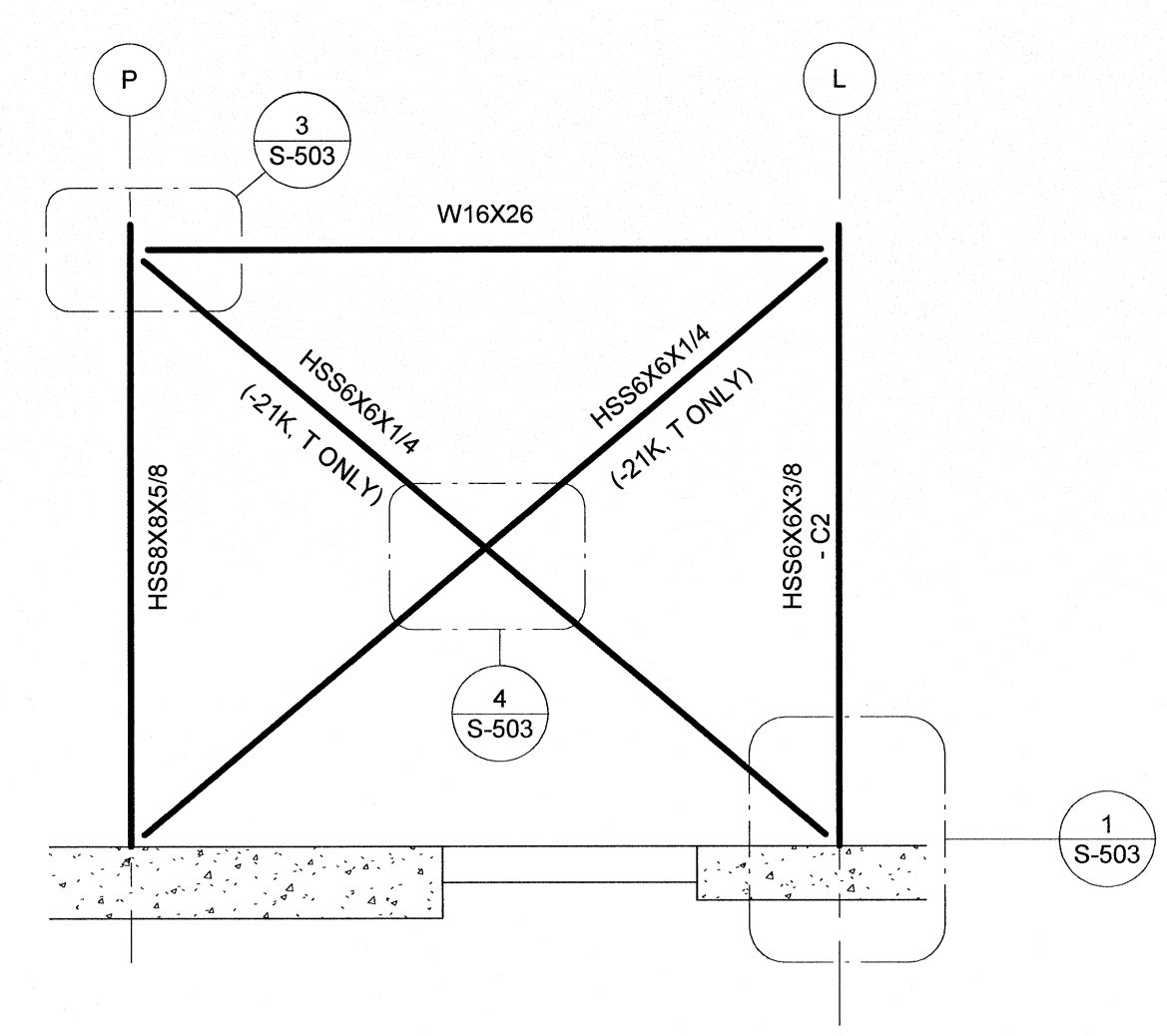
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d.jones@qualityconsultingengineers.com

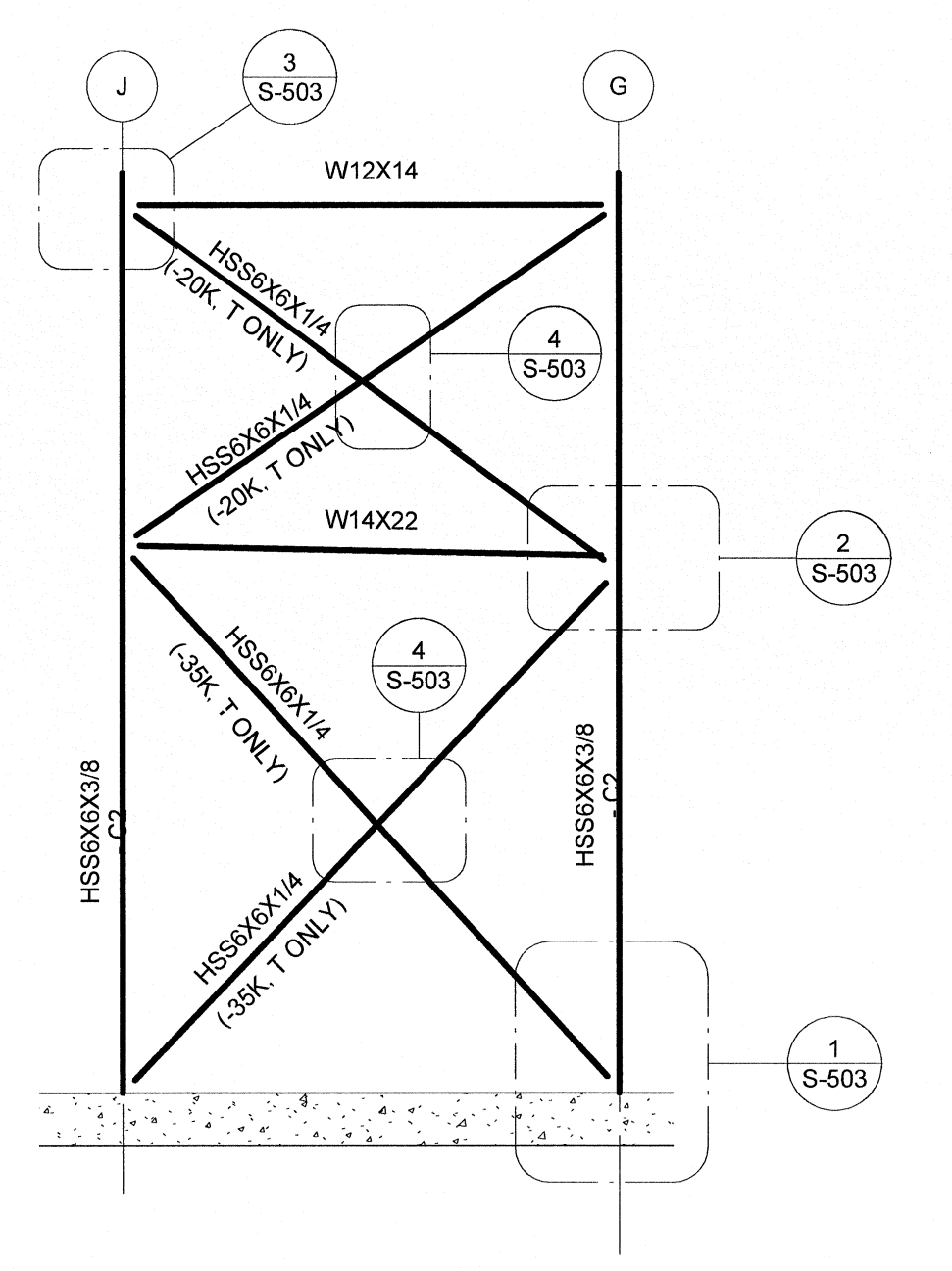
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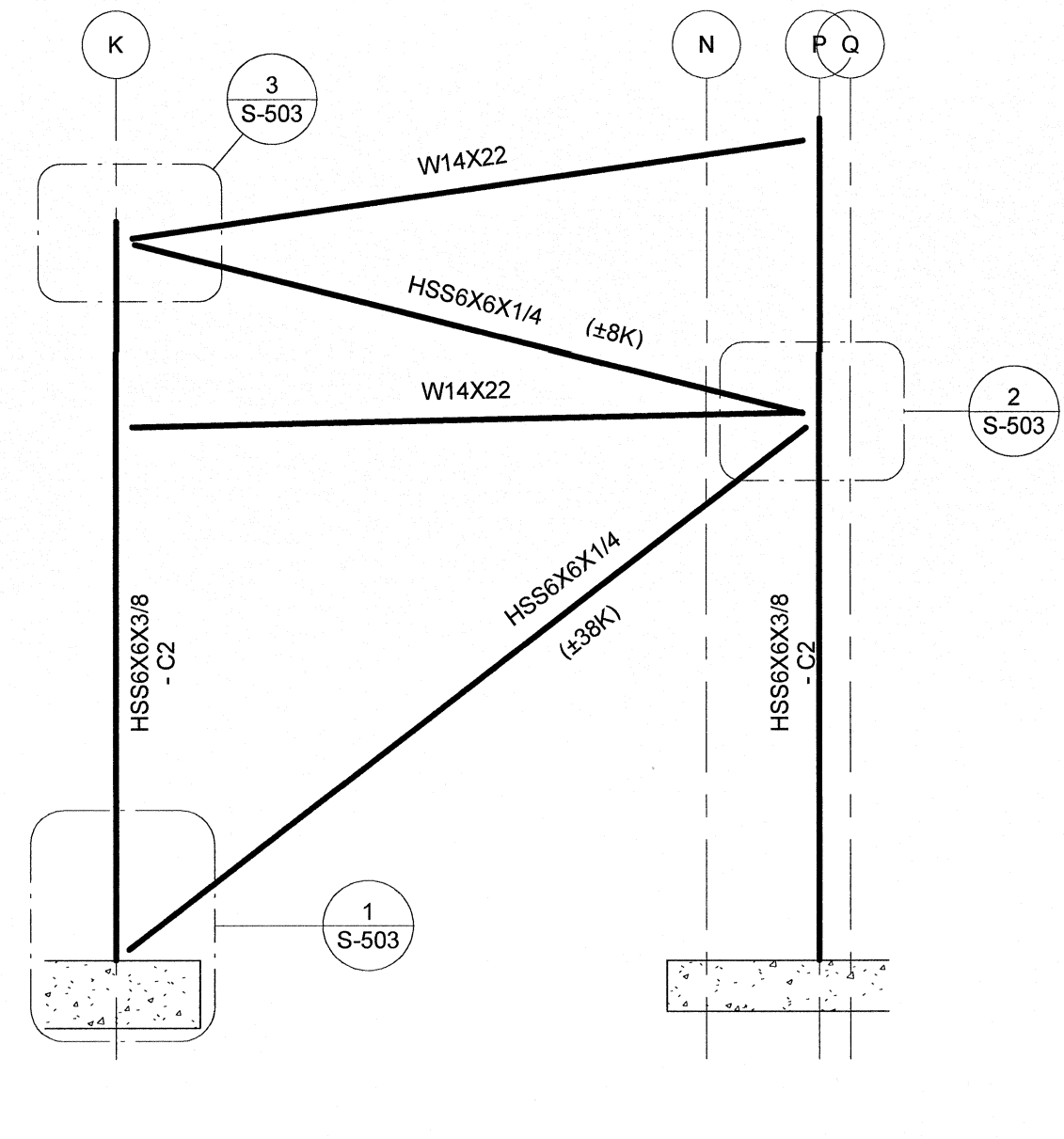
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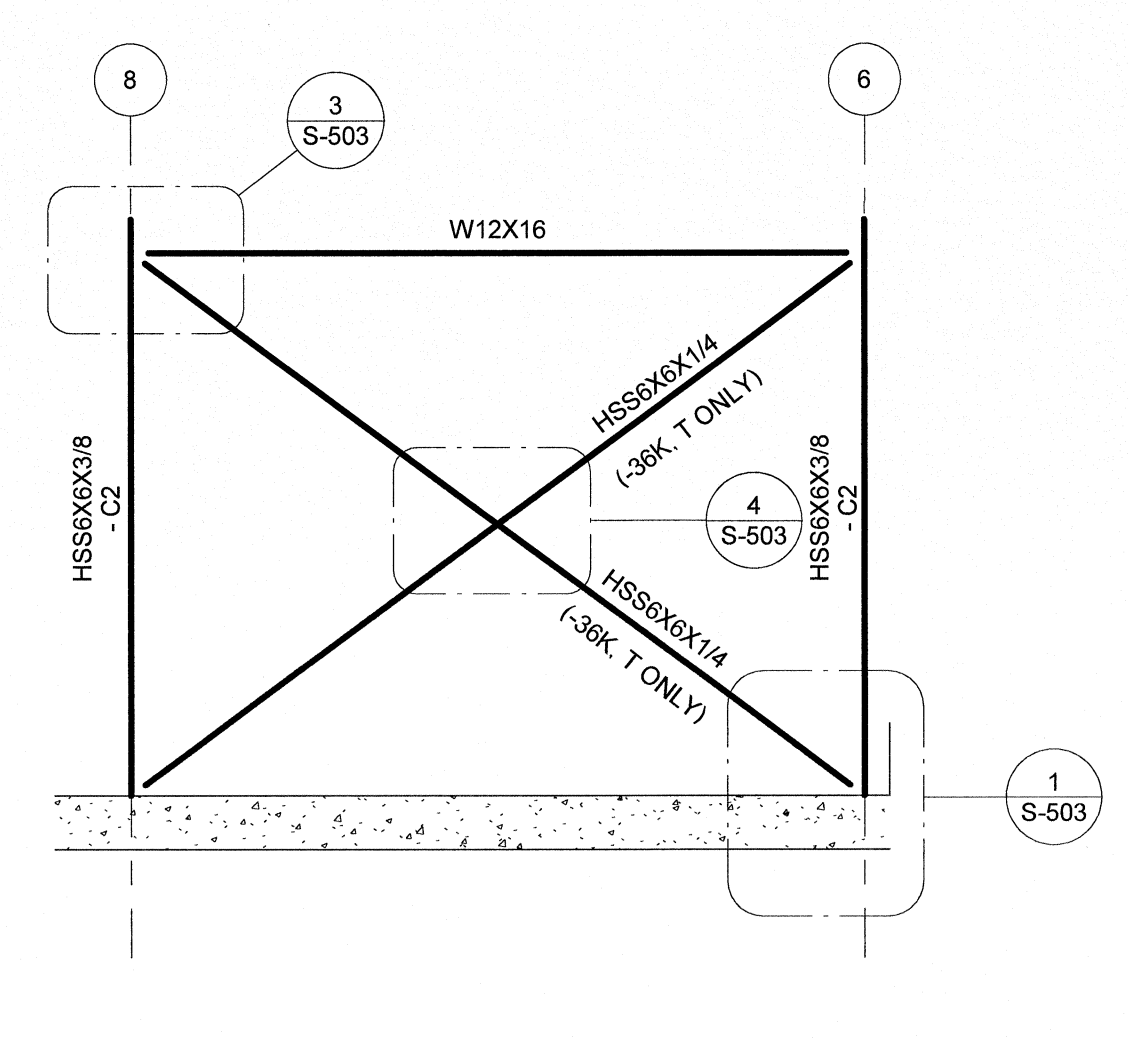
AREA A - BRACE ELEVATION G
3/16" = 1'-0" **G**



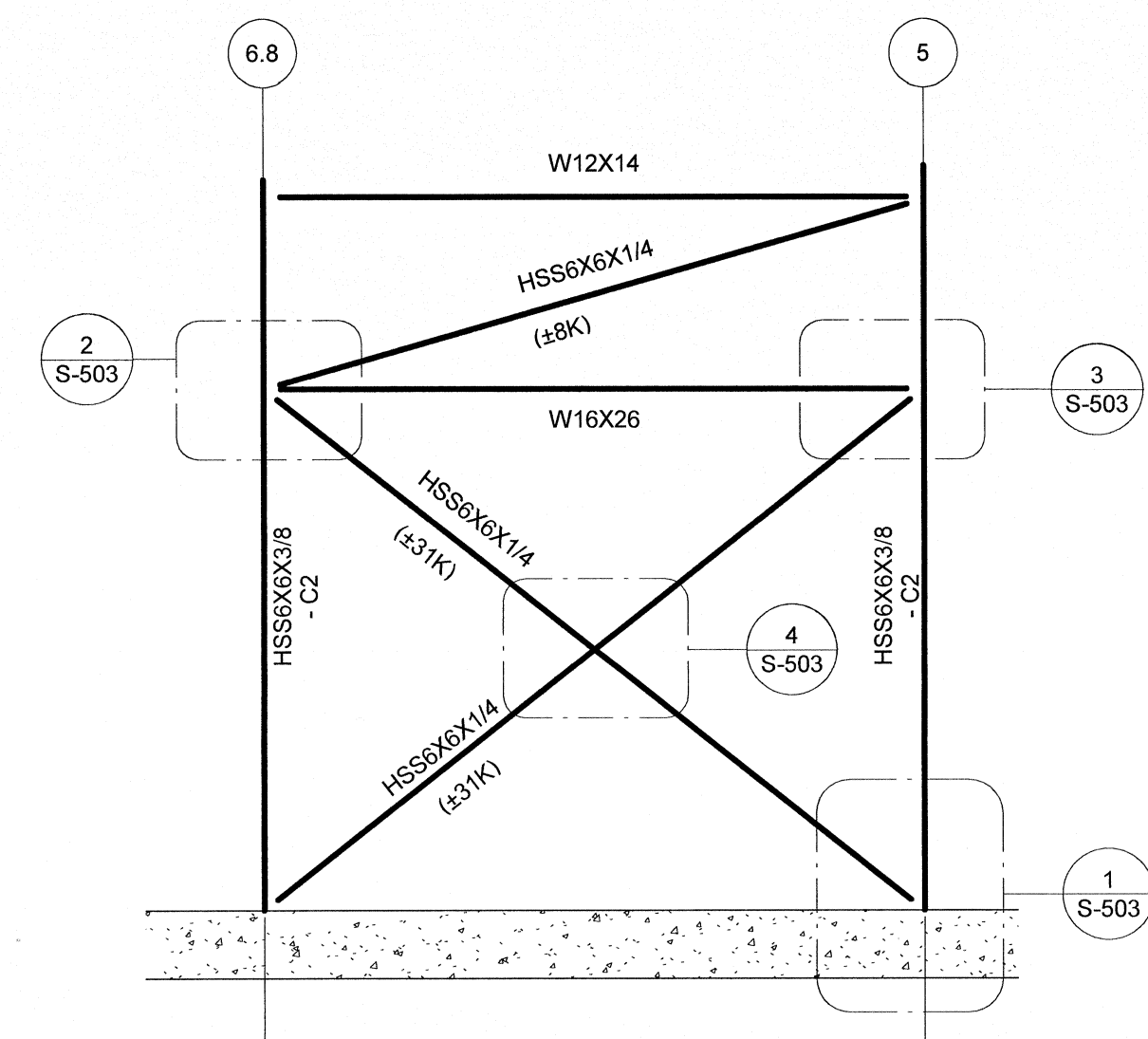
AREA A - BRACE ELEVATION F
3/16" = 1'-0" **F**



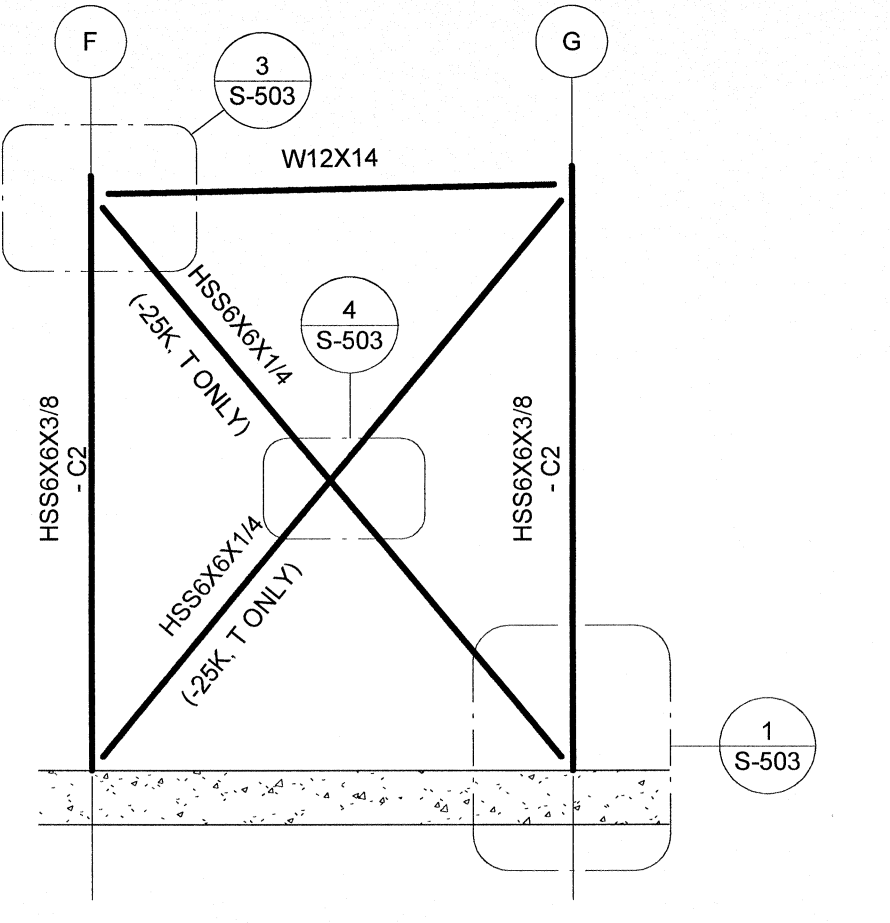
AREA A - BRACE ELEVATION E
3/16" = 1'-0" **E**



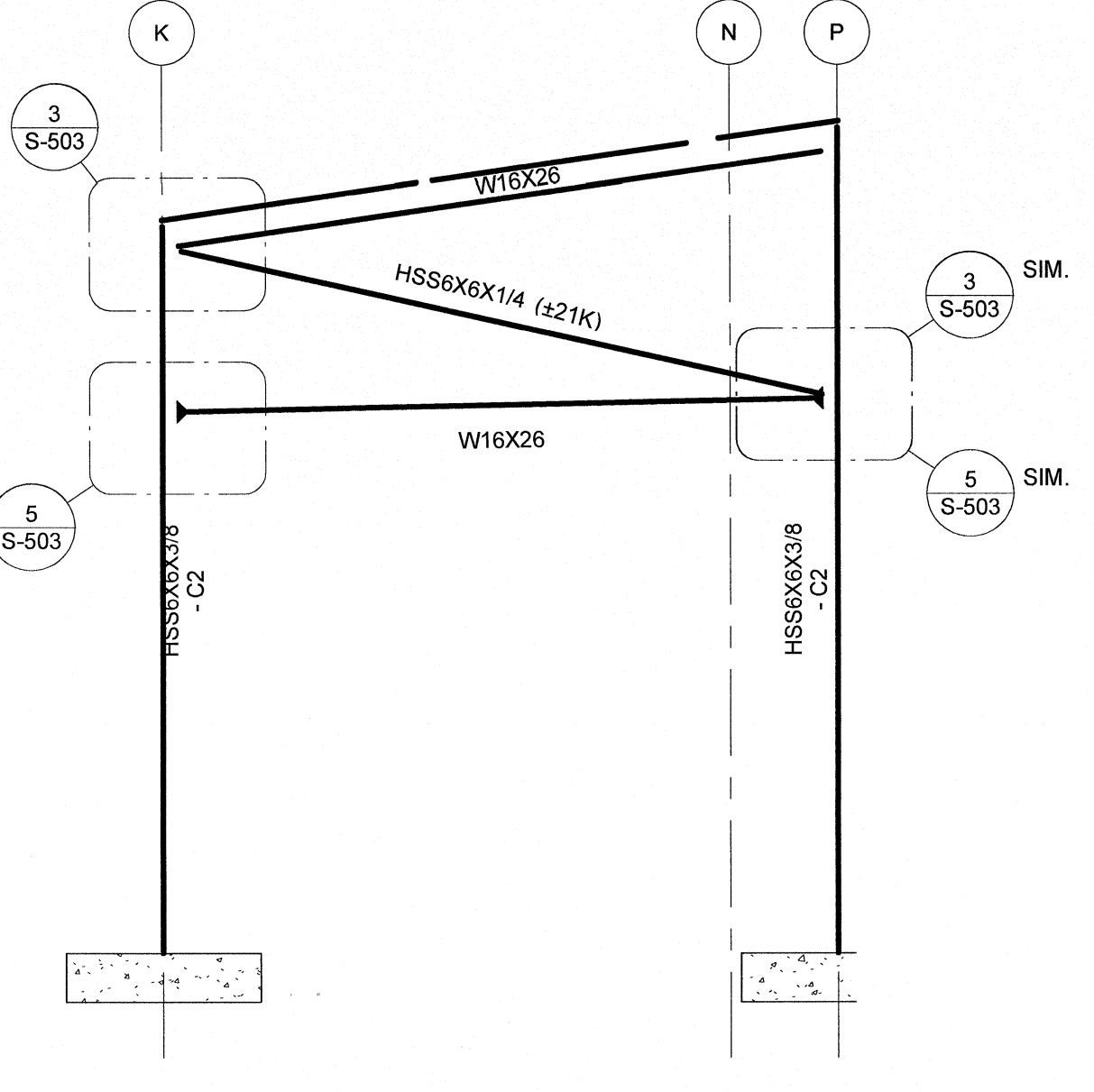
AREA A - BRACE ELEVATION D
3/16" = 1'-0" **D**



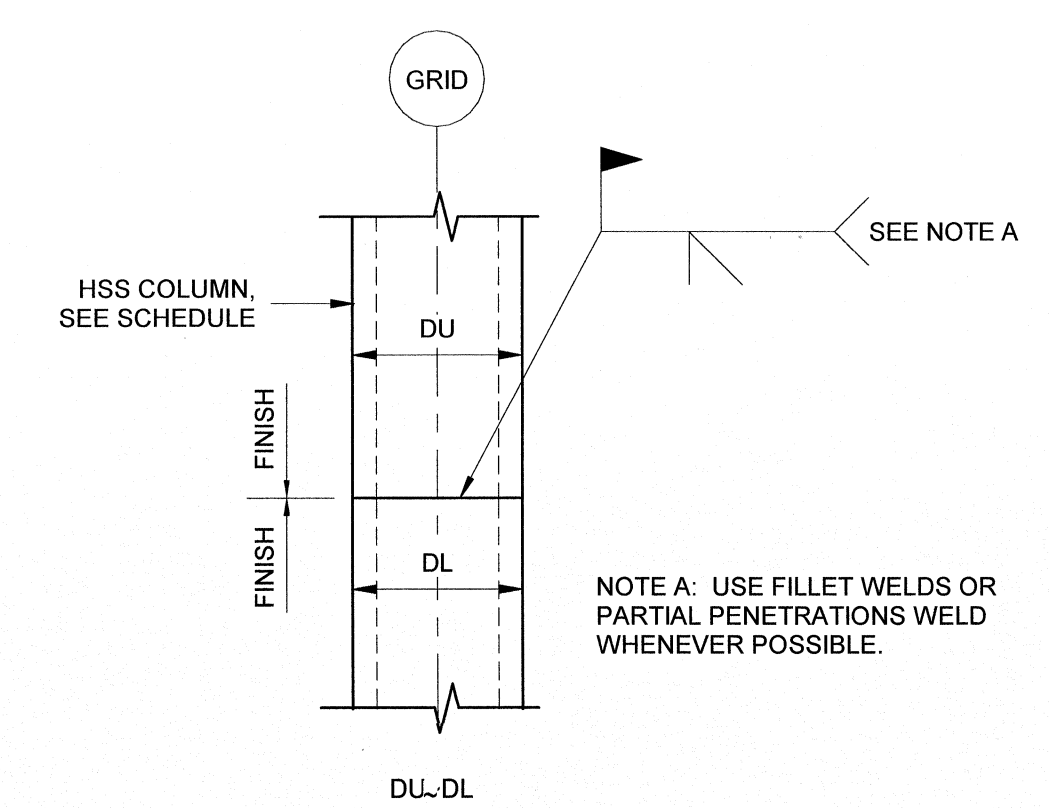
AREA A - BRACE ELEVATION C
3/16" = 1'-0" **C**



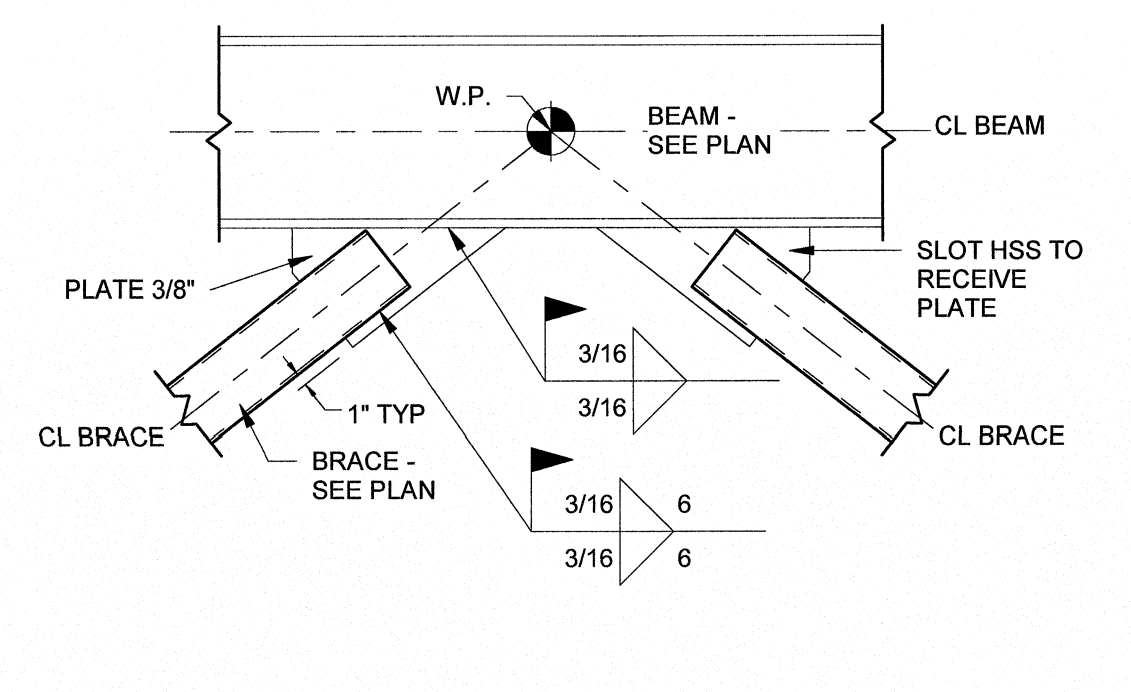
AREA A - BRACE ELEVATION B
3/16" = 1'-0" **B**



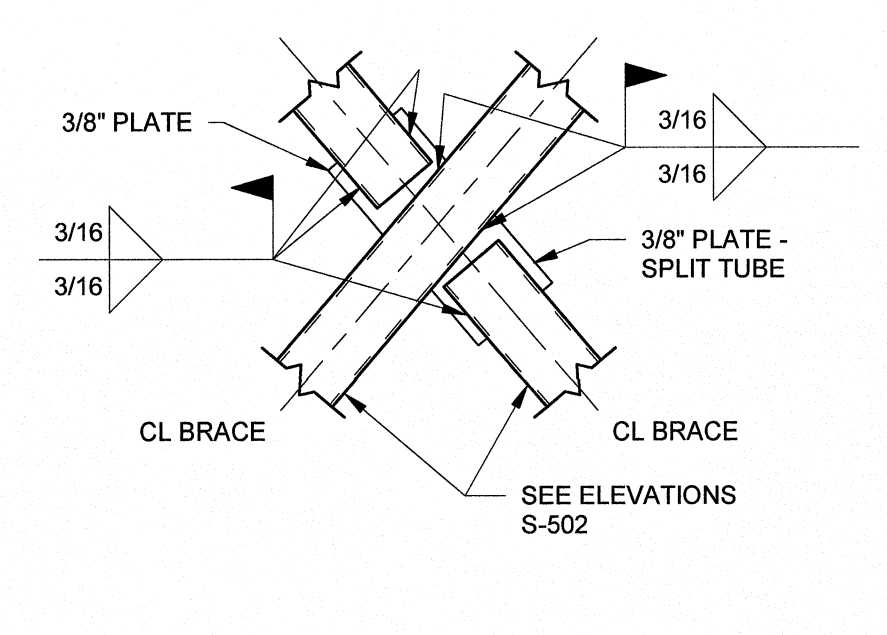
AREA A - BRACE ELEVATION A
3/16" = 1'-0" **A**



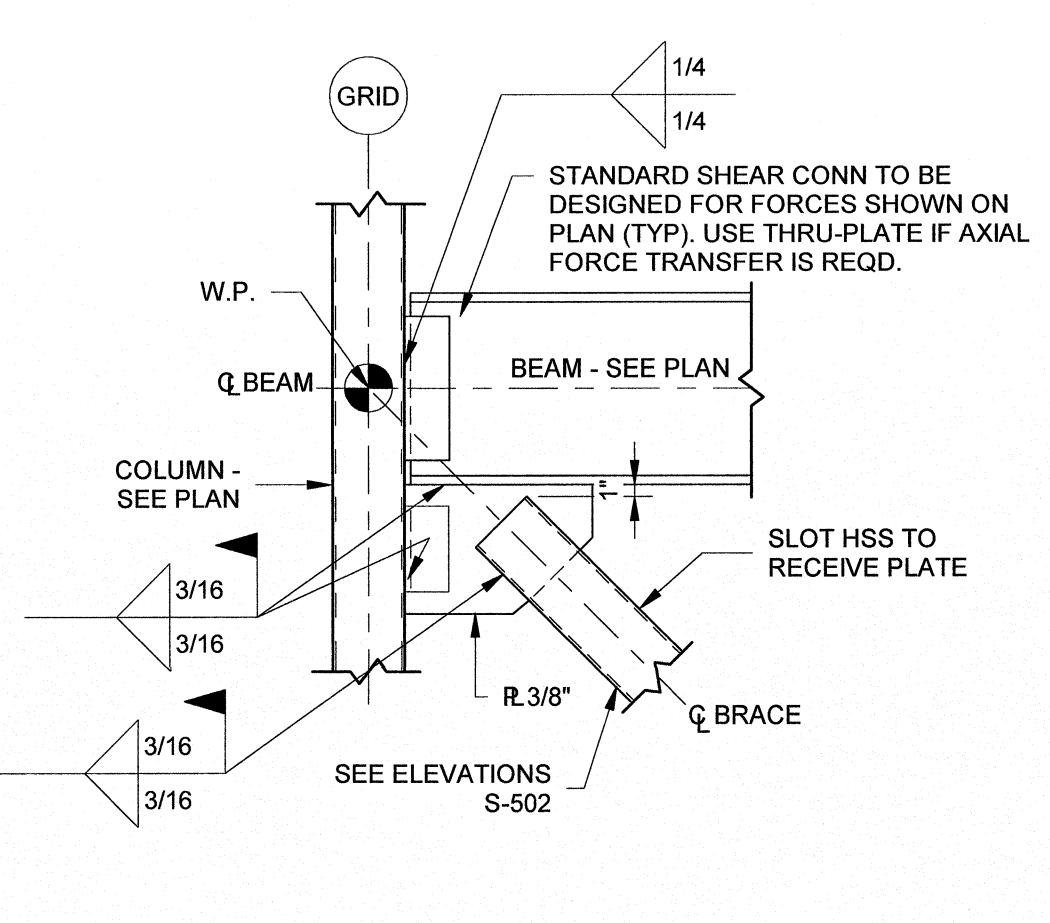
TYPICAL COLUMN SPLICE DETAIL
1 1/2" = 1'-0" **6**



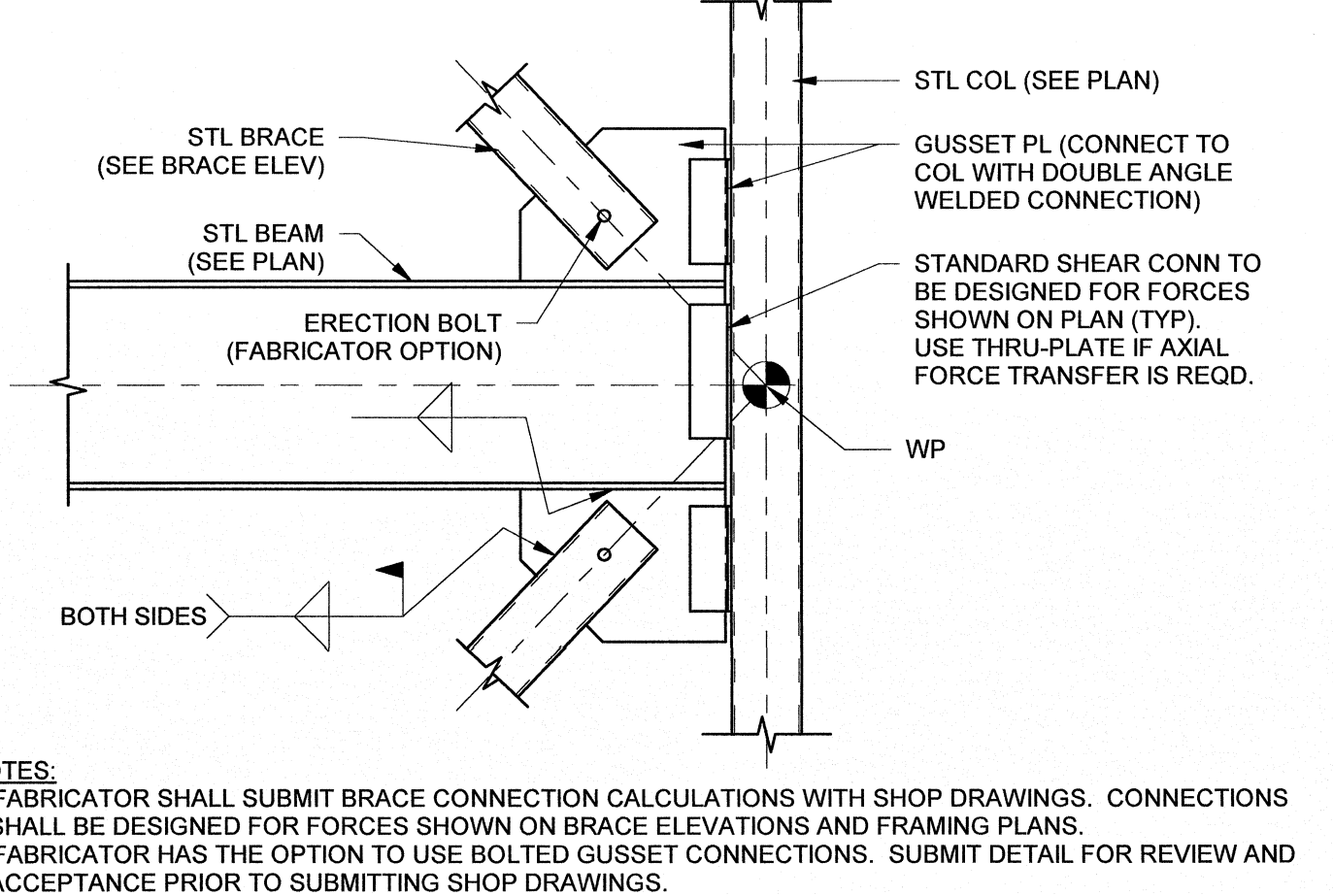
K-BRACE DETAIL
3/4" = 1'-0" **5**



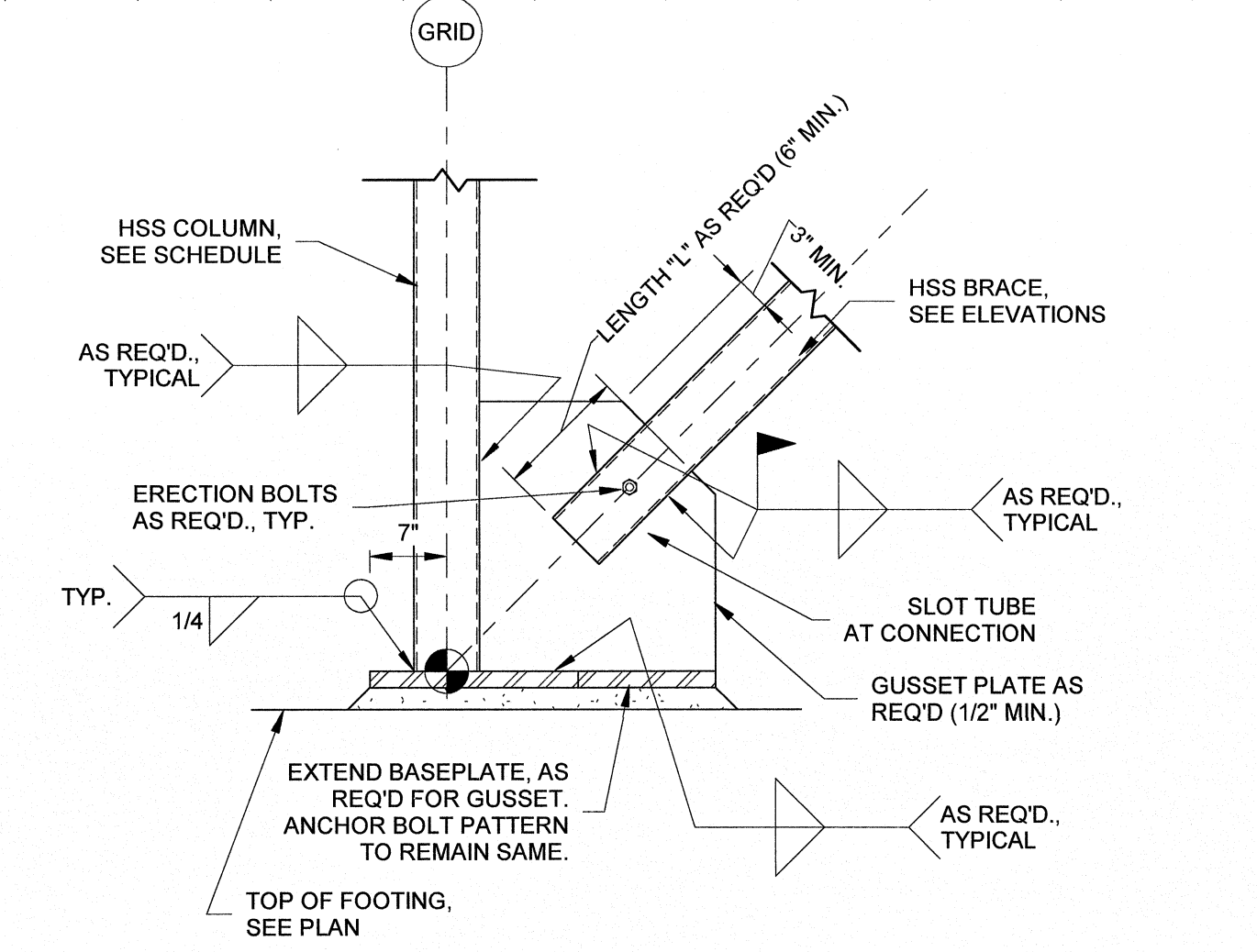
X-BRACE DETAIL
3/4" = 1'-0" **4**



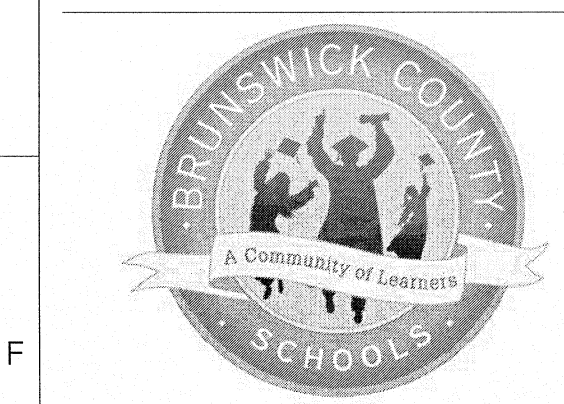
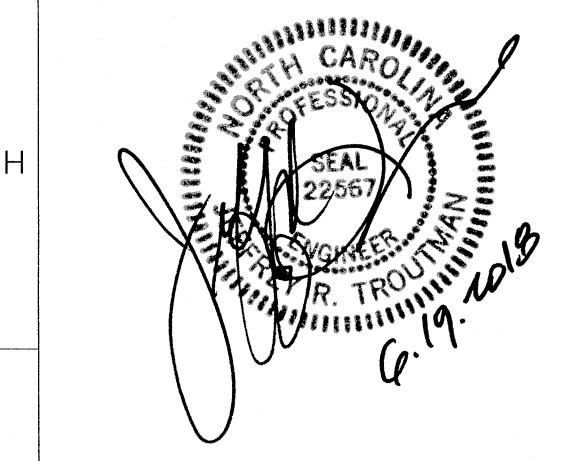
BRACE VF-1 DETAIL
3/4" = 1'-0" **3**



BEAM TO HSS COL W/ BRACE CONN.
3/4" = 1'-0" **2**

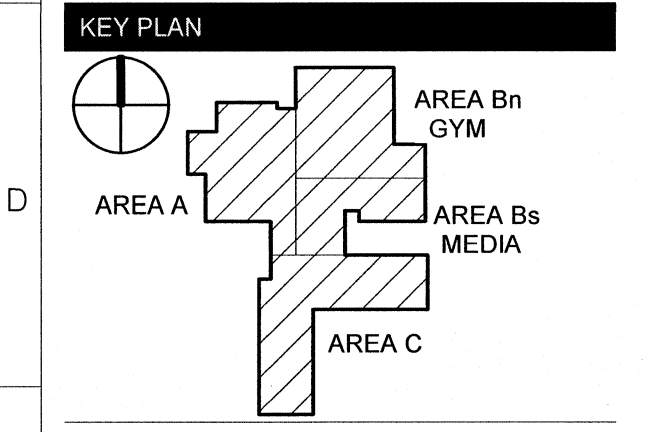


HSS COL BASE W/ BRACE CONNECTION
3/4" = 1'-0" **1**



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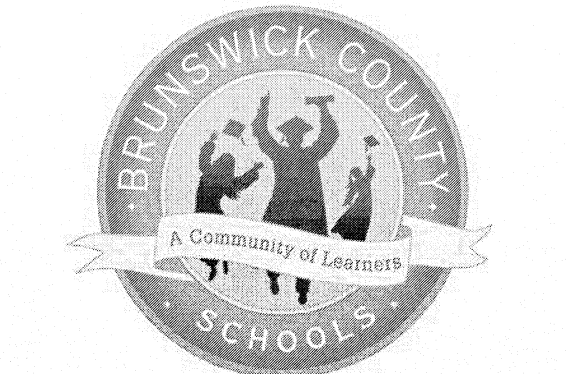
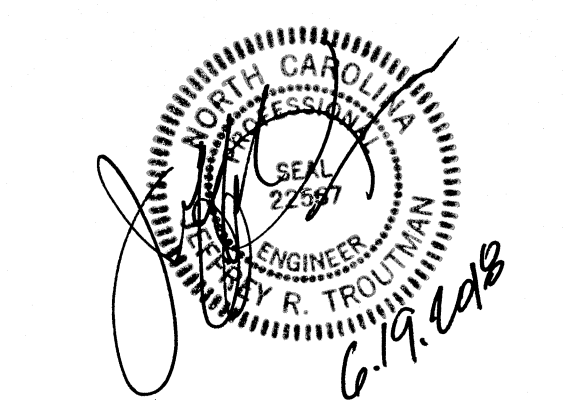


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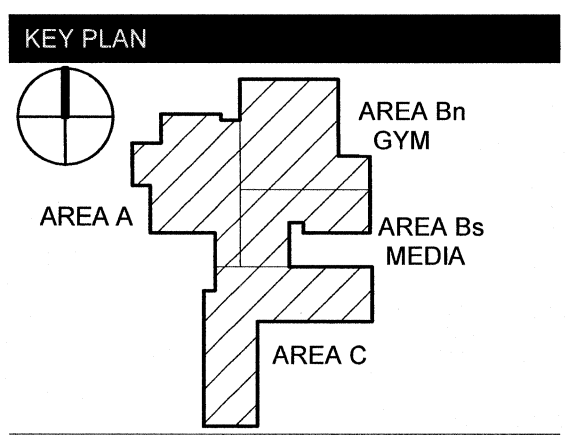
No.	Description	Date
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: As indicated
SHEET NAME: BRACE DETAILS & BRACING ELEVATIONS
SHEET NUMBER:



TOWN CREEK MIDDLE SCHOOL
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WINNABOW, NC 28479



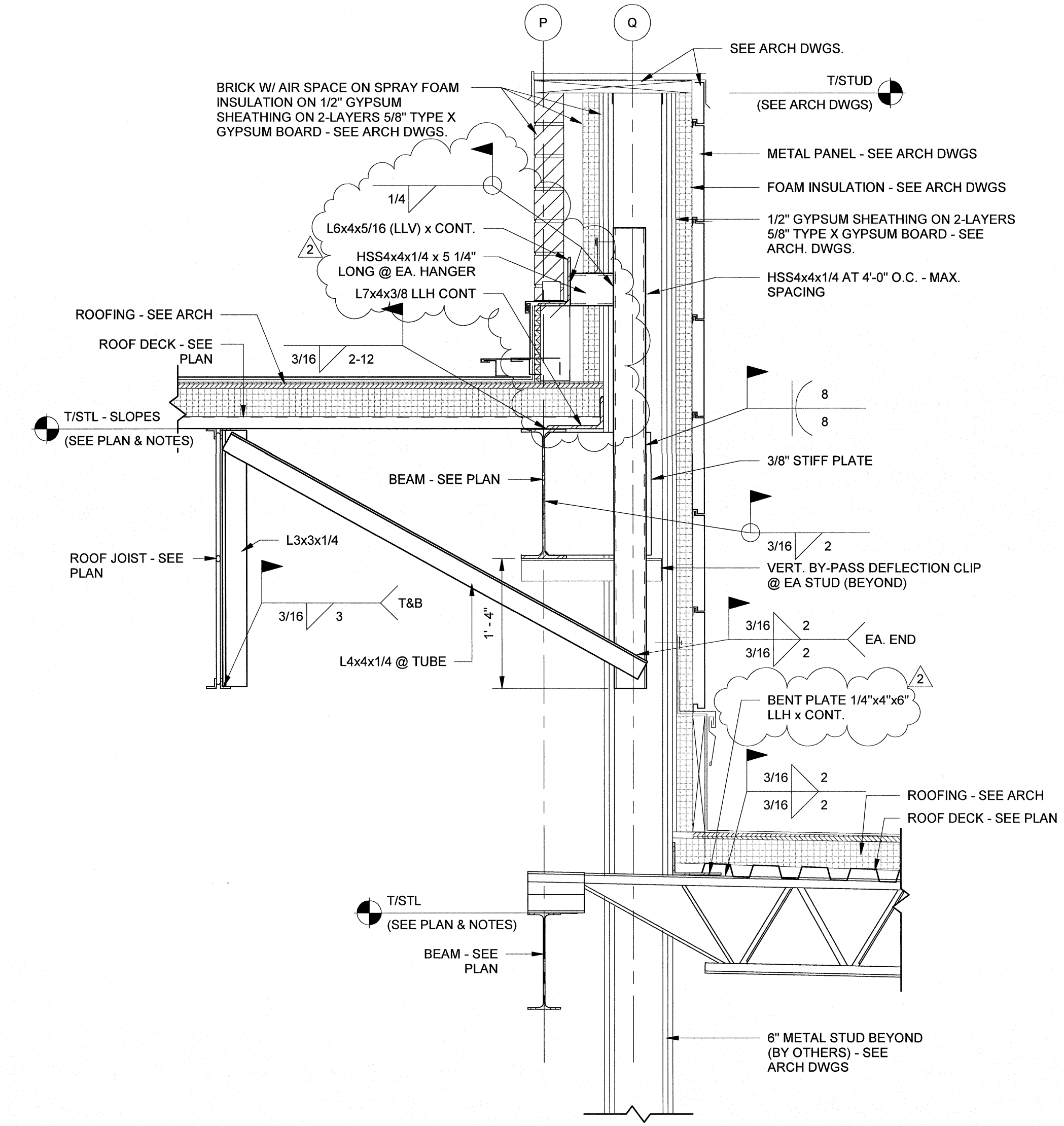
REVISIONS

No.	Description	Date
2	Addendum #2	0/18/18

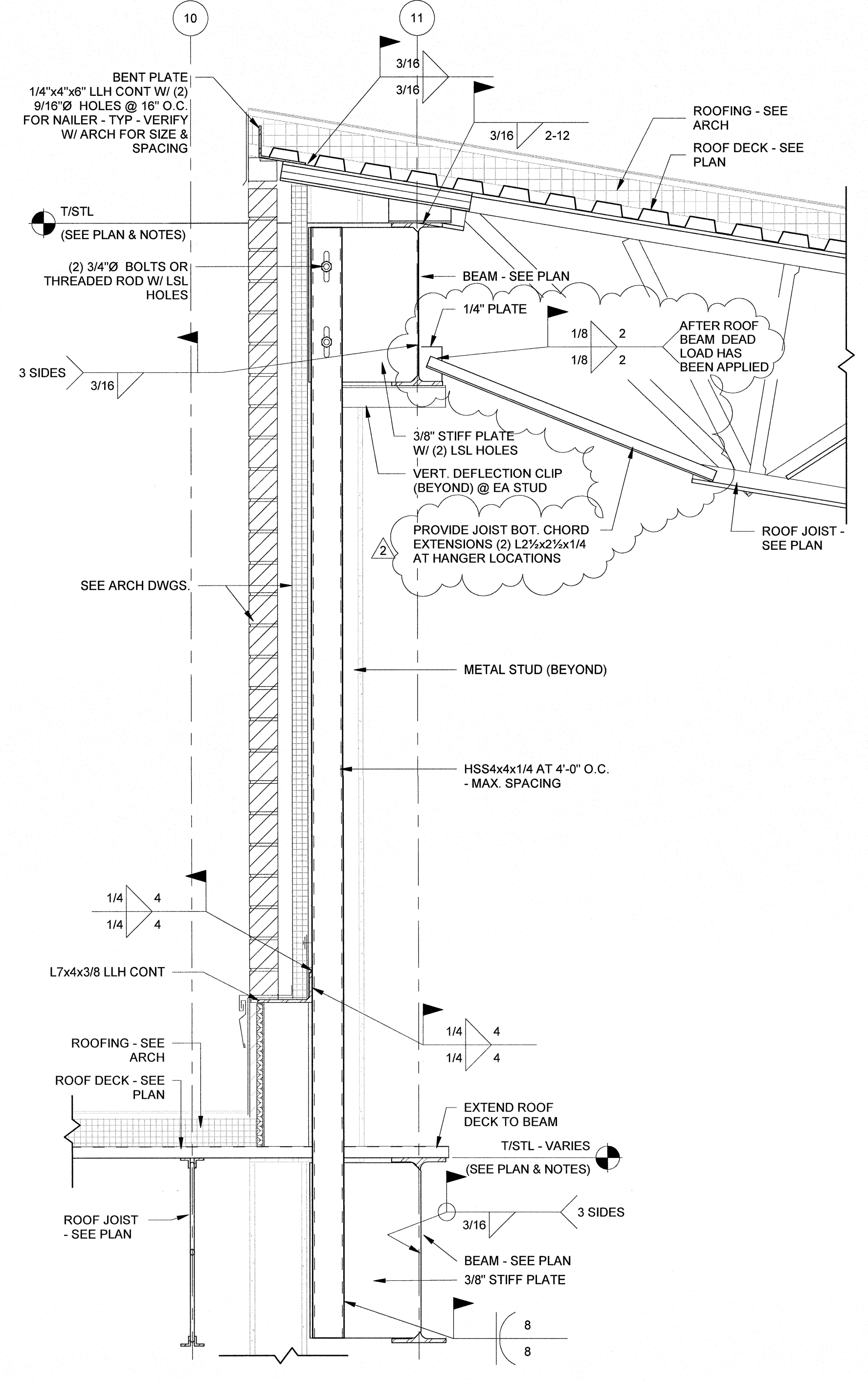
ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1" = 1'-0"
SHEET NAME: ROOF FRAMING SECTIONS

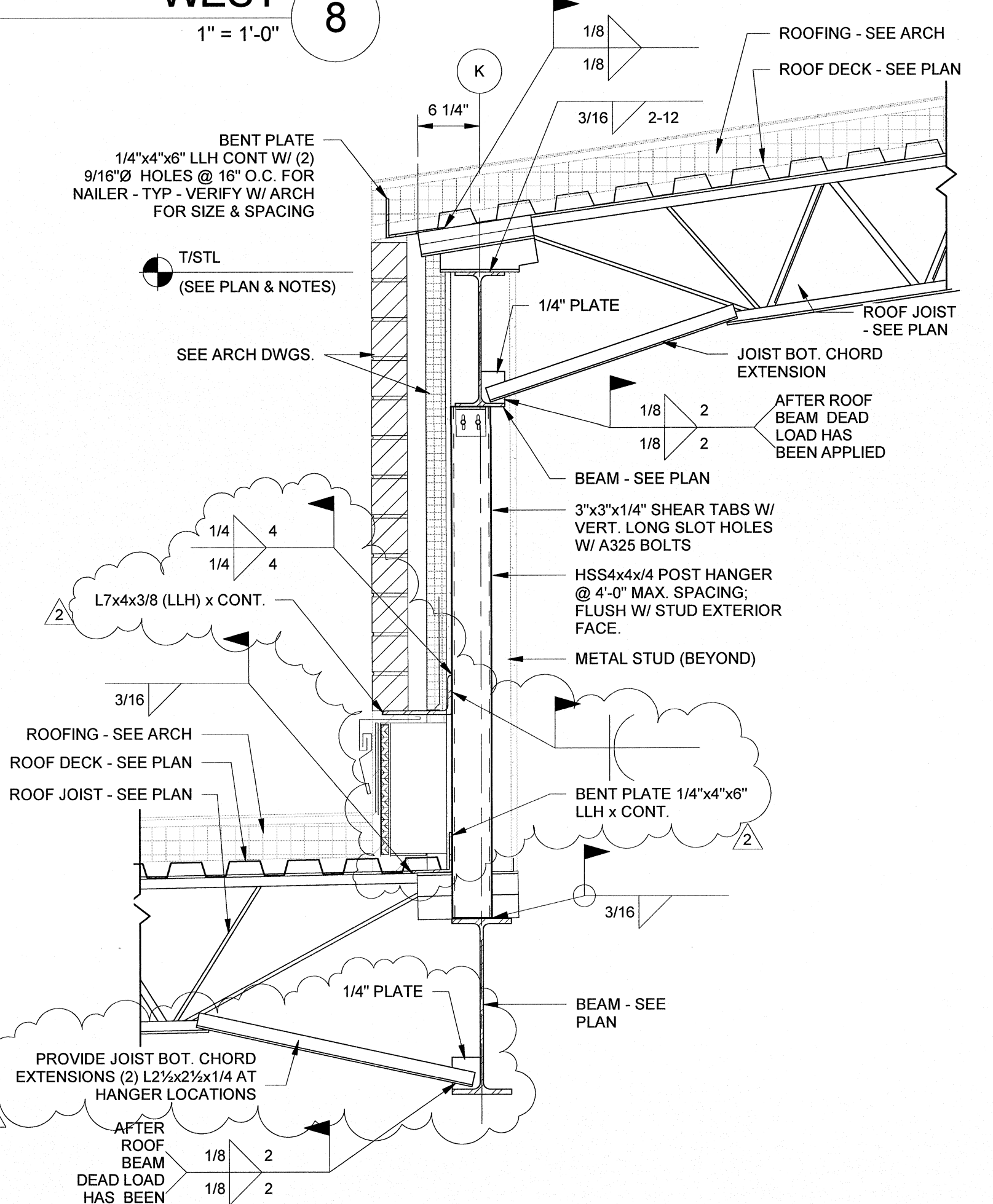
SHEET NUMBER:
S-509



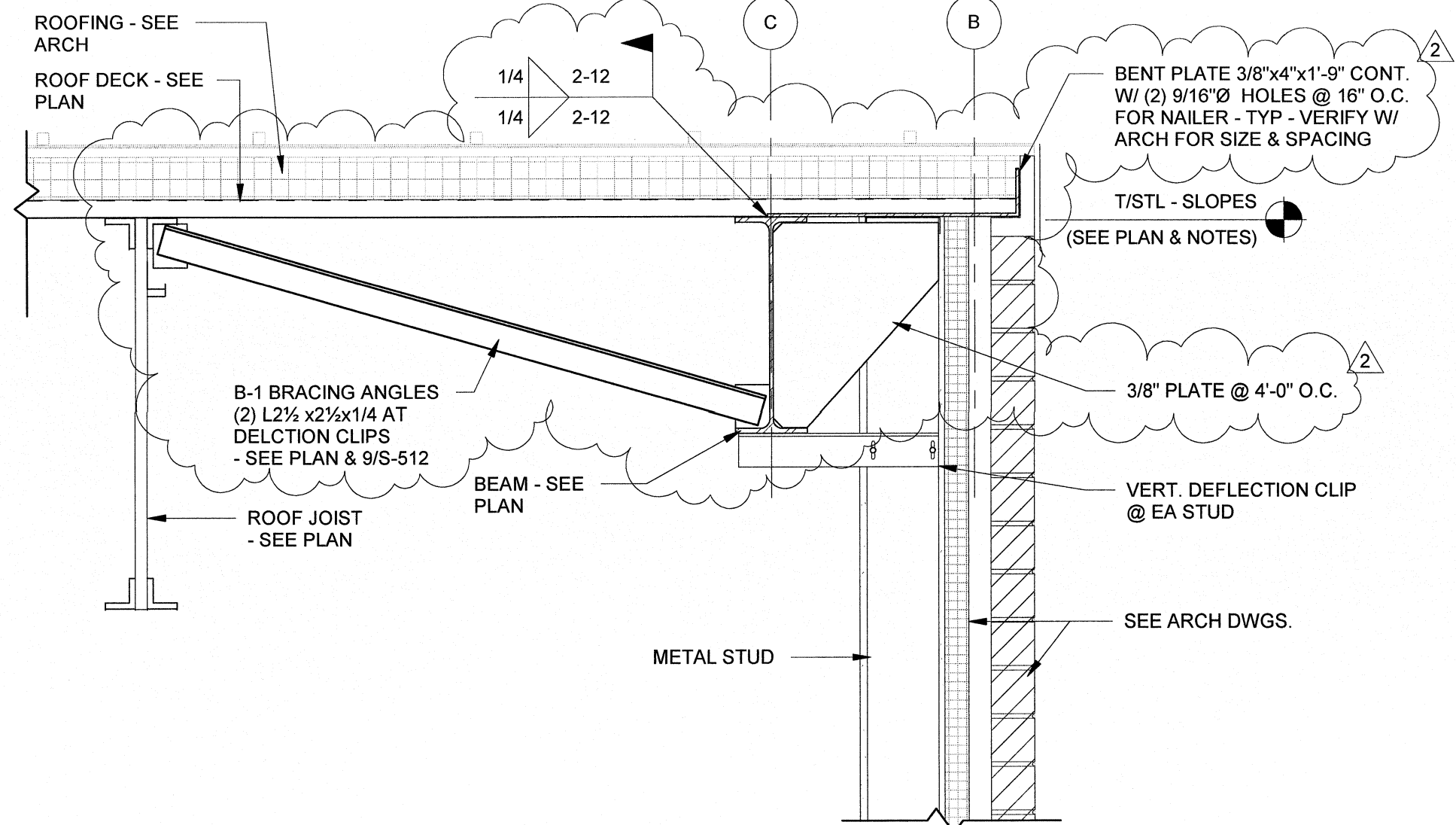
AREA A - ROOF FRAMING SECTION @ DINING & Bs 5
1" = 1'-0"



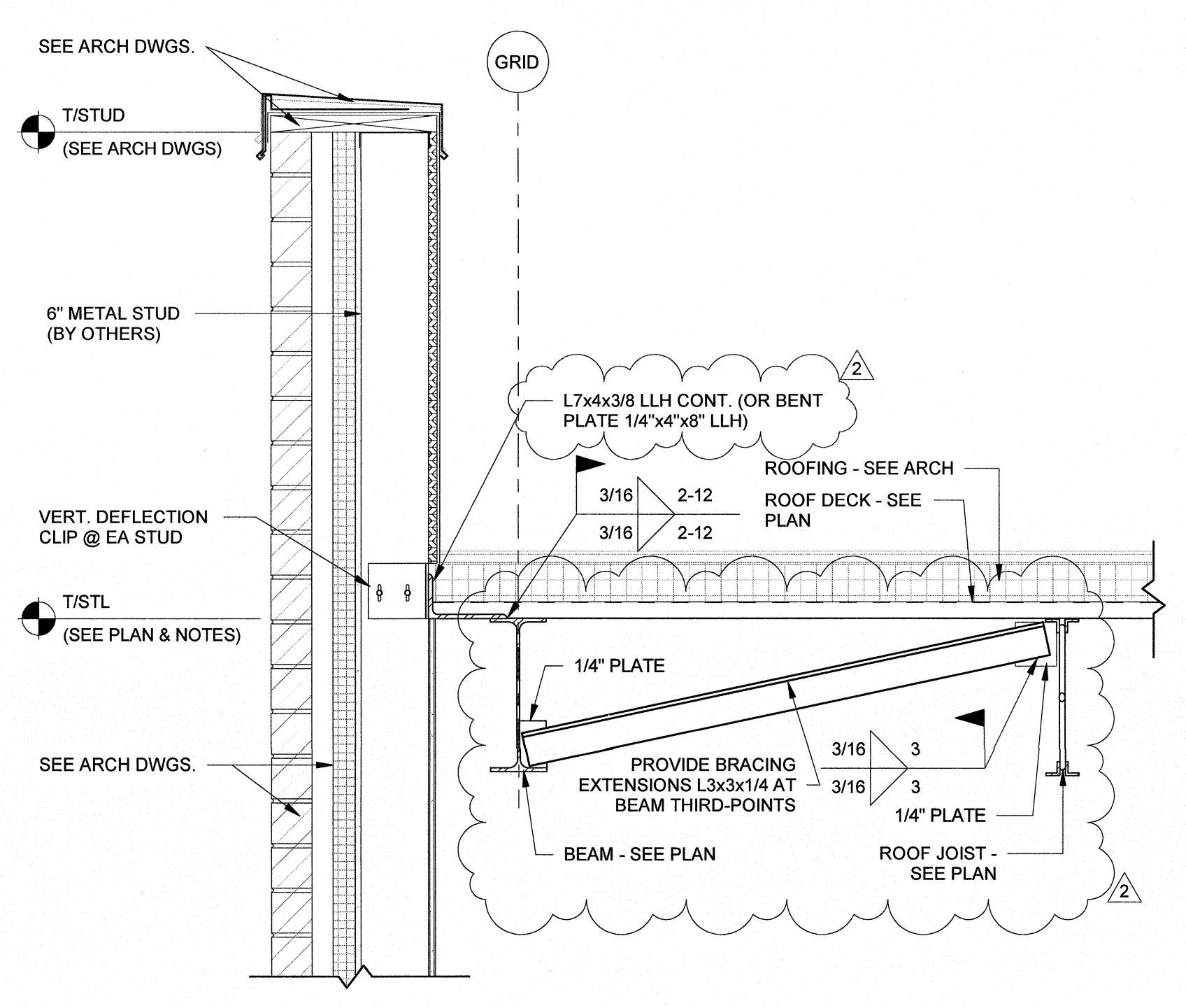
AREA A - ROOF FRAMING SECTION @ DINING & KITCHEN 6
1" = 1'-0"



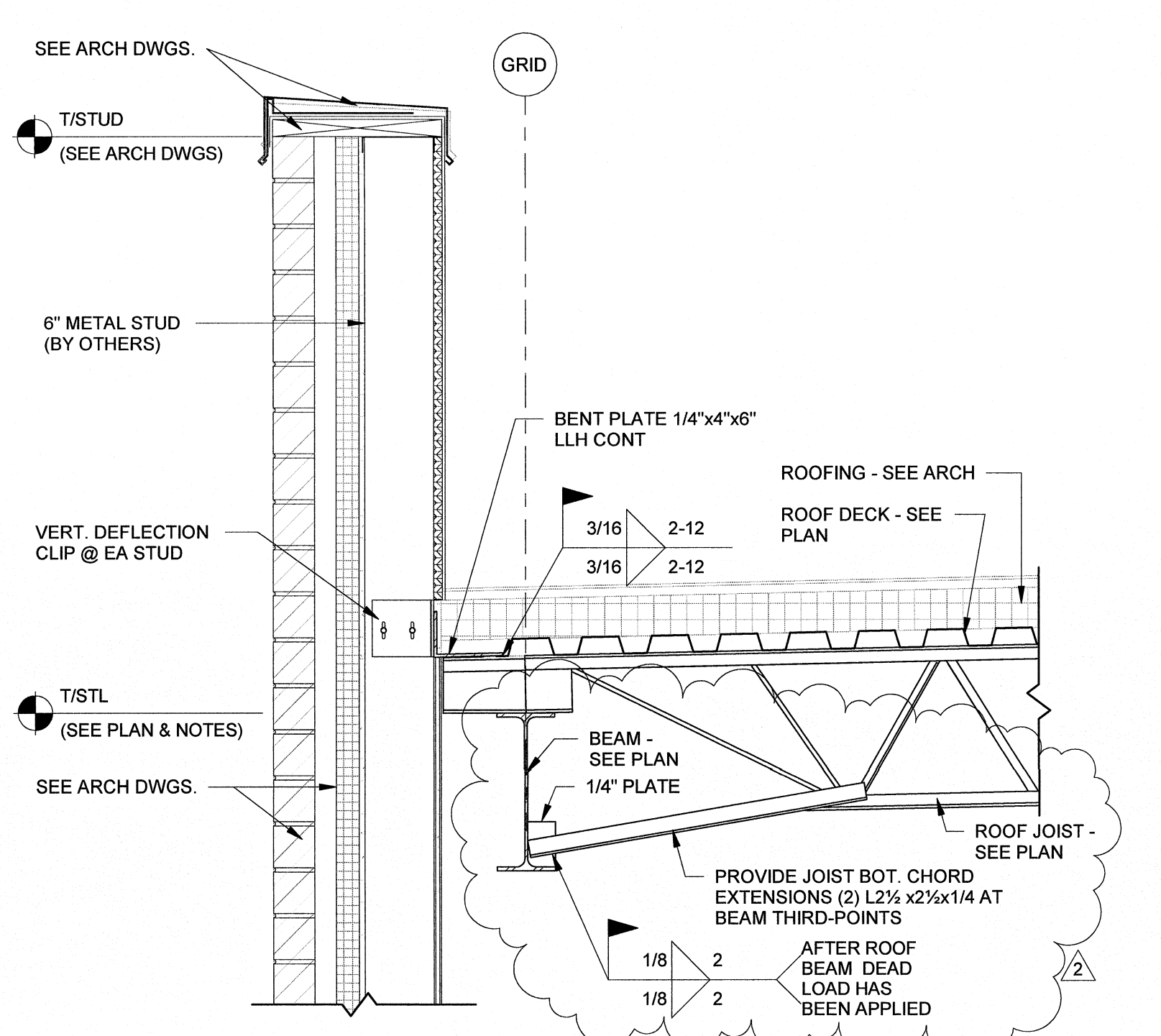
AREA A - ROOF FRAMING SECTION @ ADMIN BRICK LEDGER 7
1" = 1'-0"



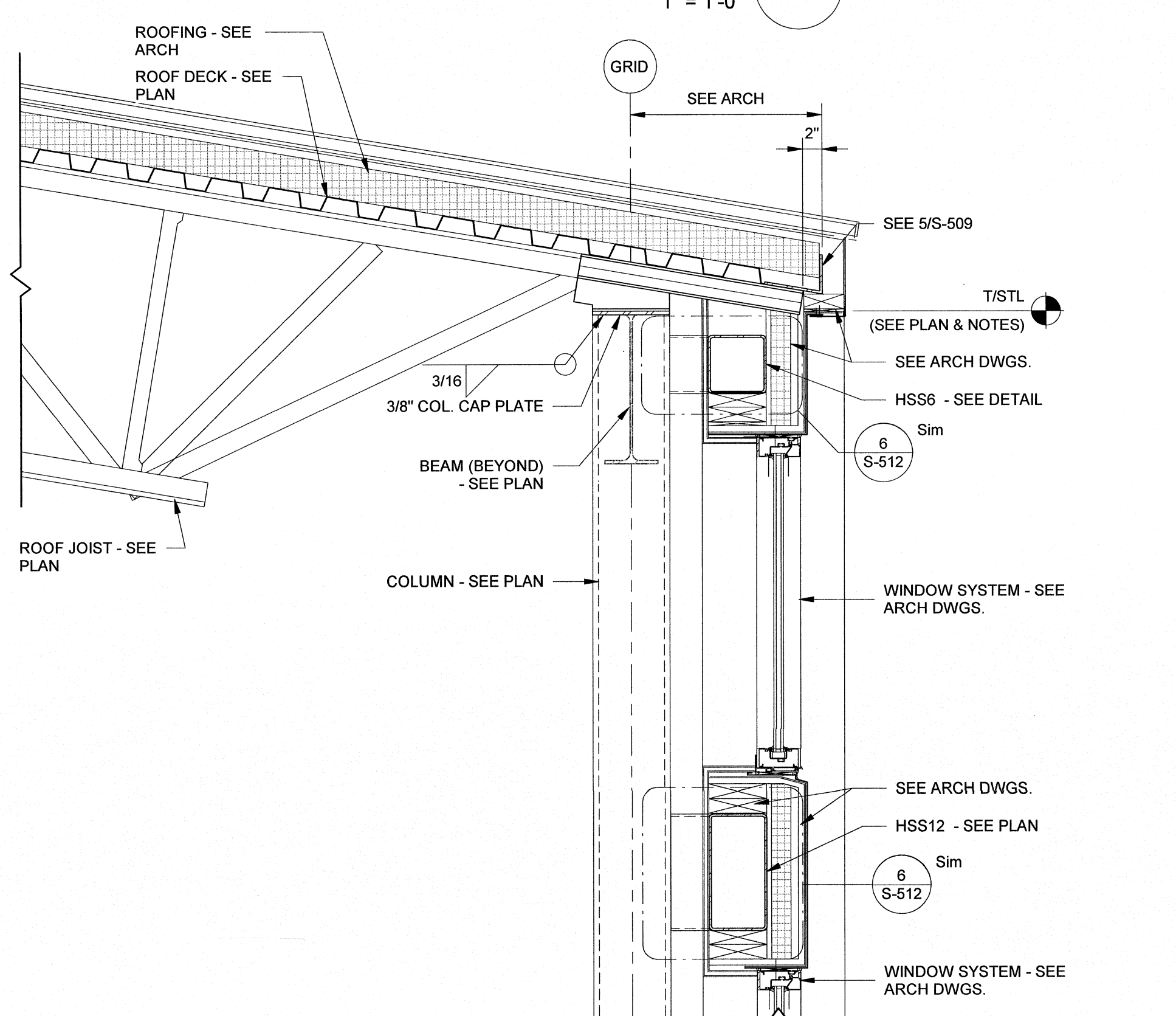
AREA A - ROOF FRAMING SECTION @ DINING WEST 8
1" = 1'-0"



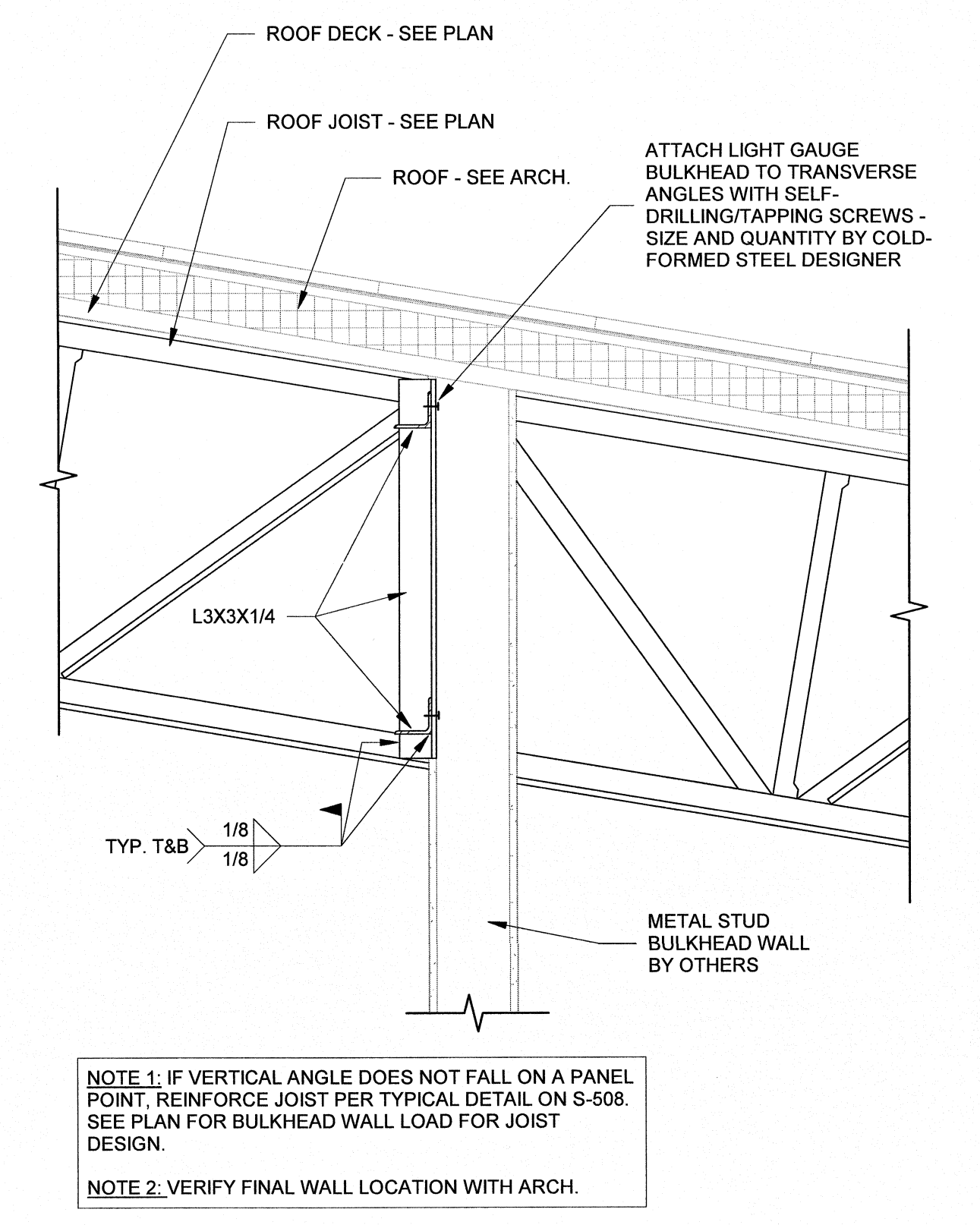
AREA A - ROOF FRAMING SECTION PARALLEL 1
1" = 1'-0"



AREA A - ROOF FRAMING SECTION PERP. 2
1" = 1'-0"

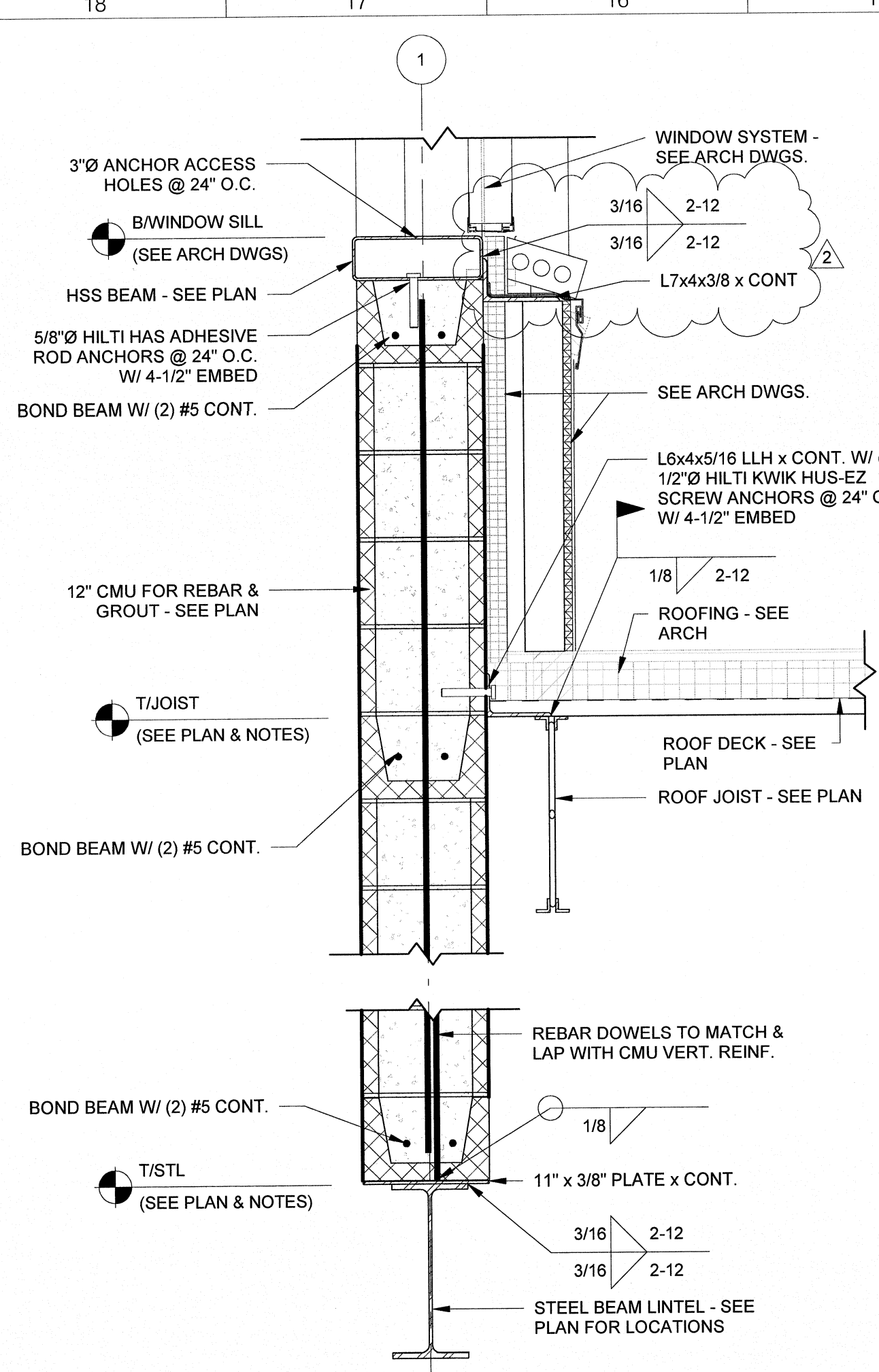


AREA A - ROOF FRAMING SECTION @ DINING COL 3
1" = 1'-0"



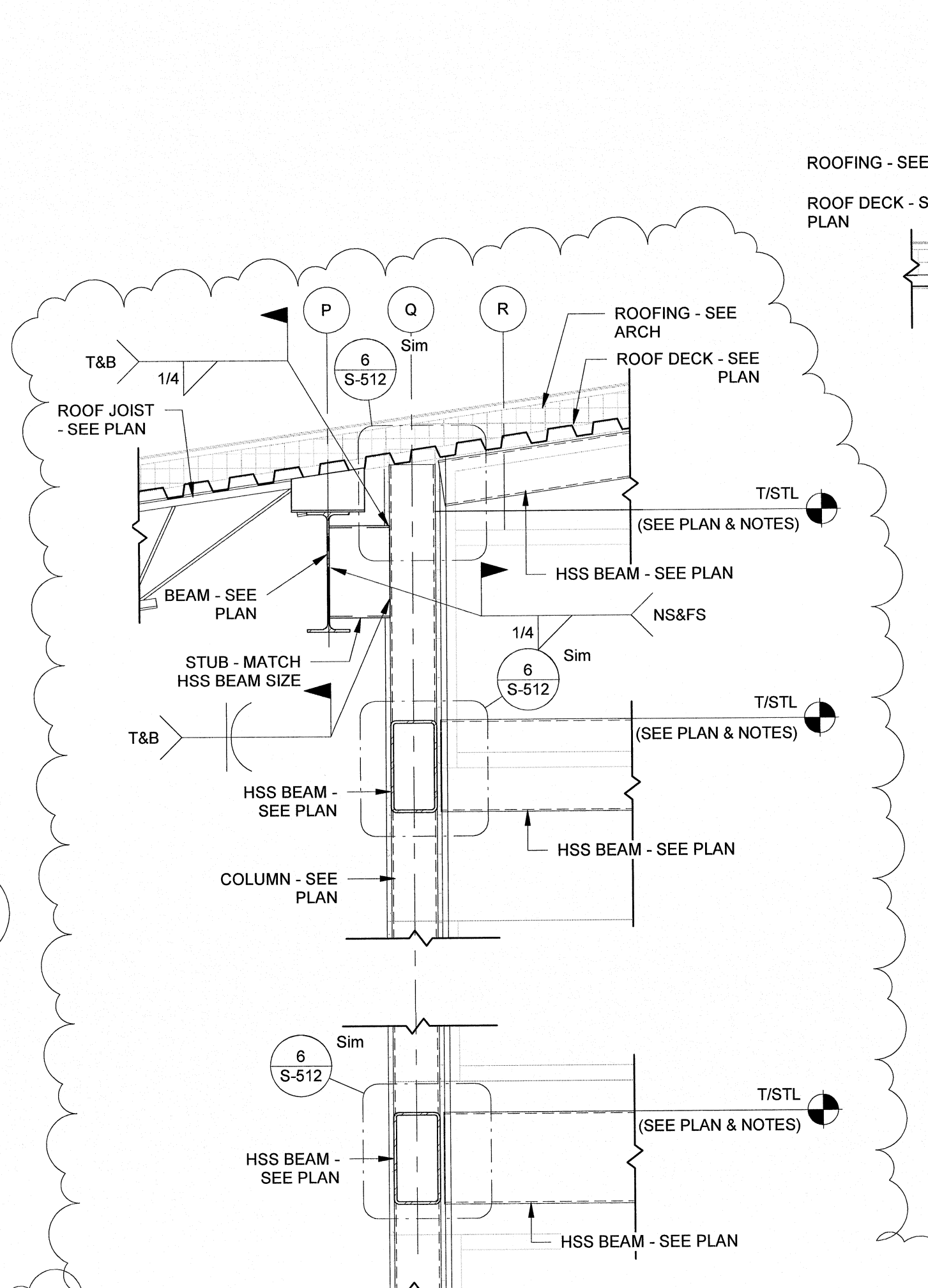
AREA A - DINING ROOM BULKHEAD 4
1" = 1'-0"

- Owner**
BRUNSWICK COUNTY SCHOOLS
169 SESSIONS DRIVE
BOHIVA, NC 28422
910.253.2900 office
www.bcswan.net
- Civil Engineer**
MCGILL ASSOCIATES
712 VILLAGE ROAD SW, SUITE 103
SHALLOTTE, NC 28470
910.755.5872 office
www.mcgillengineer.com
- Structural Engineer**
CRISER TROUTMAN TANNER
3809 Peachtree Ave., Suite 102
WILMINGTON, NC 28403
910.397.2971 office
www.ctengineering.com
- MEP Engineer**
KSQ DESIGN
2115 REXFORD ROAD, SUITE 500
CHARLOTTE, NC 28211
704.364.3400 office
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Quality Consulting Engineers, PLLC
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(p) 803.207.5450 office
jdjones@qualityconsultingengineers.com
www.TA-inc.com
- Acoustic & Technology Consultant**
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401 N. TYRON STREET, 10TH FLOOR
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510.898.7828 office
www.ta-inc.com
- Building Envelope Consultant**
SKA ENGINEERING
7741 MARKET STREET, SUITE F
WILMINGTON, NC 28411-9444
910.442.2000 office
www.skaeng.com
- Food Service Consultant**
HERBIN DESIGN
7325 DORN CIRCLE
CHARLOTTE, NC 28212-6914
704.900.0922
www.herbin.com

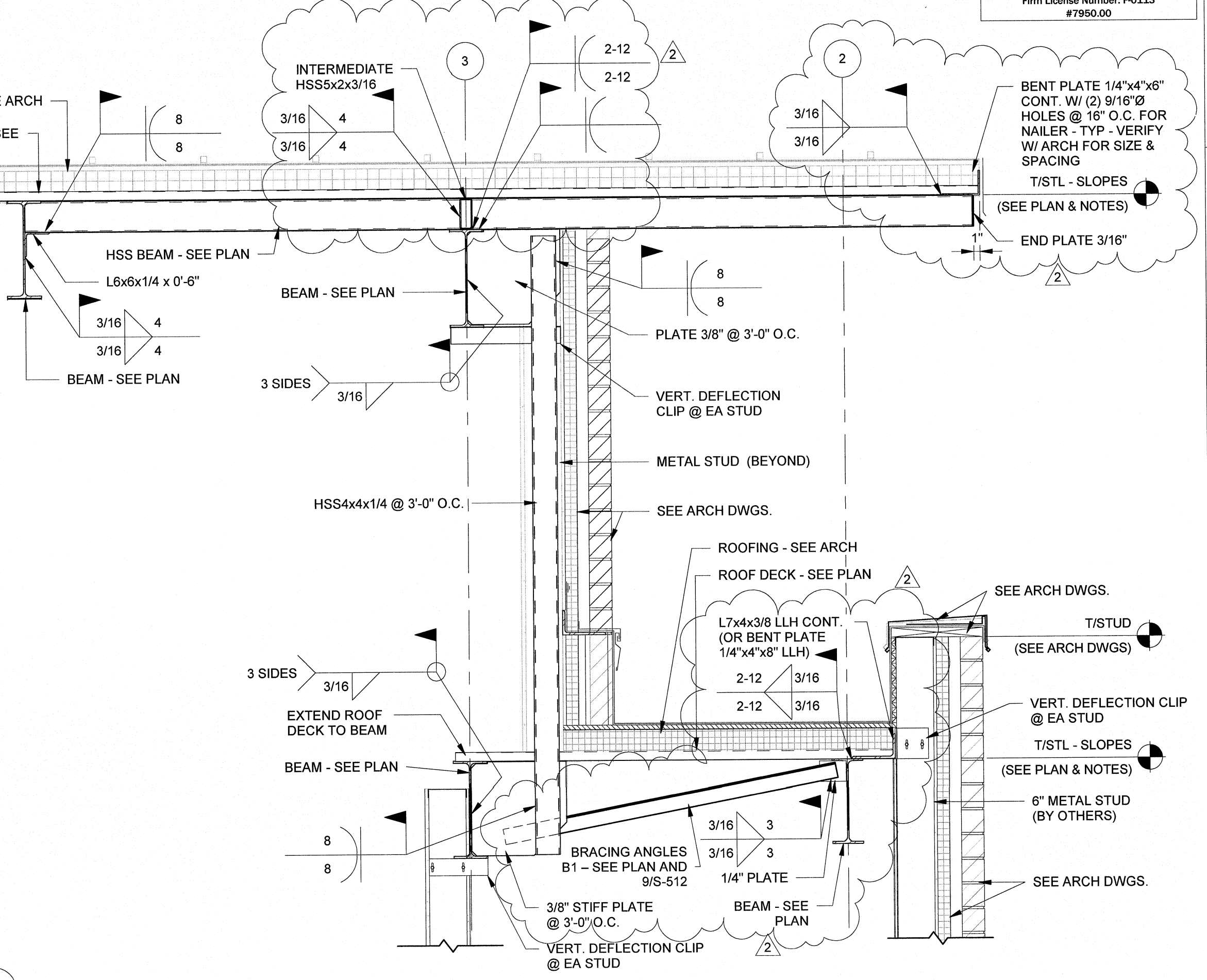


AREA Bn - ROOF FRAMING SECTION @ LOCKER ROOM
1" = 1'-0" 6

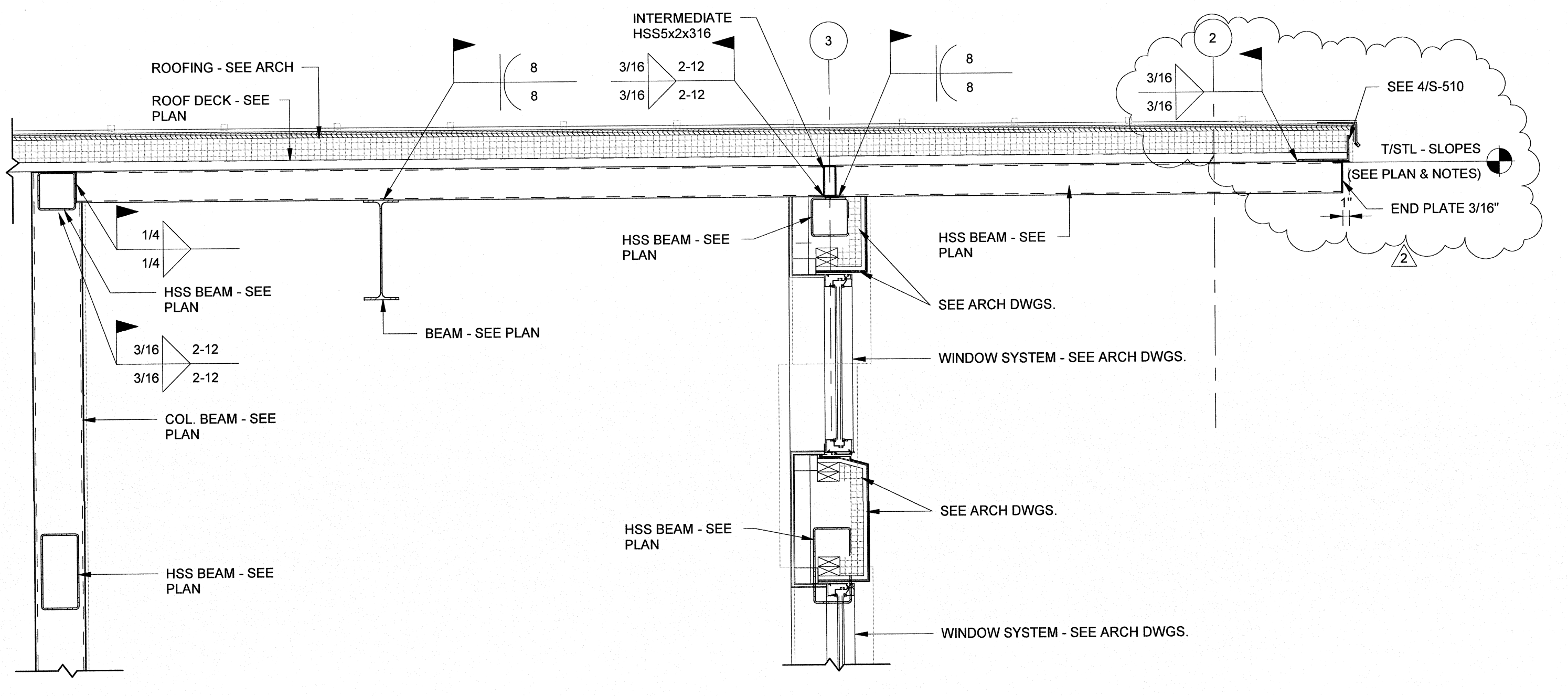
AREA Bn - ROOF FRAMING SECTION @ GYM/LOCKER ROOM LEVEL 2
1" = 1'-0" 7



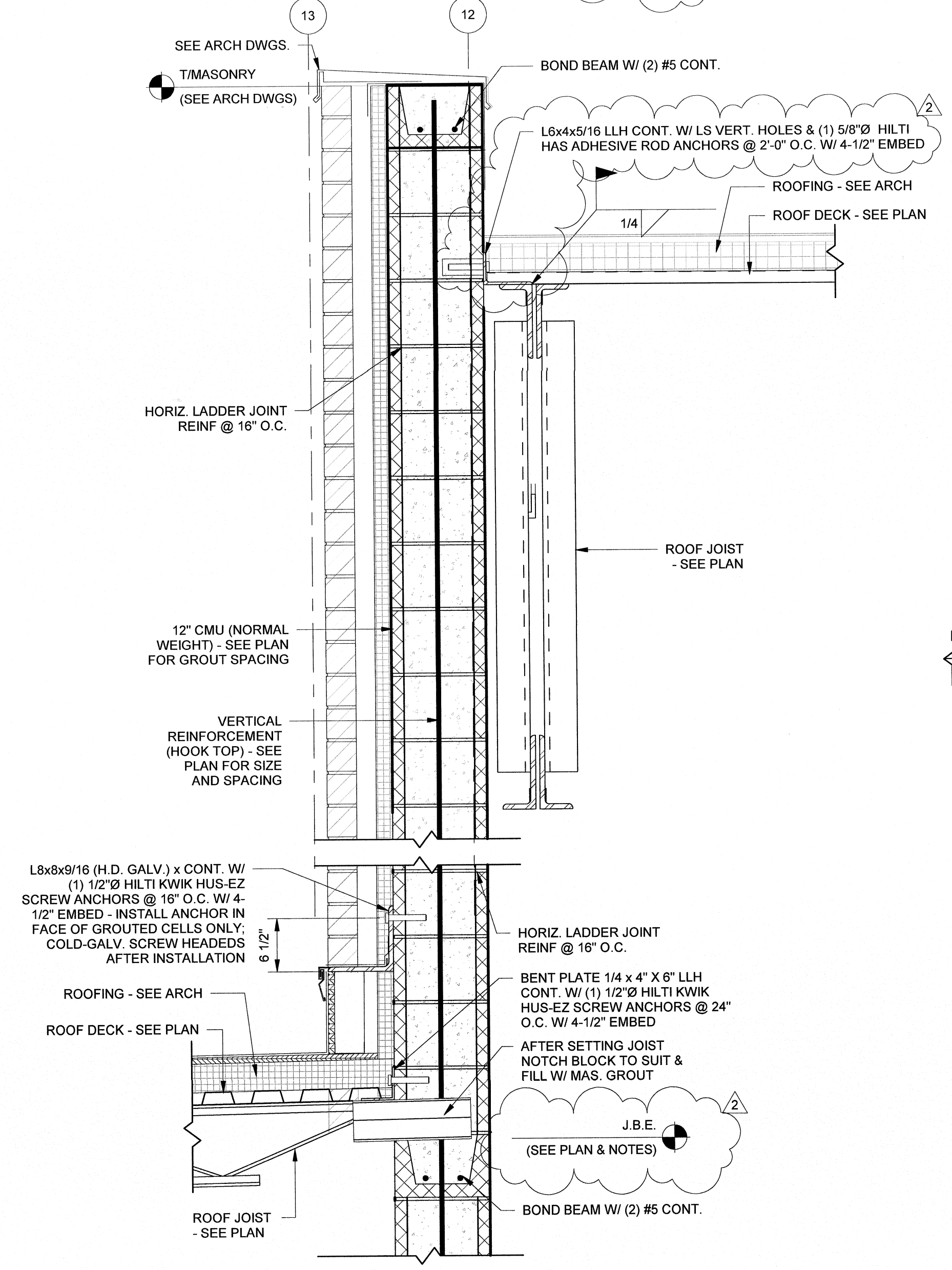
AREA A - ROOF FRAMING SECTION @ VEST/RECEPTION
3/4" = 1'-0" 5



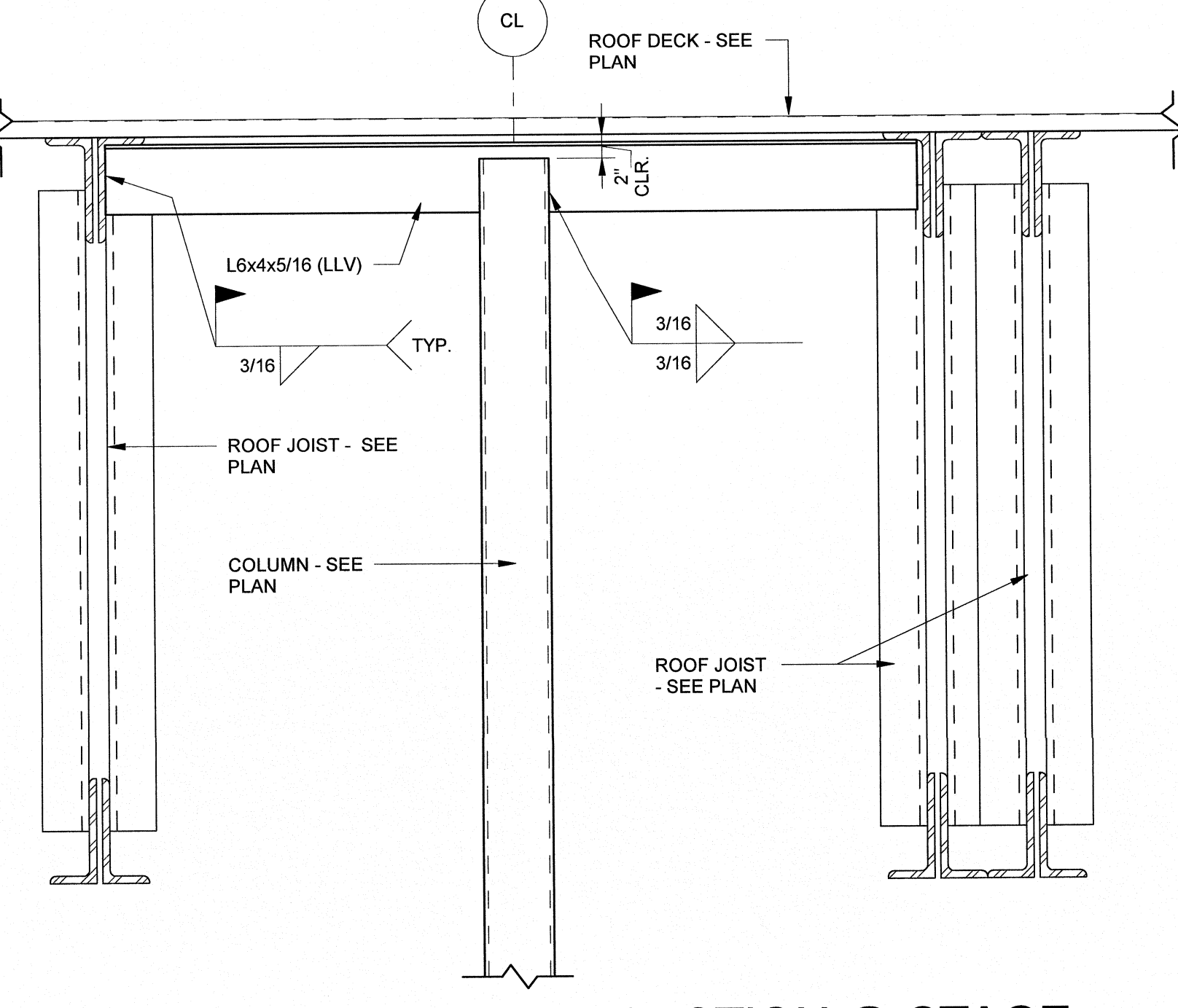
AREA A - ROOF FRAMING SECTION @ OFFICE/RECEPTION
3/4" = 1'-0" 4



AREA A - ROOF FRAMING SECTION @ VESTIBULE/CORRIDOR
3/4" = 1'-0" 3



AREA Bn - ROOF FRAMING SECTION @ SOUTH WALL
1" = 1'-0" 2

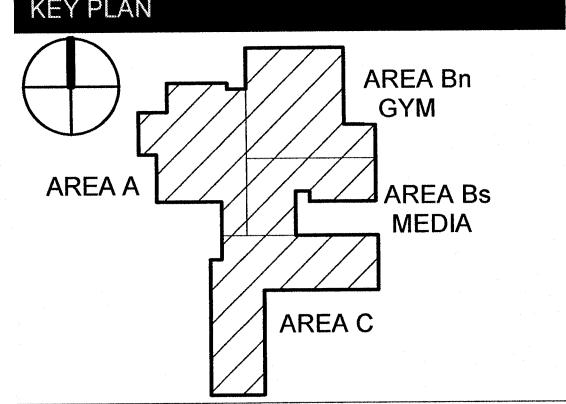


AREA Bn - ROOF FRAMING SECTION @ STAGE FRAMING
1" = 1'-0" 1



TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479



REVISIONS

No.	Description	Date
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS
DATE: 05/24/2018
SCALE: As indicated
SHEET NAME: ROOF FRAMING SECTIONS

SHEET NUMBER:
S-510



ksqdesign
 NEW YORK OKLAHOMA NORTH CAROLINA TEXAS
 COLORADO SOUTH CAROLINA
 KSQ Design
 1530 CAMDEN ROAD, SUITE 260
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 704.364.7080 fax
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 910.397.2971 office
 www.ctengineering.com

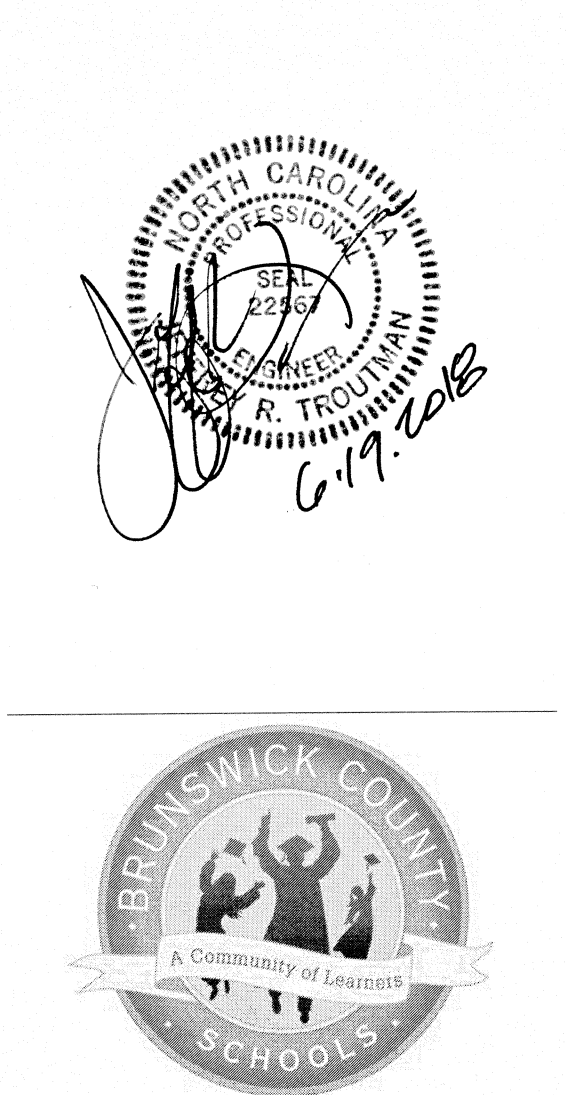
MEP Engineer
 KSQ DESIGN
 2115 REXFORD ROAD, SUITE 500
 CHARLOTTE, NC 28211
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Electrical Consultant
 Quality Consulting Engineers, PLLC
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 qjones@qualityconsultingengineers.com

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 THORBURN ASSOCIATES
 401 N. TYRON STREET, 10TH FLOOR
 CHARLOTTE, NC 28202
 510.886.7628 office
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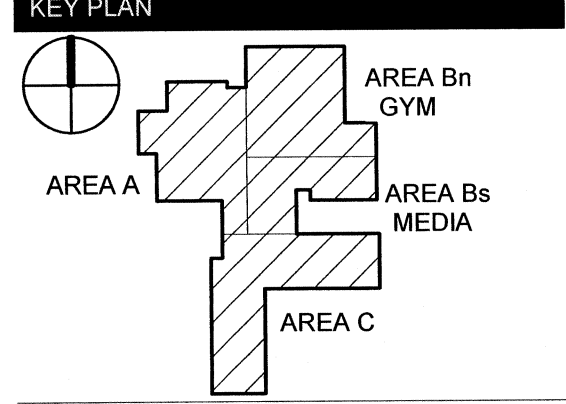
Building Envelope Consultant
 SKA ENGINEERING
 7741 MARKET STREET, SUITE F
 WILMINGTON, NC 28411-9444
 910.442.2000 office
 www.skaeng.com

Food Service Consultant
 HERBIN DESIGN
 7325 DORN CIRCLE
 CHARLOTTE, NC 28212-6914
 704.900.0922
 www.herbin.com



TOWN CREEK MIDDLE SCHOOL

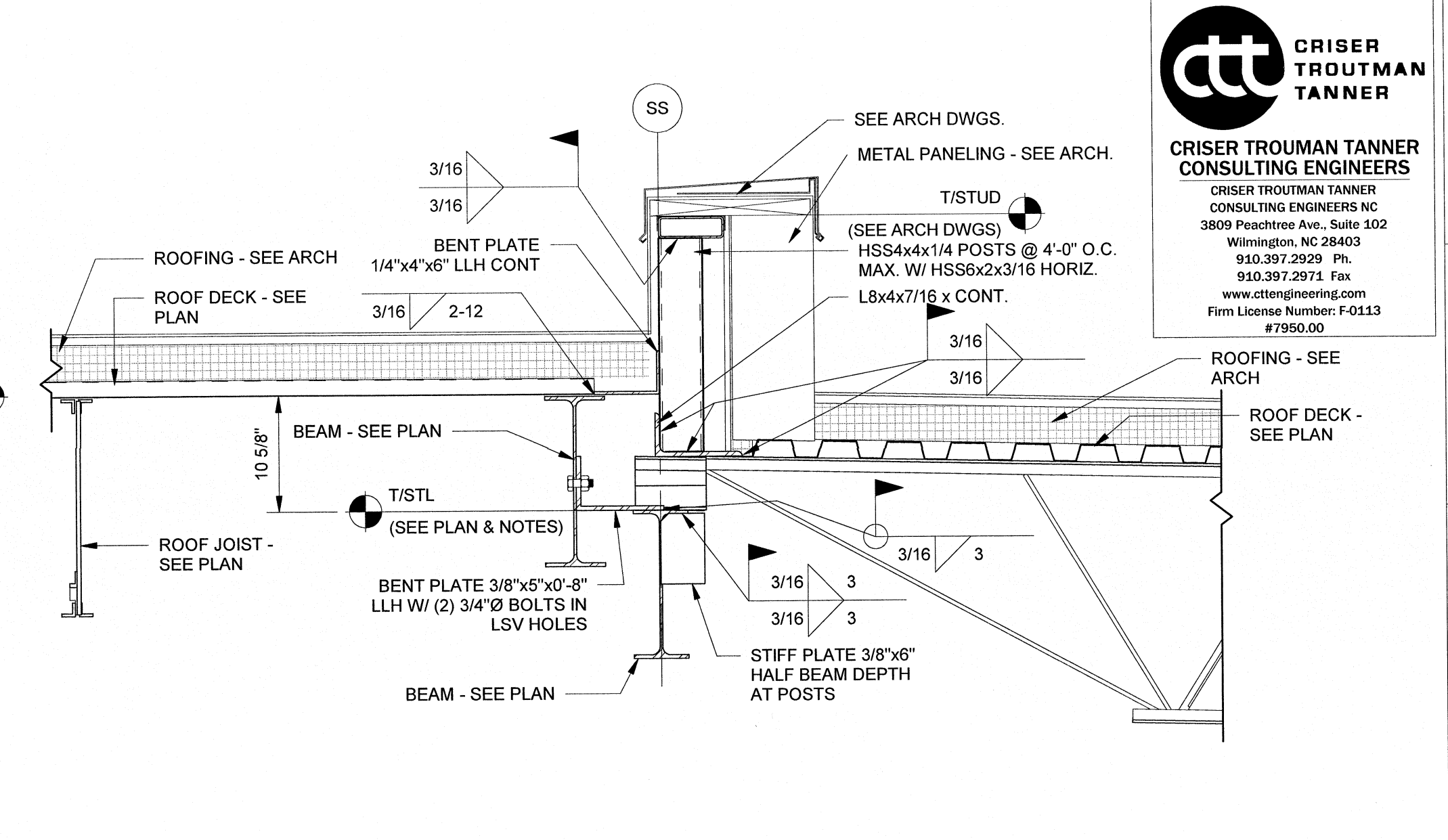
6370 LAKE PARK DRIVE SE
 WINNABOW, NC 28479



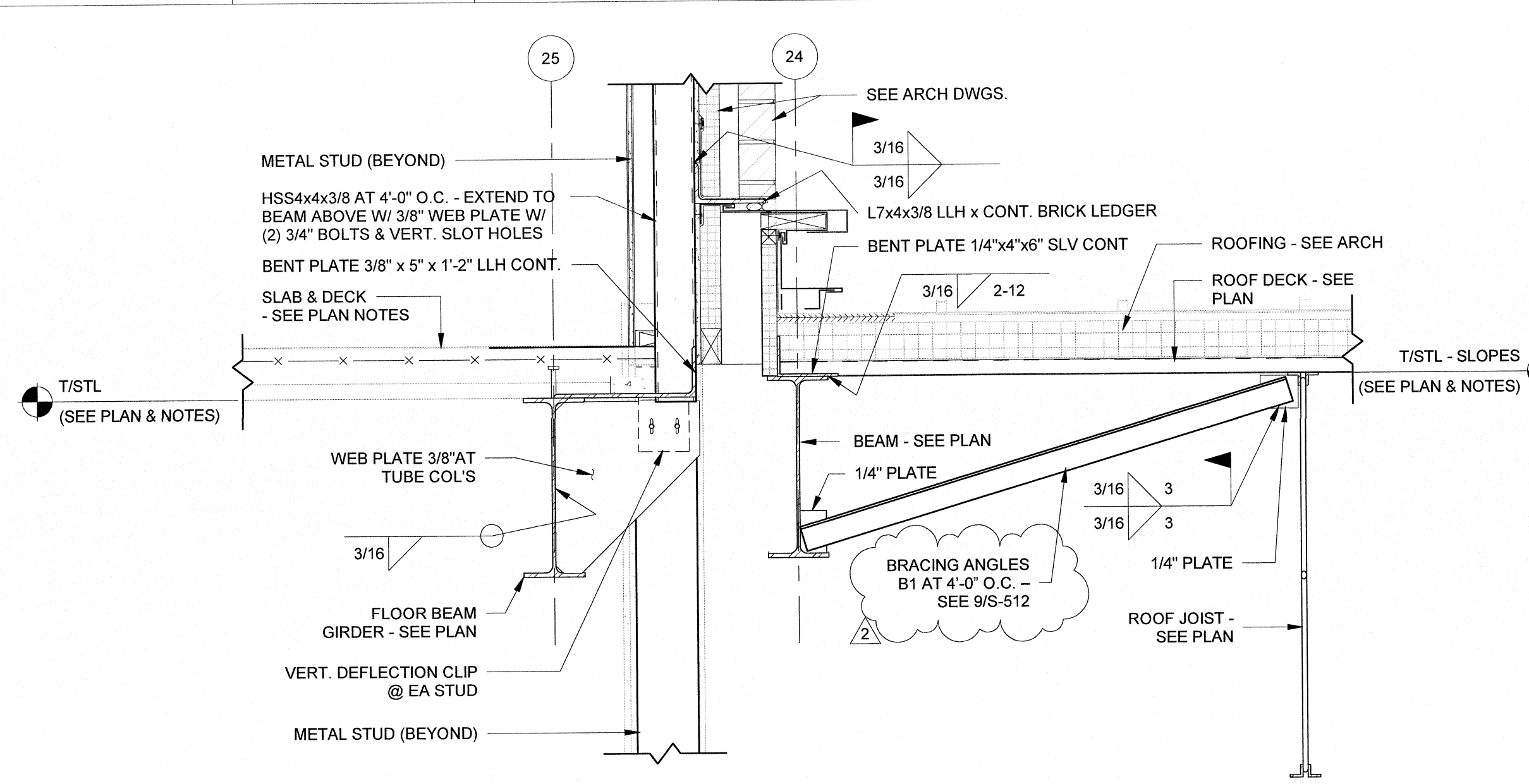
No.	Description	Date
2	Addendum #2	6/19/18

ISSUED: CONSTRUCTION DOCUMENTS
 DATE: 05/24/2018
 SCALE: 1" = 1'-0"
 SHEET NAME: ROOF FRAMING SECTIONS
 SHEET NUMBER:

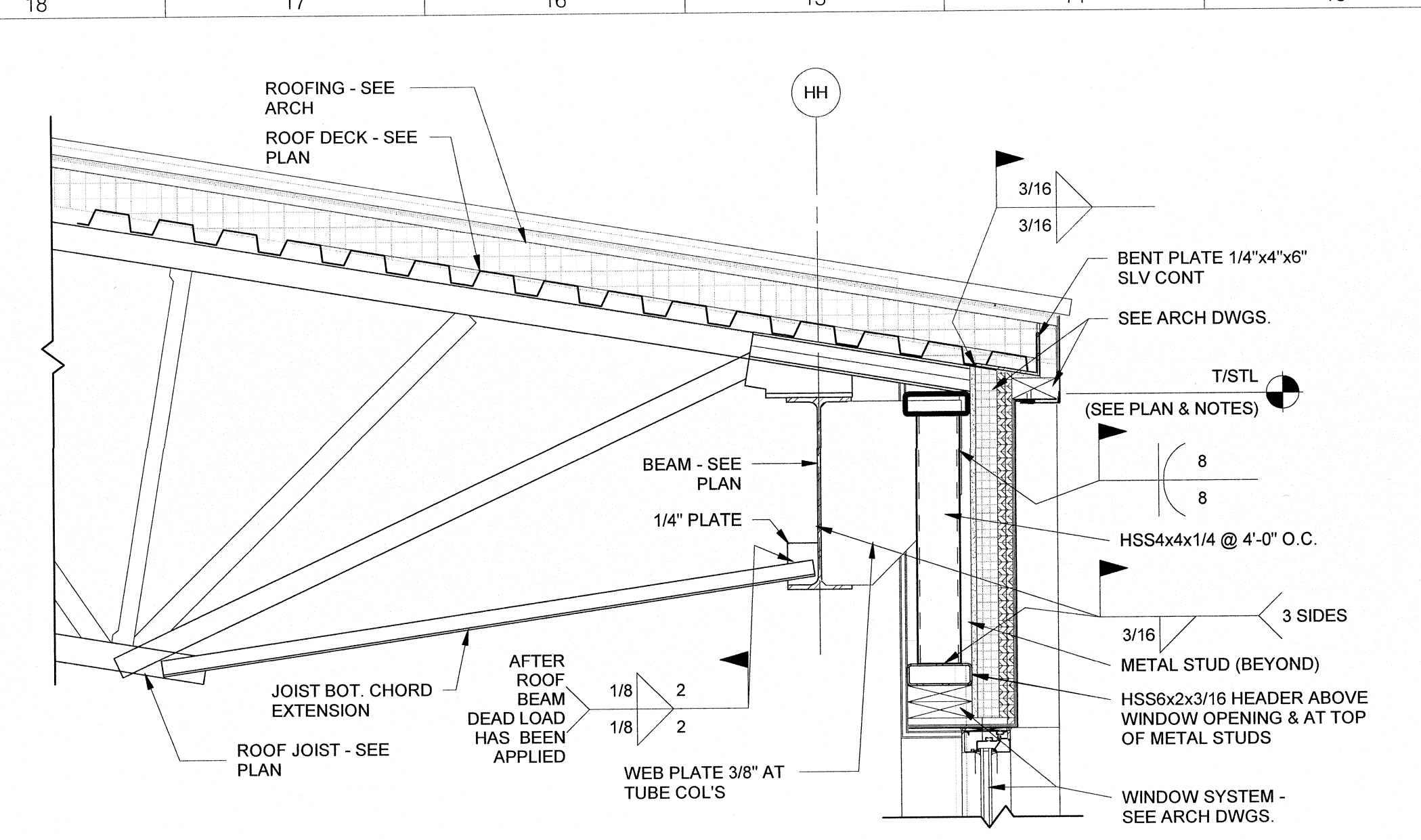
S-511



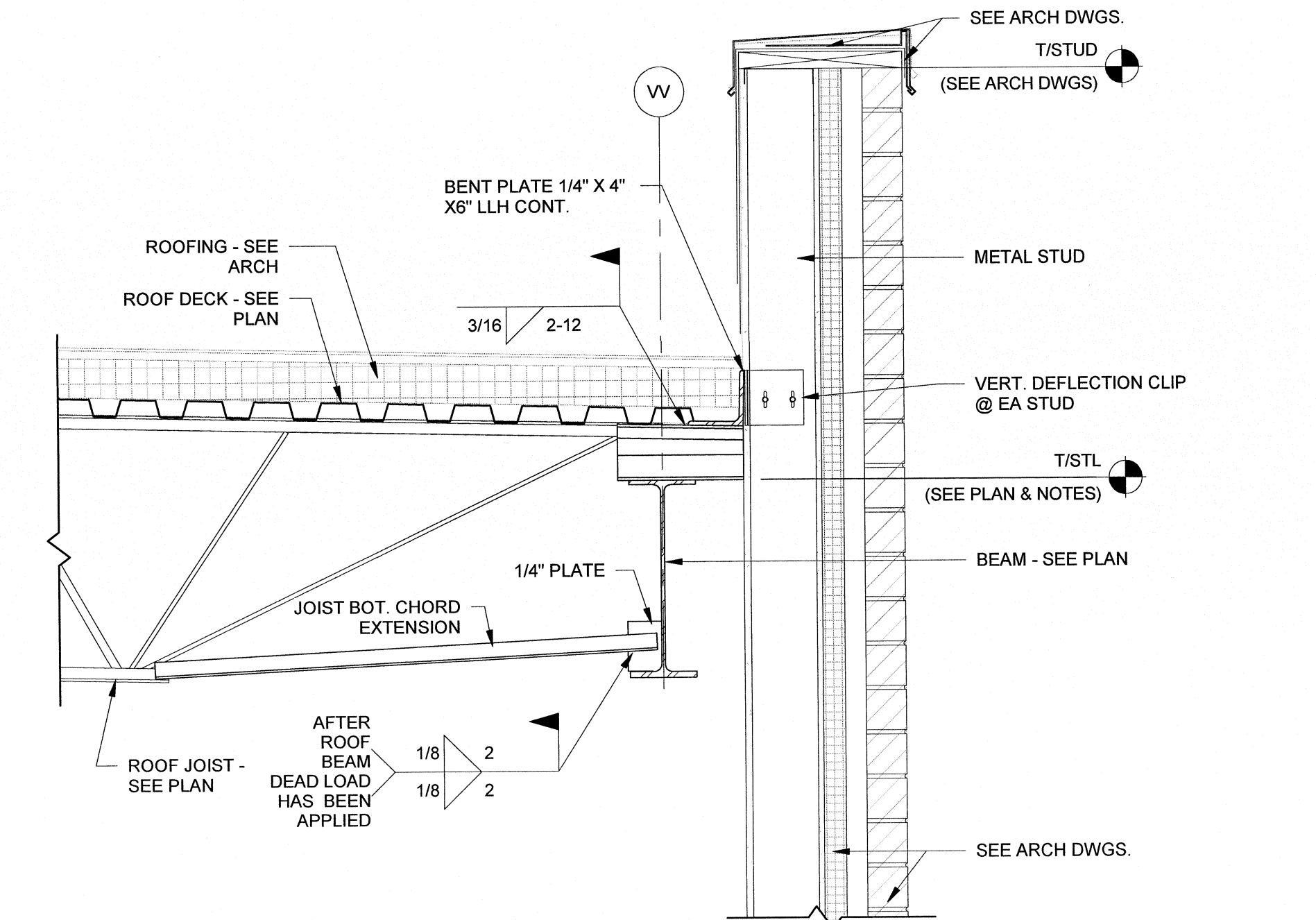
AREA Bs - ROOF FRAMING SECTION - MEDIA EAST AT BRICK LEDGER
 1" = 1'-0" 7



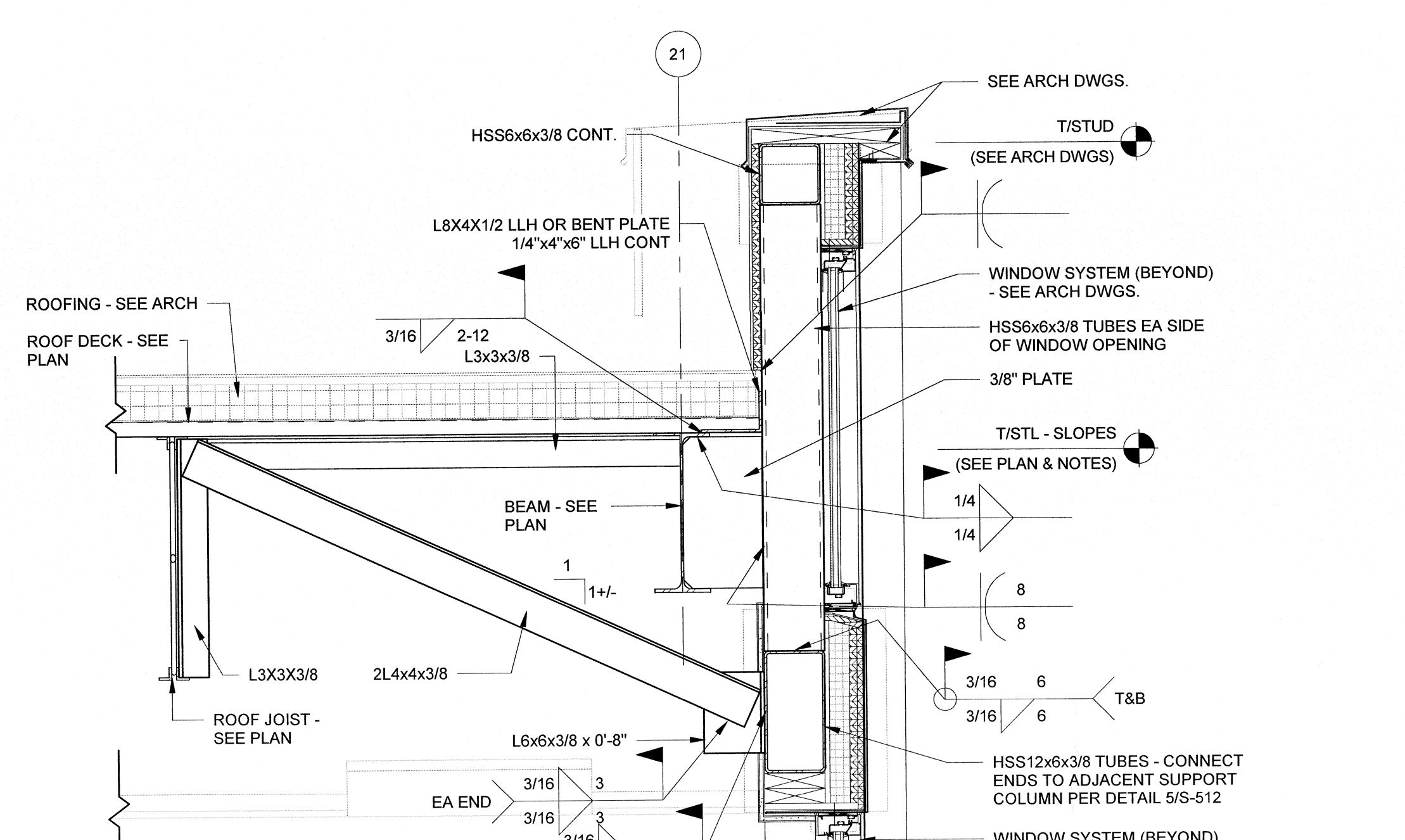
AREA Bs - ROOF FRAMING SECTION - MEDIA SOUTH AT BRICK LEDGER & E.J.
 1" = 1'-0" 8



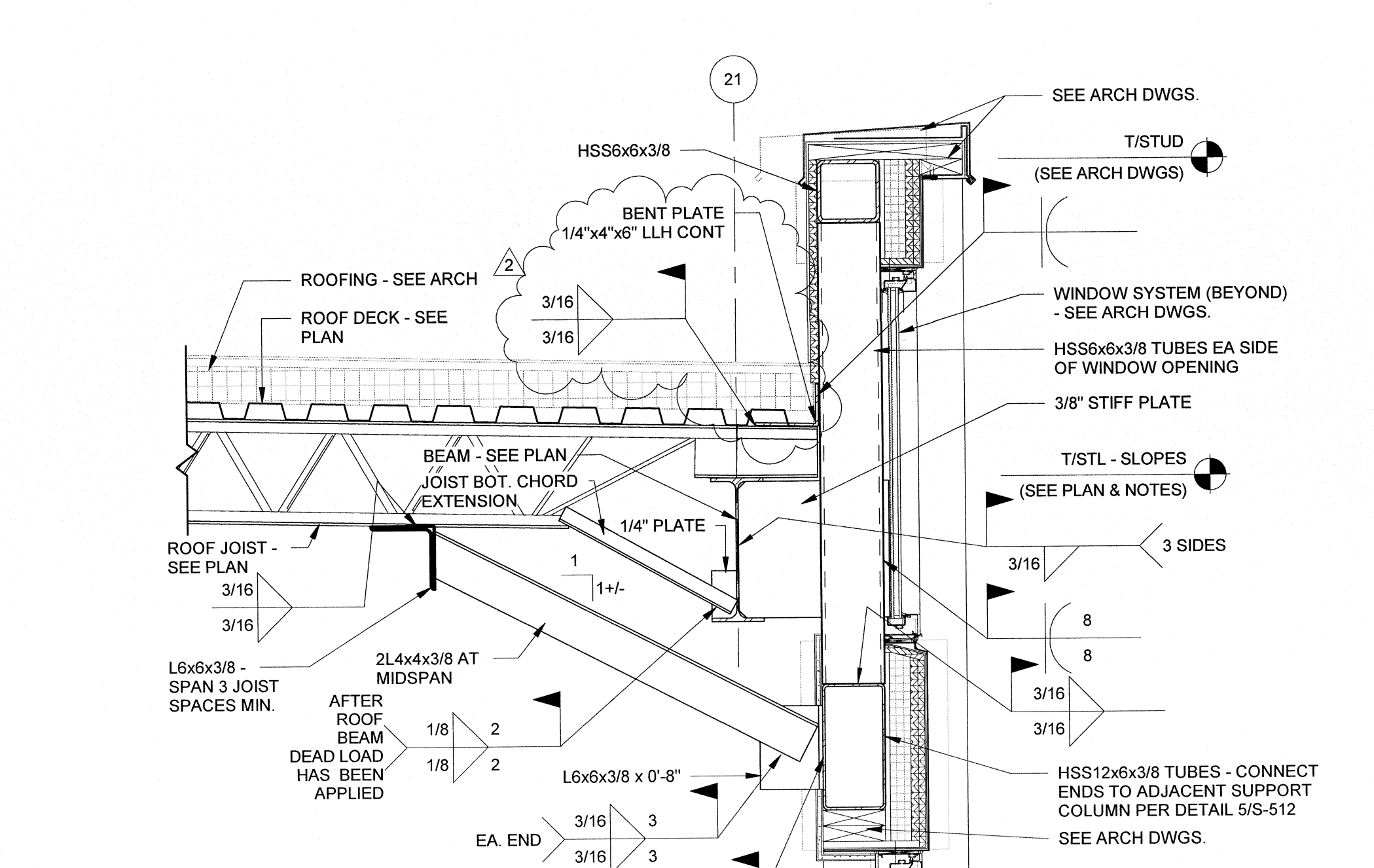
AREA Bs - ROOF FRAMING SECTION - MEDIA SOUTH EAST WALL
 1" = 1'-0" 9



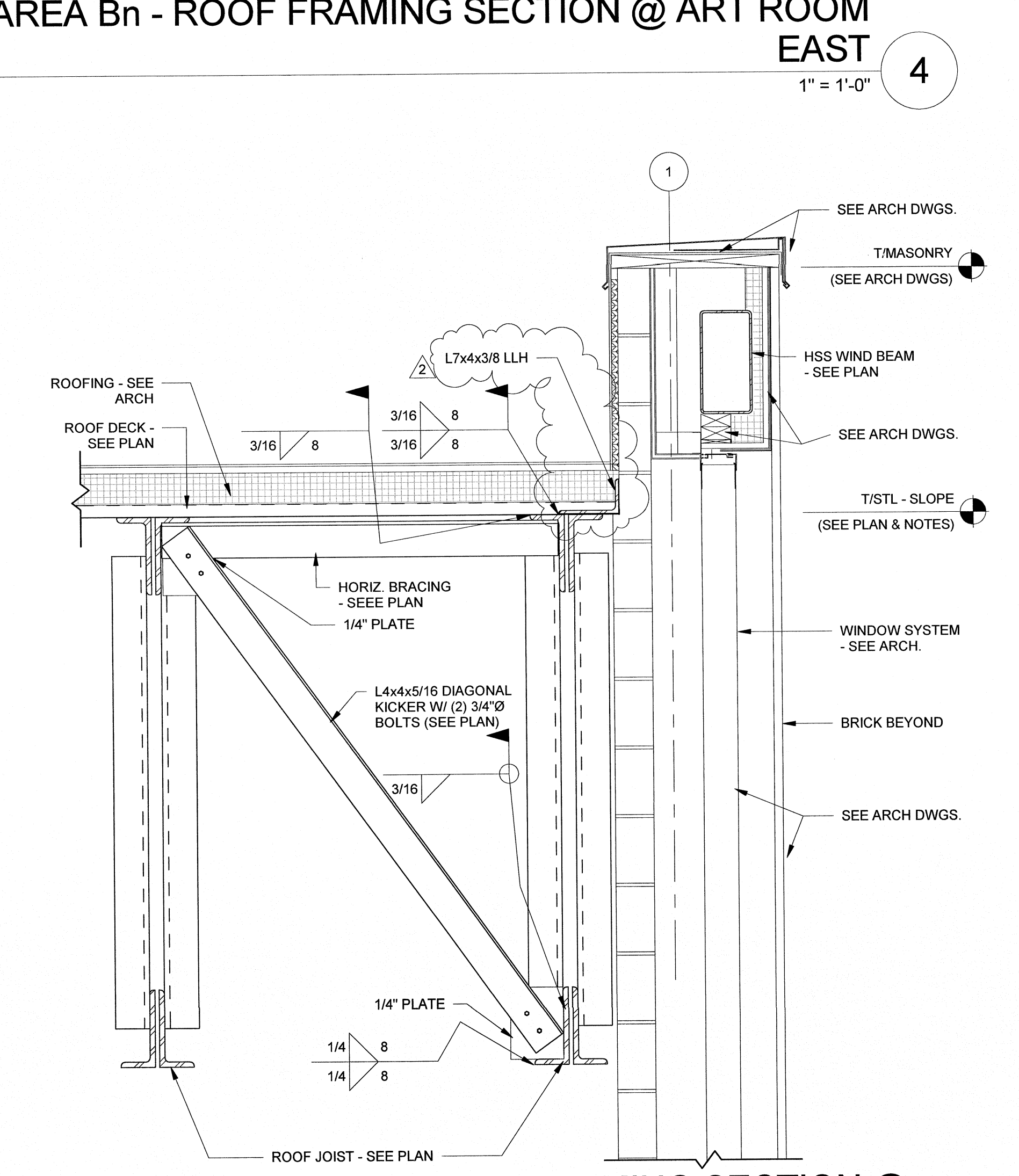
AREA Bn - ROOF FRAMING SECTION @ ART ROOM EAST
 1" = 1'-0" 4



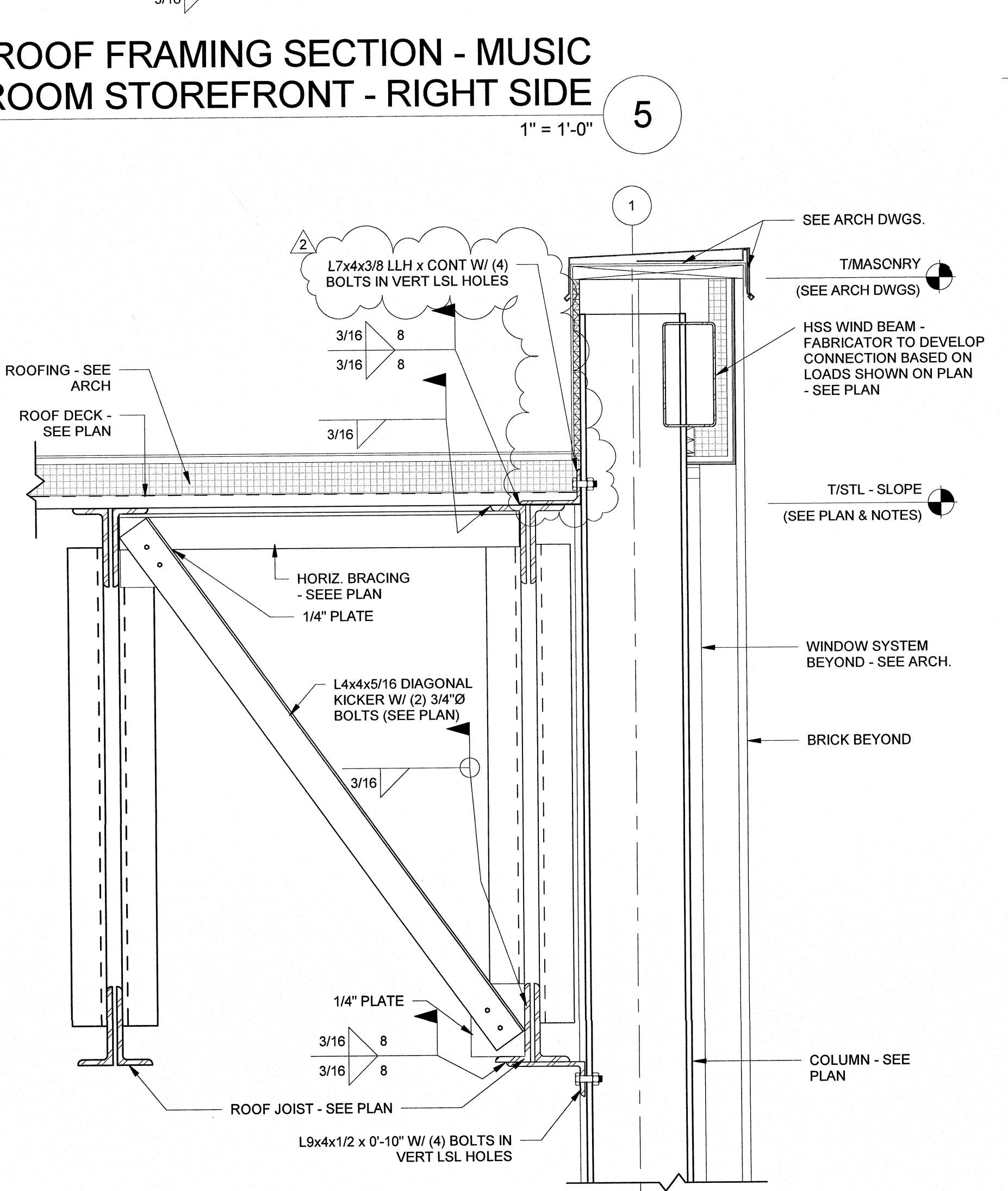
AREA Bs - ROOF FRAMING SECTION - MUSIC ROOM STOREFRONT - RIGHT SIDE
 1" = 1'-0" 5



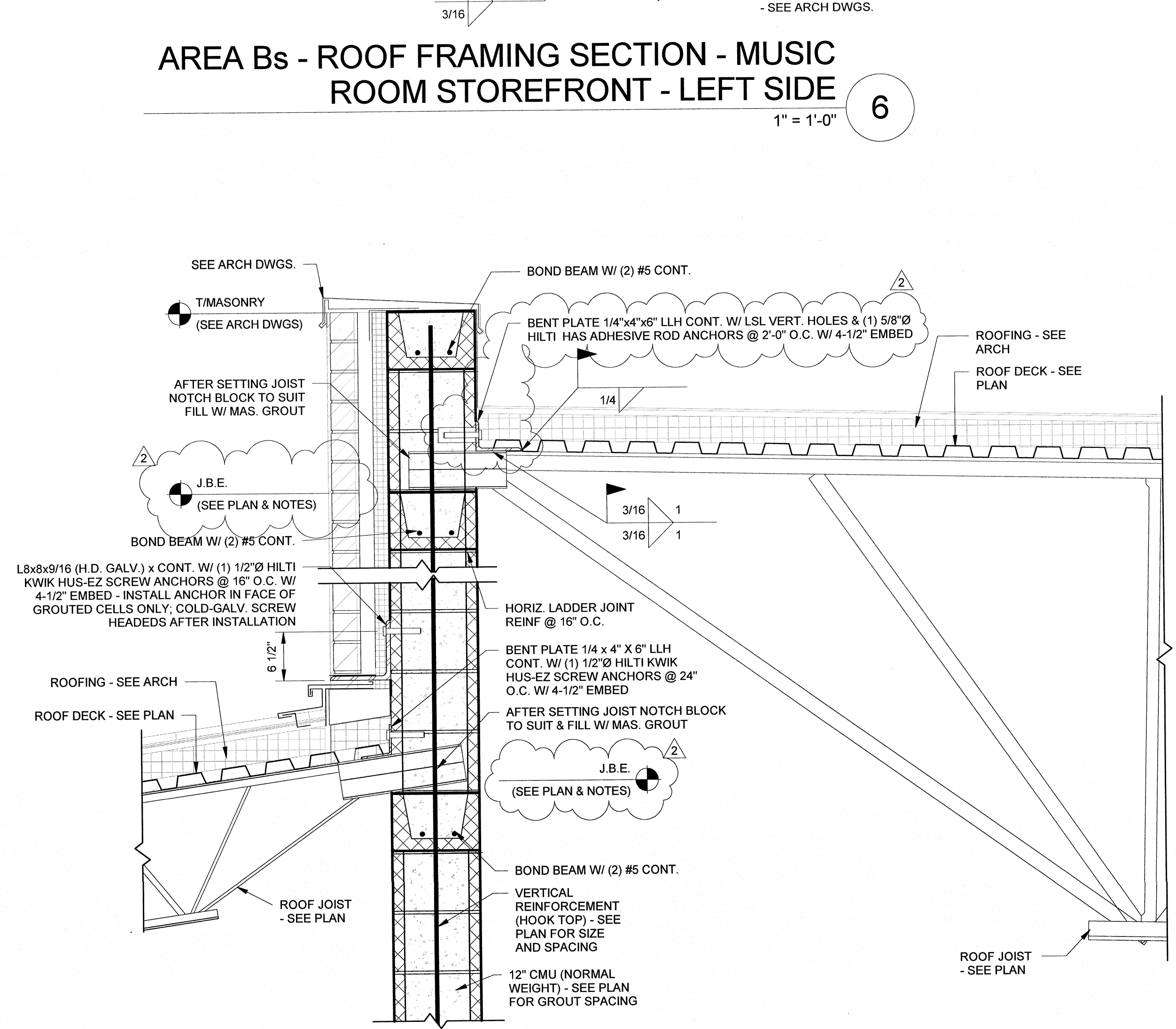
AREA Bs - ROOF FRAMING SECTION - MUSIC ROOM STOREFRONT - LEFT SIDE
 1" = 1'-0" 6



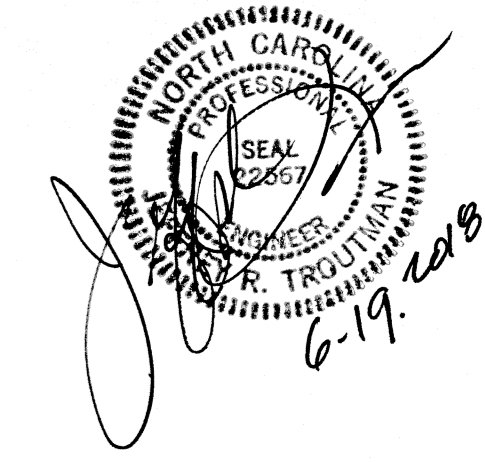
AREA Bn - ROOF FRAMING SECTION @ GYM/LOCKER ROOM LEVEL 3
 1" = 1'-0" 1



AREA Bn - ROOF FRAMING SECTION @ GYM/LOCKER ROOM COLUMN LEVEL 3
 1" = 1'-0" 2

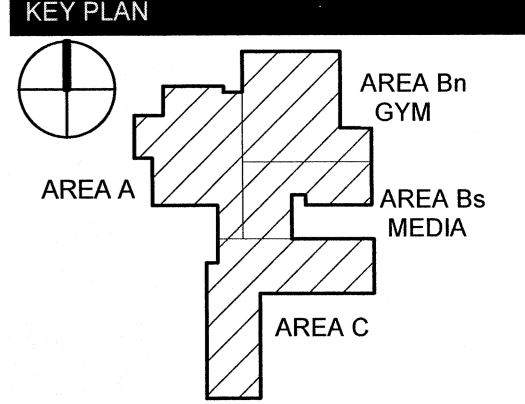


AREA Bn - ROOF FRAMING SECTION - GYM AT BRICK LEDGER
 1" = 1'-0" 3



TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479



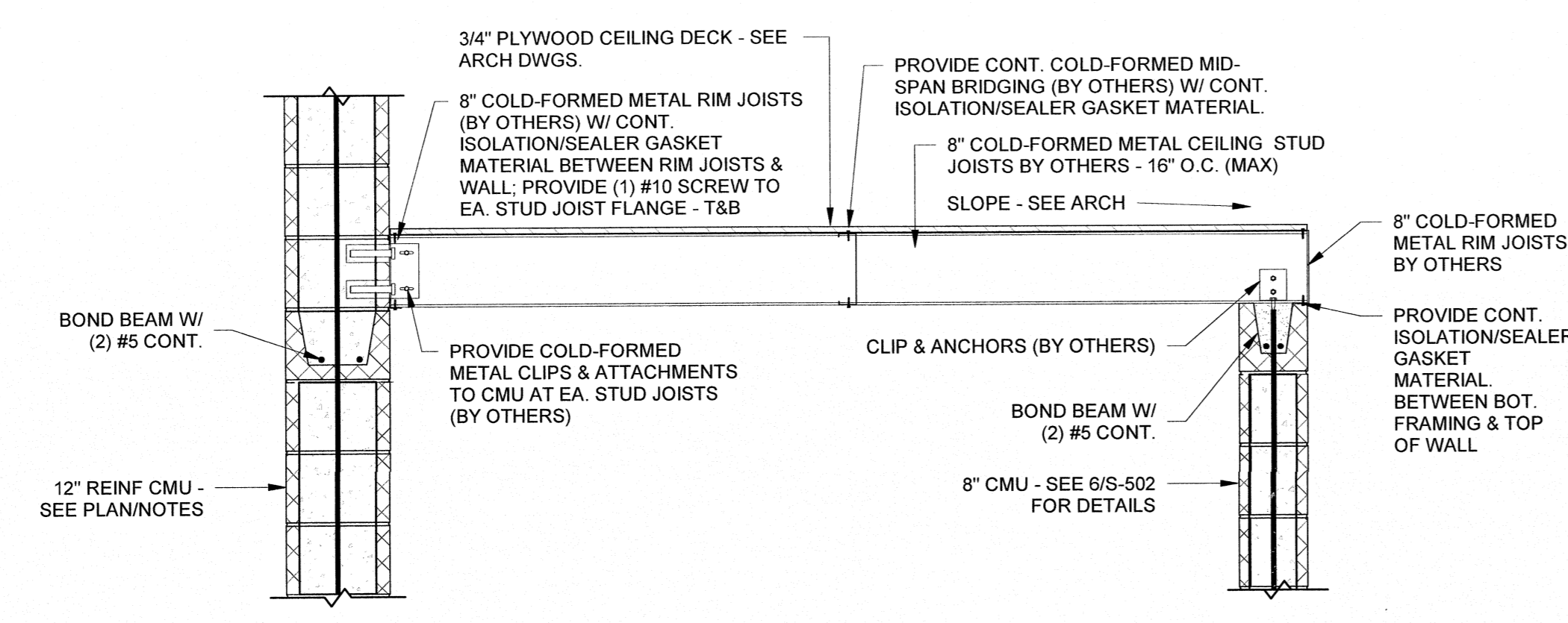
REVISIONS

No.	Description	Date
2	Addendum #2	6/19/18

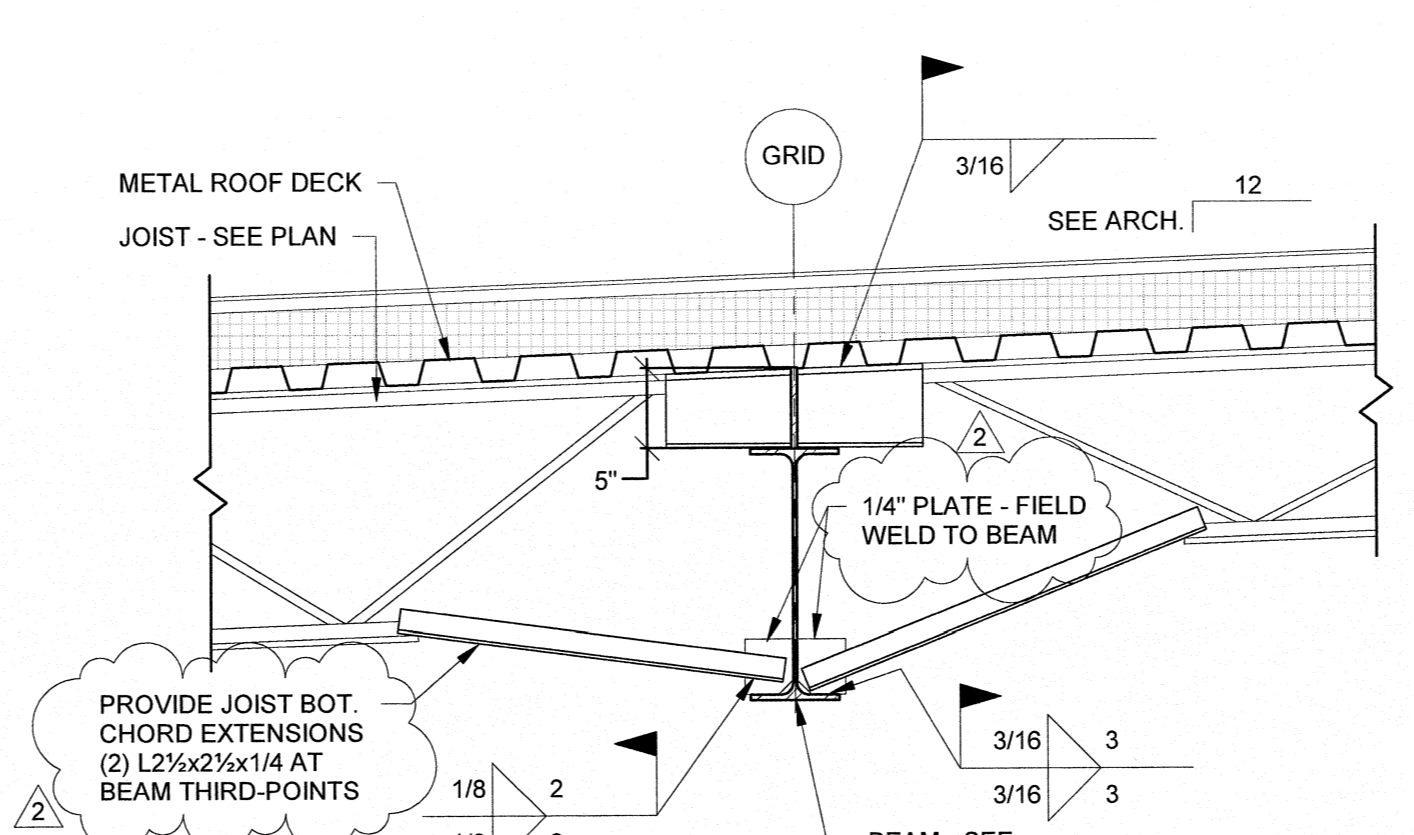
ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: As indicated
SHEET NAME: FRAMING SECTIONS

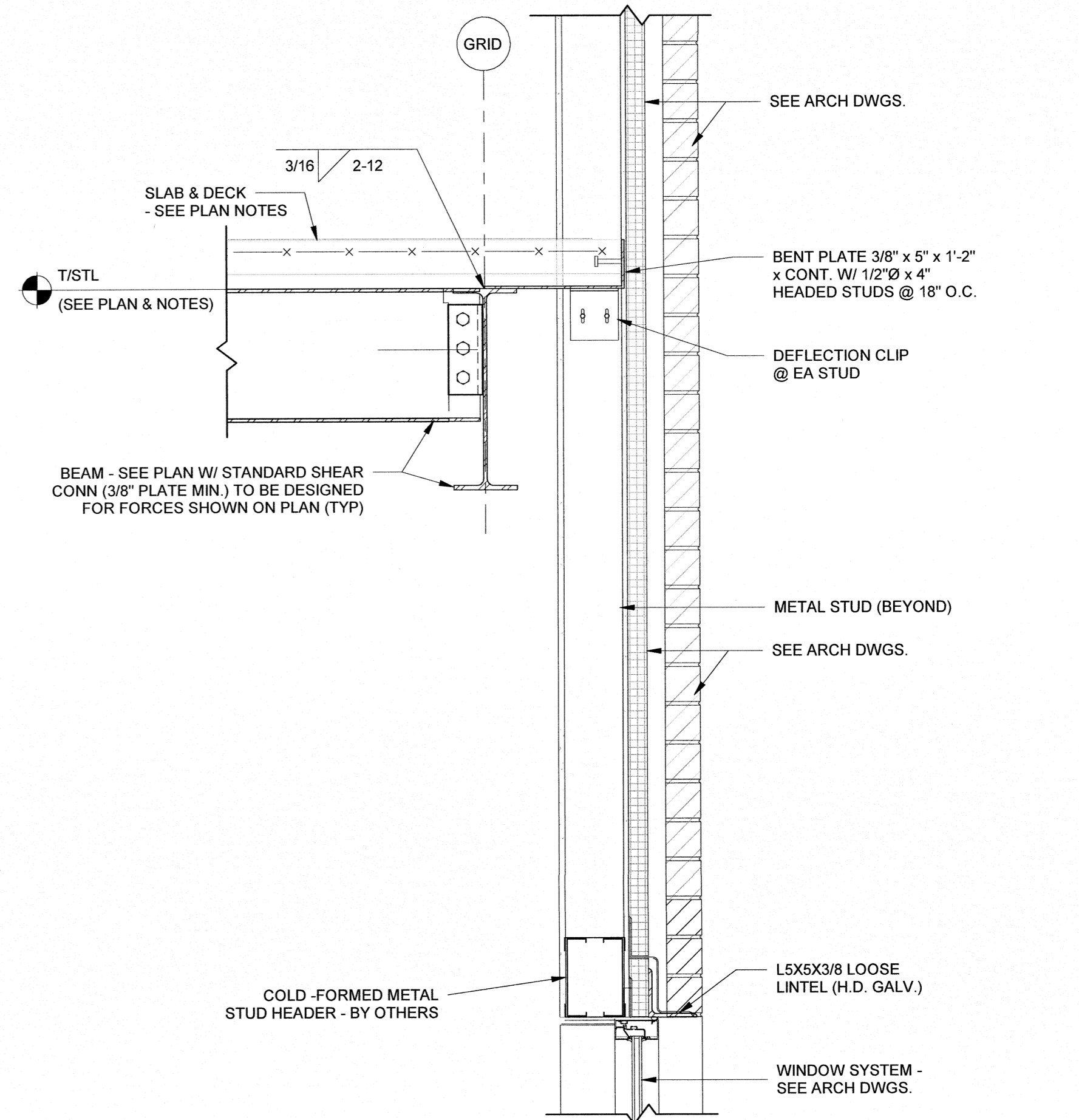
SHEET NUMBER:
S-512



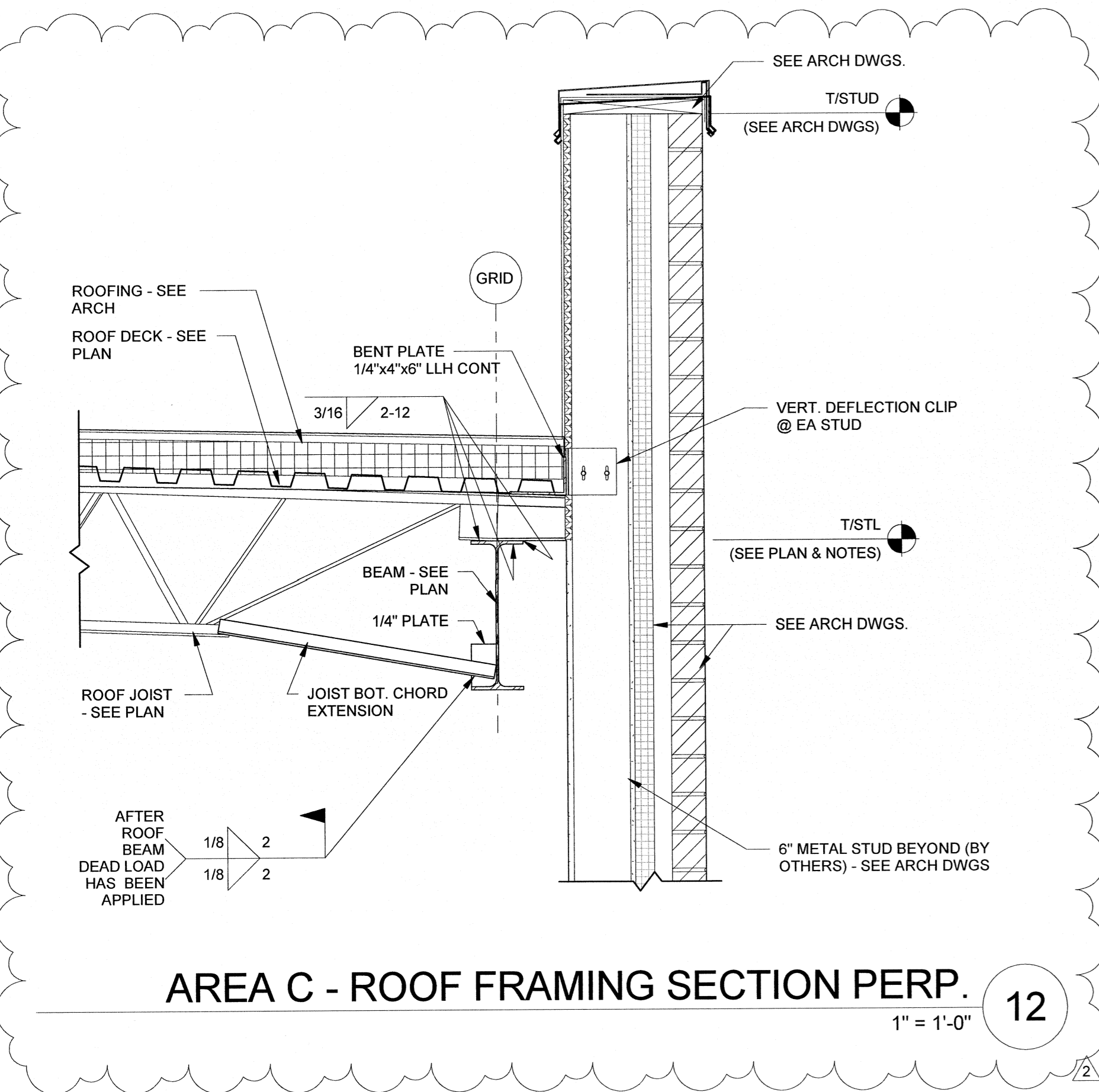
SECTION CONCESSION STAND CEILING FRAMING 11
3/4" = 1'-0"



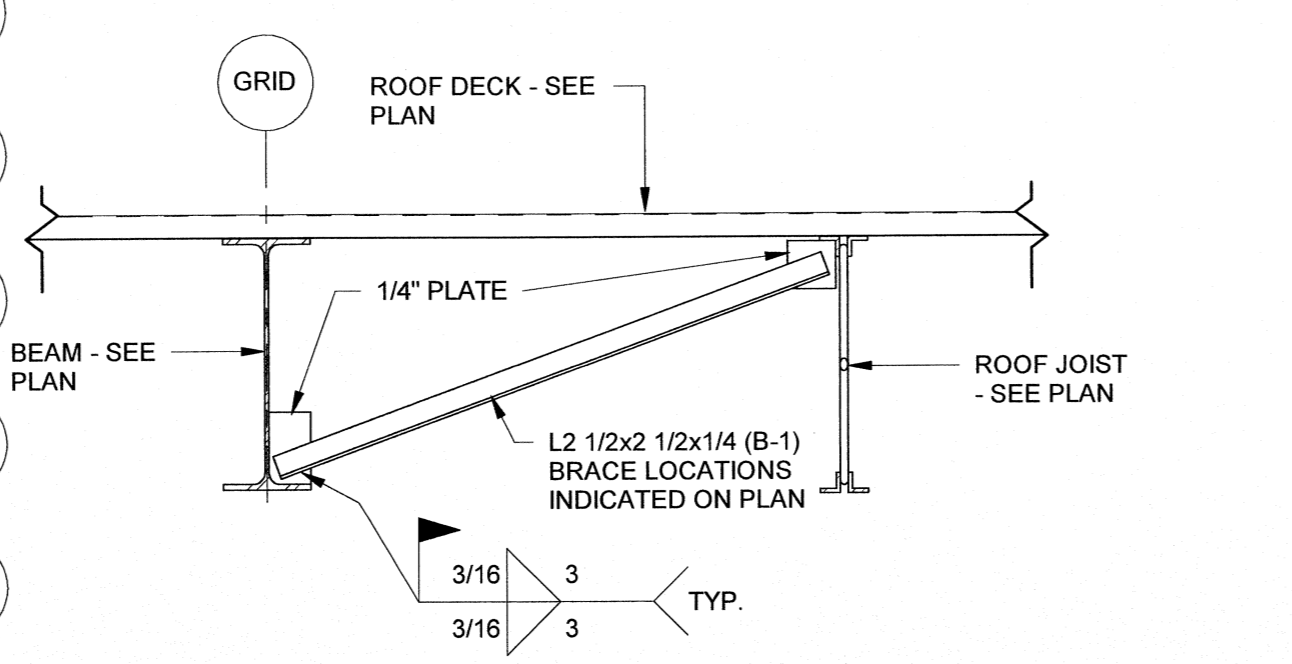
SECTION ROOF JOIST TO BEAM FRAMING 10
1" = 1'-0"



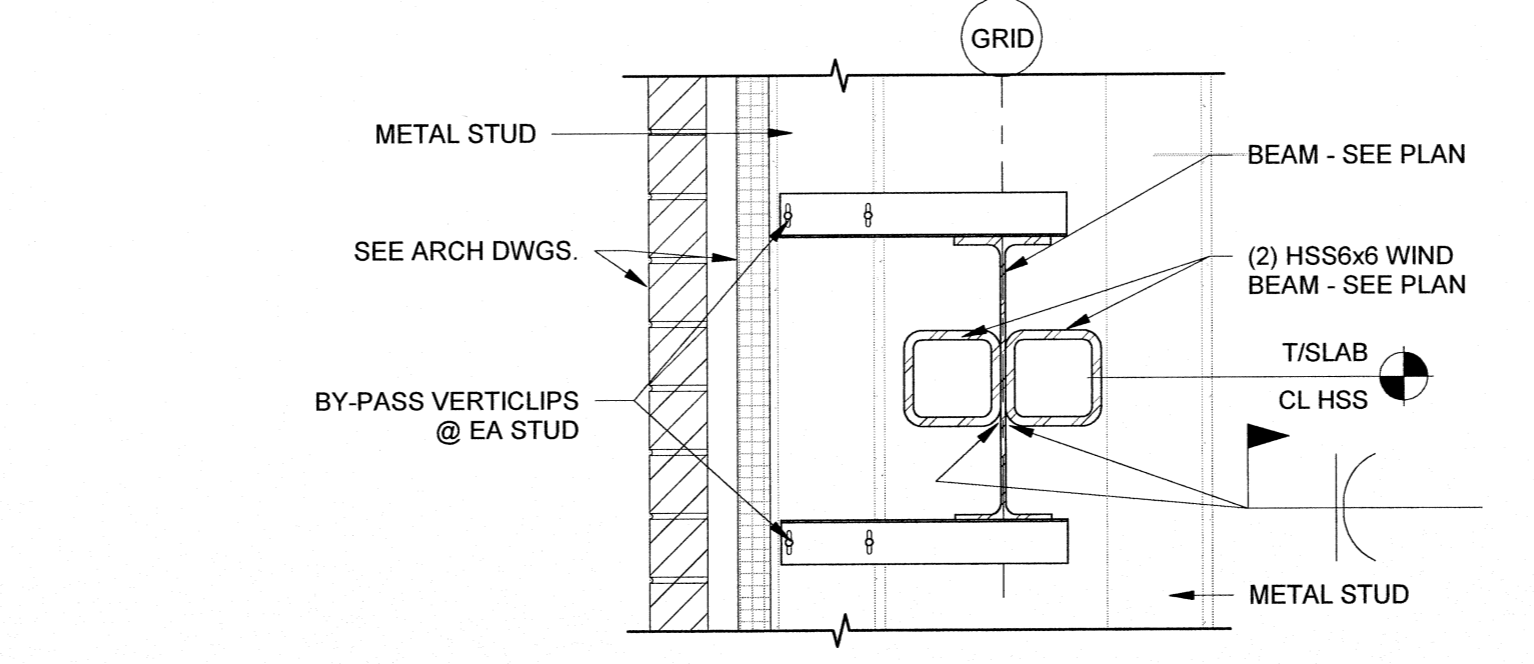
AREA C - FLOOR FRAMING SECTION @ WINDOW LINTEL 5
1" = 1'-0"



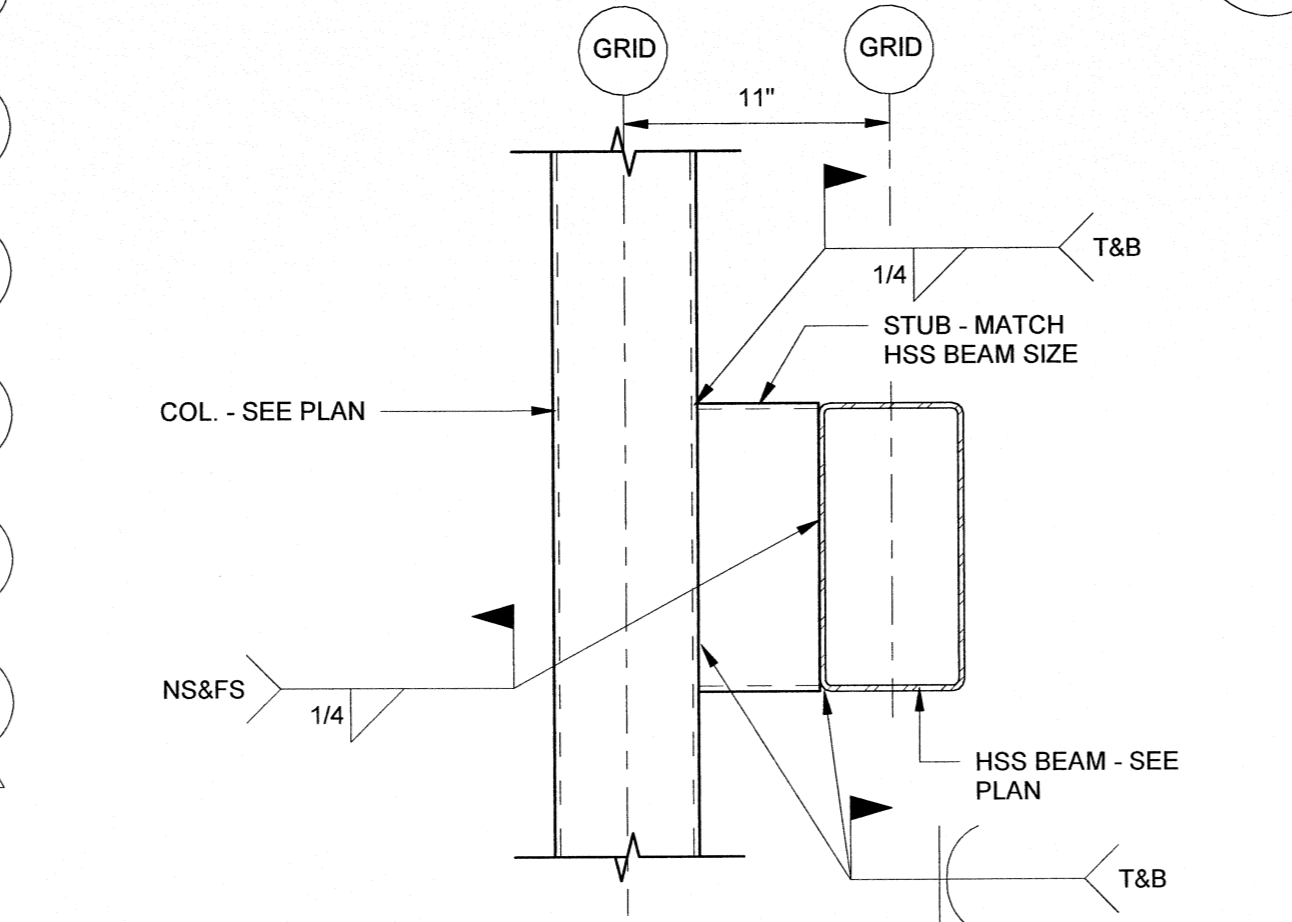
AREA C - ROOF FRAMING SECTION PERP. 12
1" = 1'-0"



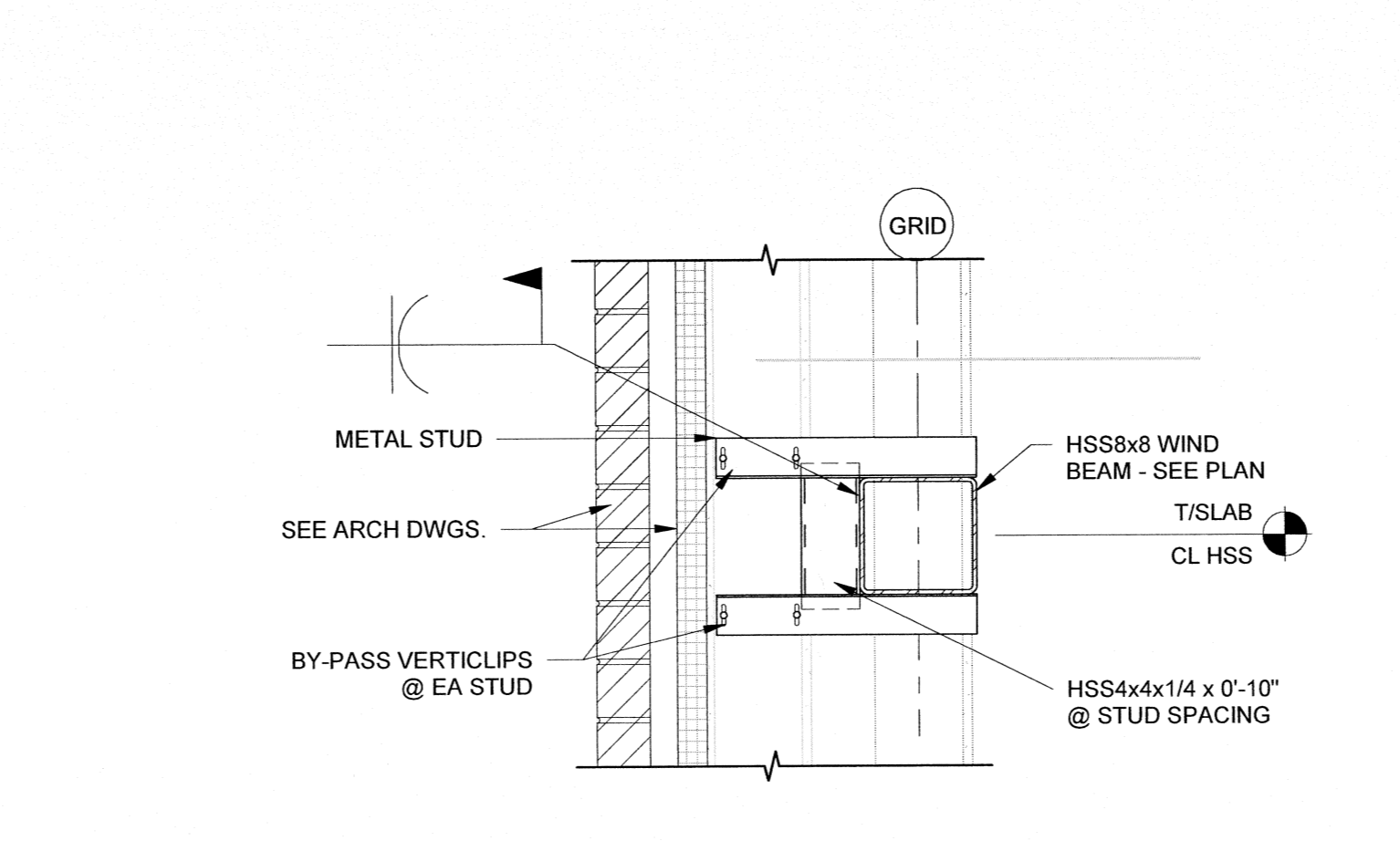
B-1 BOTTOM FLANGE BRACE 9
1" = 1'-0"



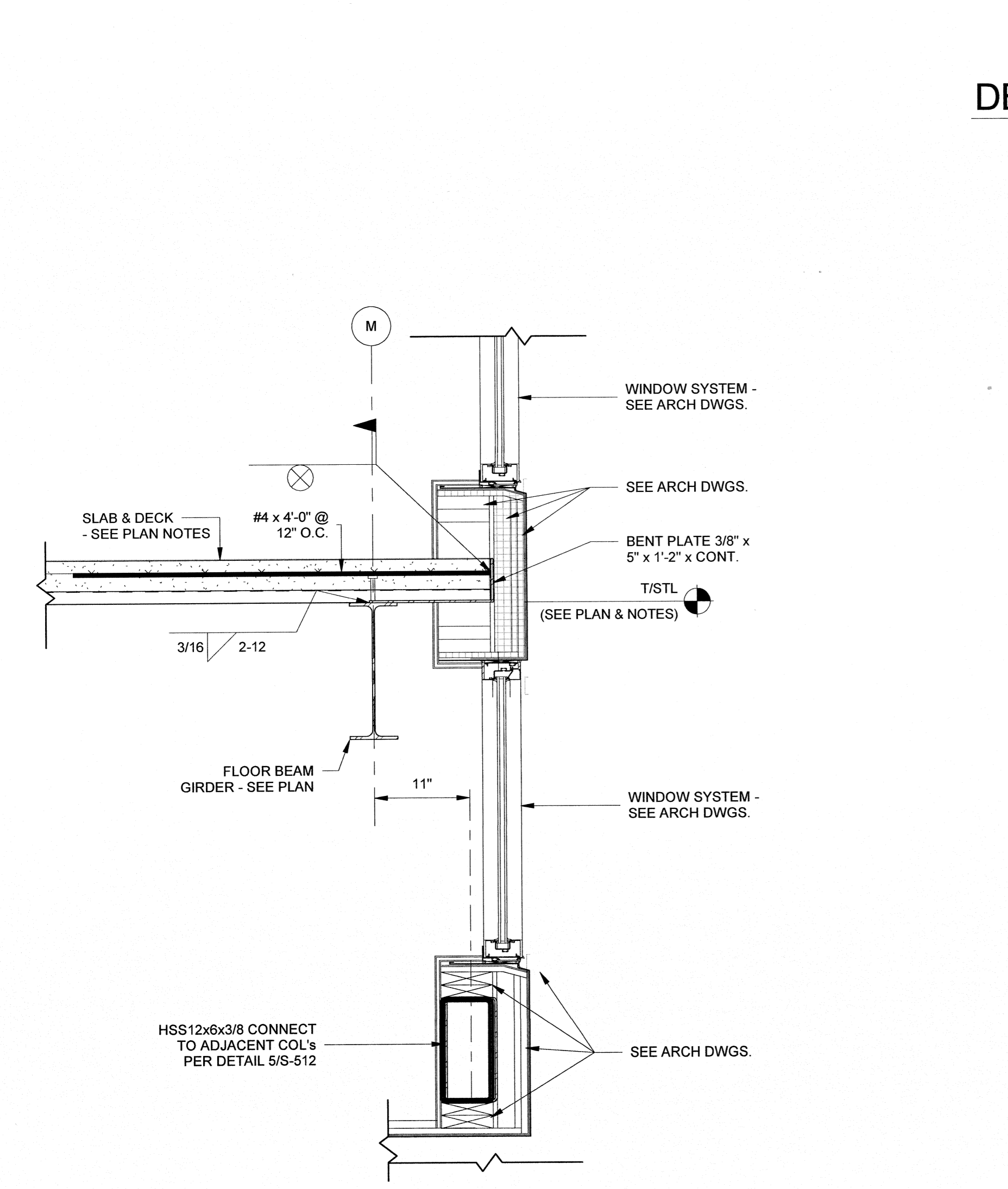
AREA C - STAIRWELLS ALONG GRIDLINE XX & 37 8
1" = 1'-0"



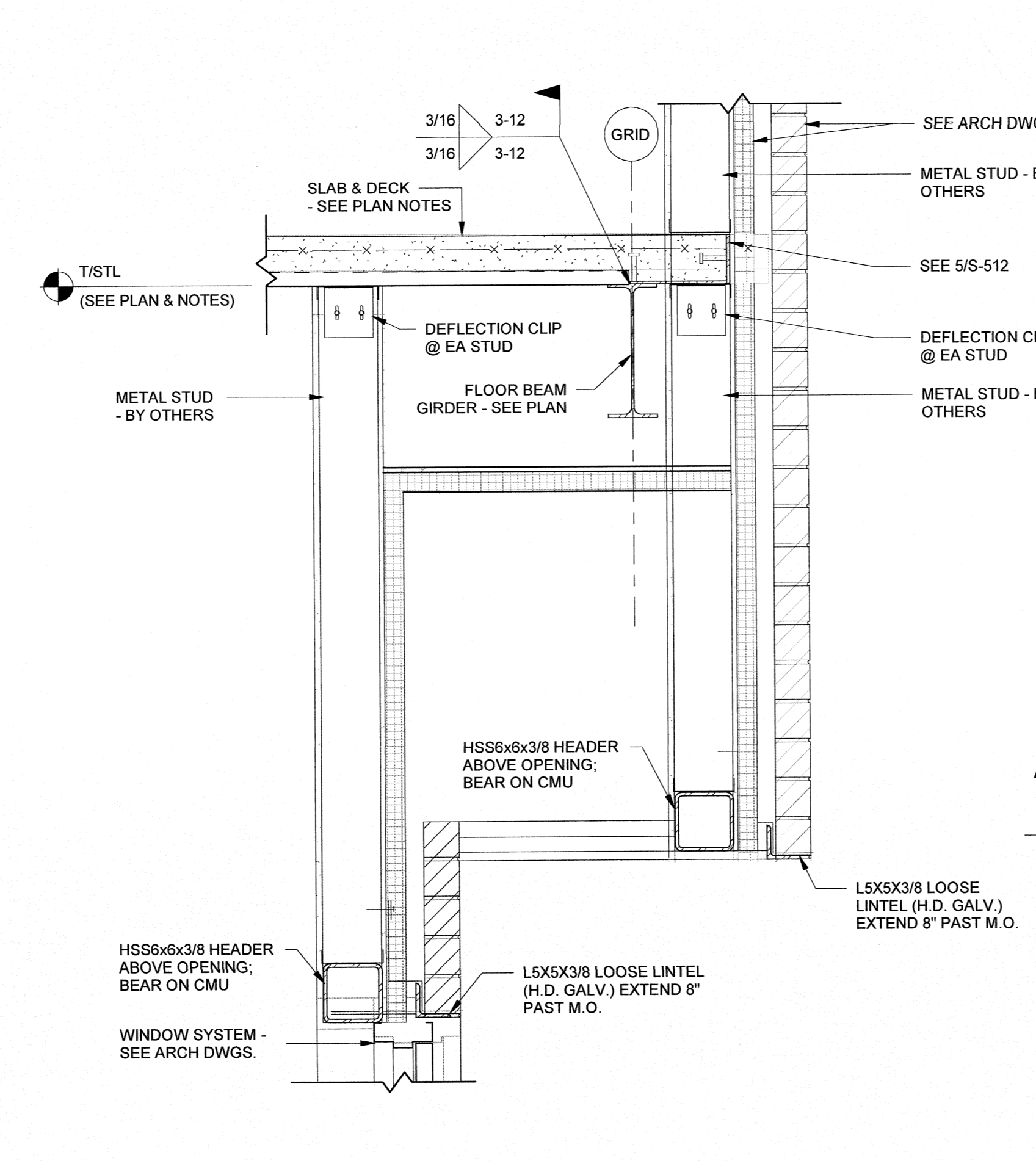
DETAIL - TUBE BEAM TO TUBE COLUMN 7
1 1/2" = 1'-0"



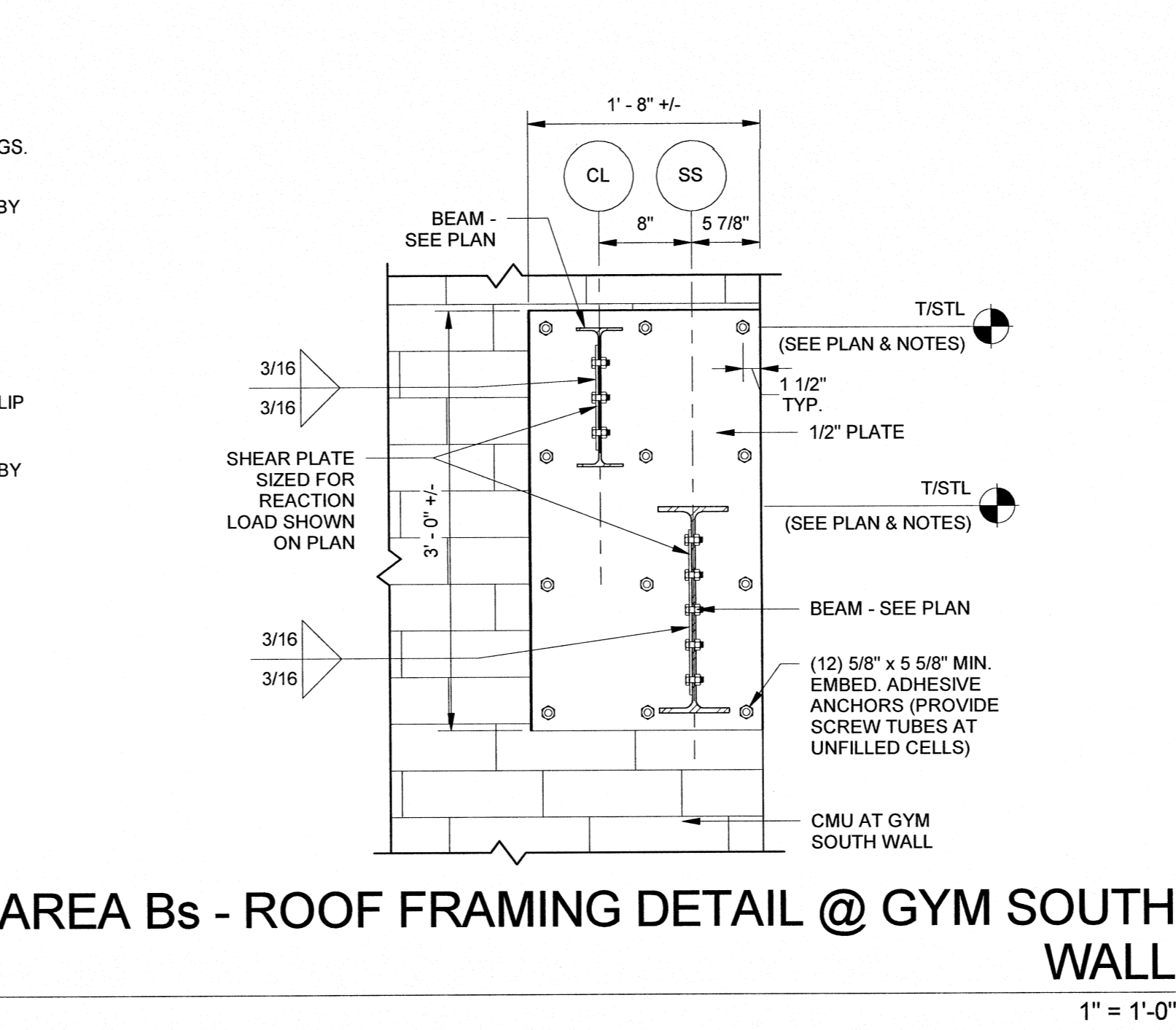
AREA C - STAIRWELLS ALONG GRIDLINE M & 31 6
1" = 1'-0"



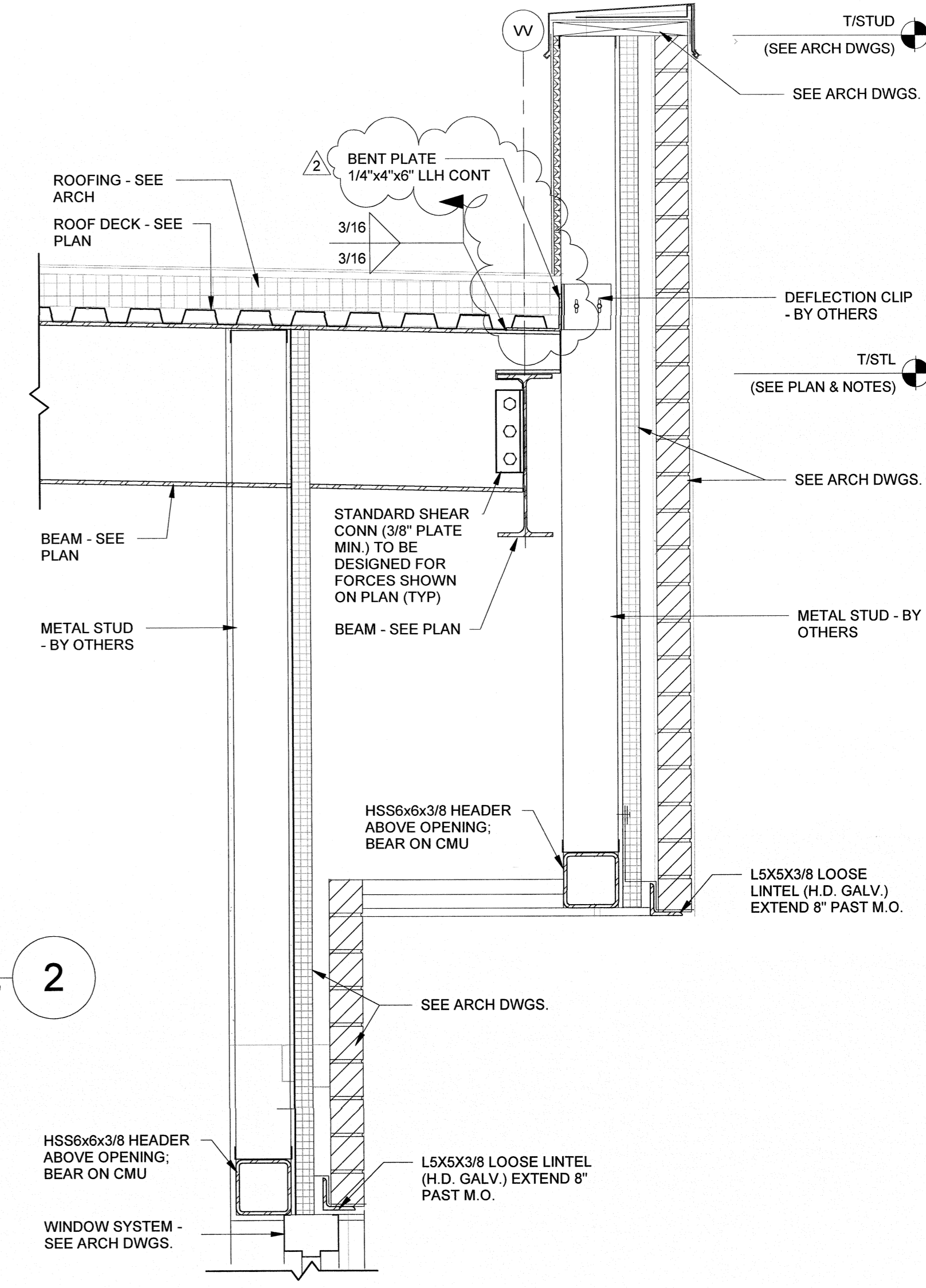
AREA C - FLOOR FRAMING SECTION @ WEST EXIT DOORS 4
1" = 1'-0"



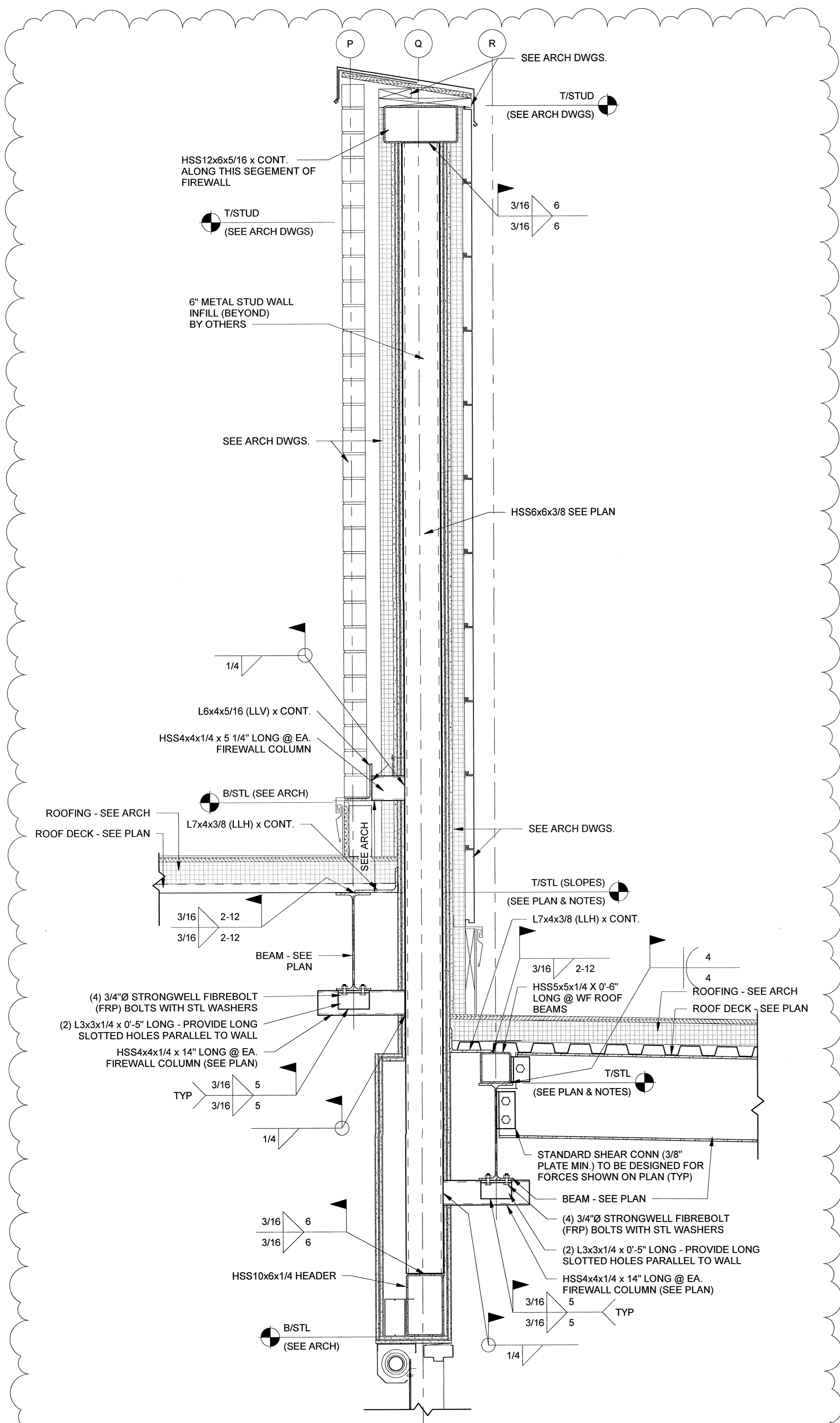
AREA C - FLOOR FRAMING SECTION - EXIT CORRIDOR 3
1" = 1'-0"



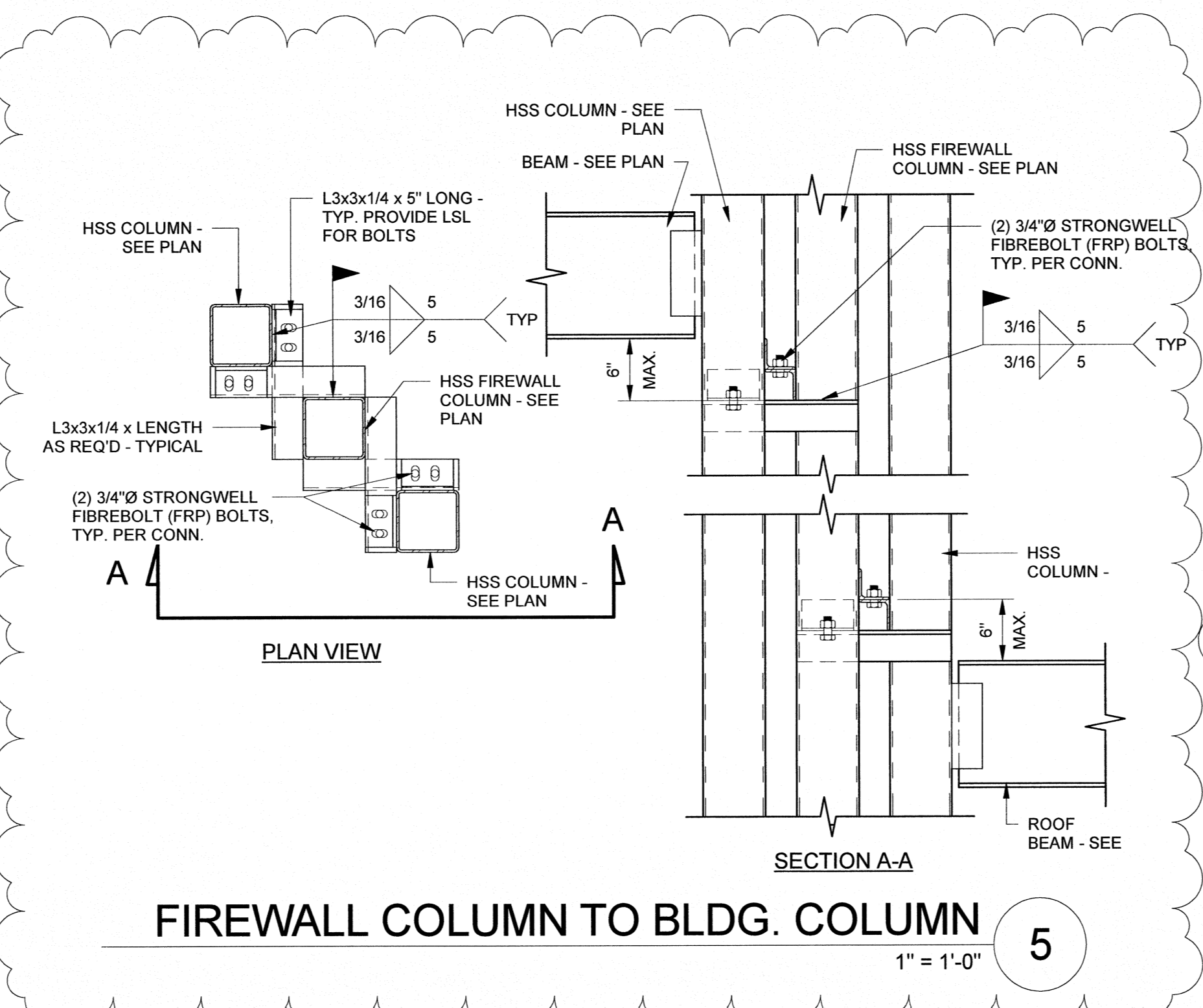
AREA Bs - ROOF FRAMING DETAIL @ GYM SOUTH WALL 2
1" = 1'-0"



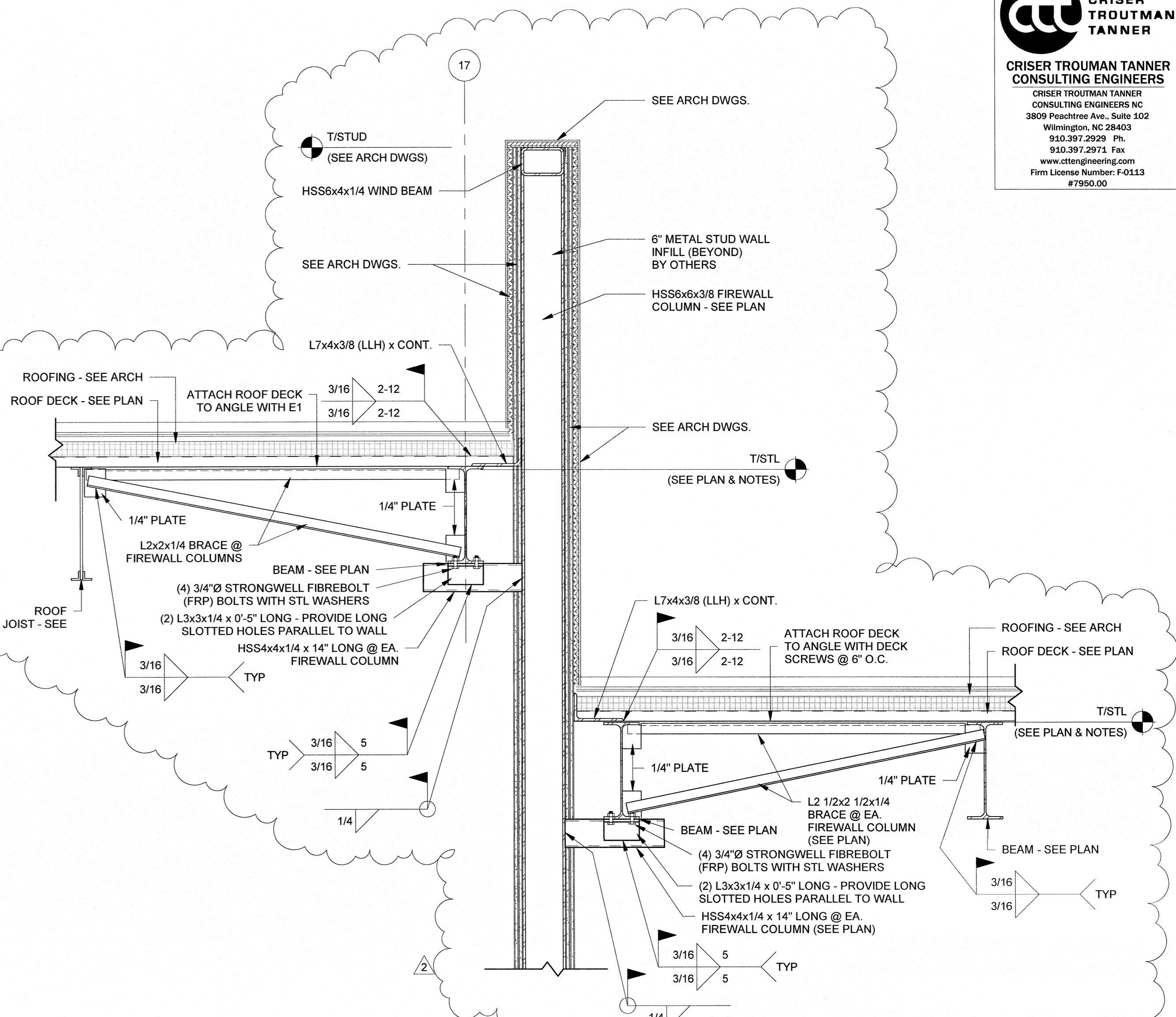
AREA Bs - ROOF FRAMING SECTION - MUSIC EAST EXIT CORRIDOR 1
1" = 1'-0"



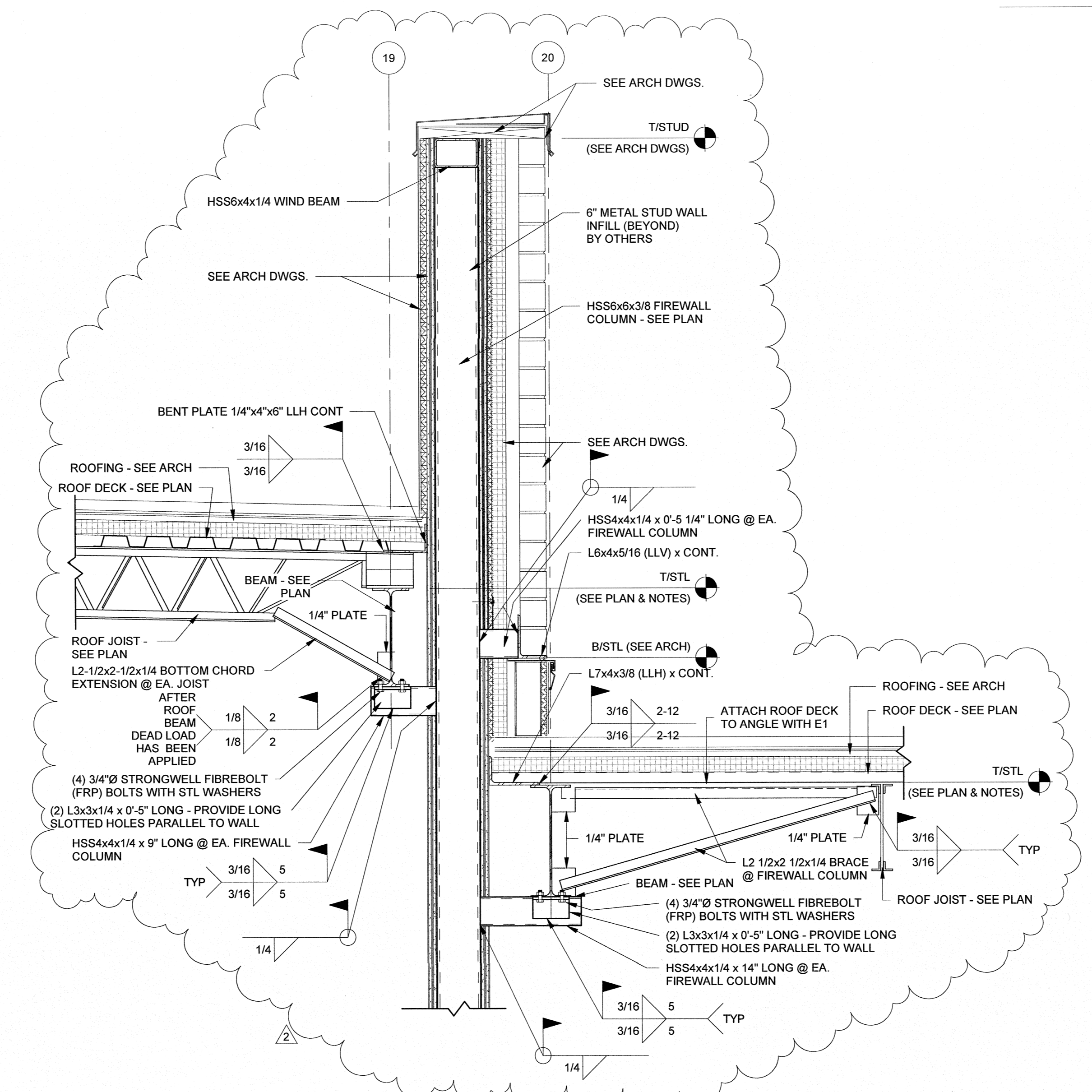
AREA A - ROOF FRAMING SECTION @ FIRE WALL
1" = 1'-0" 4



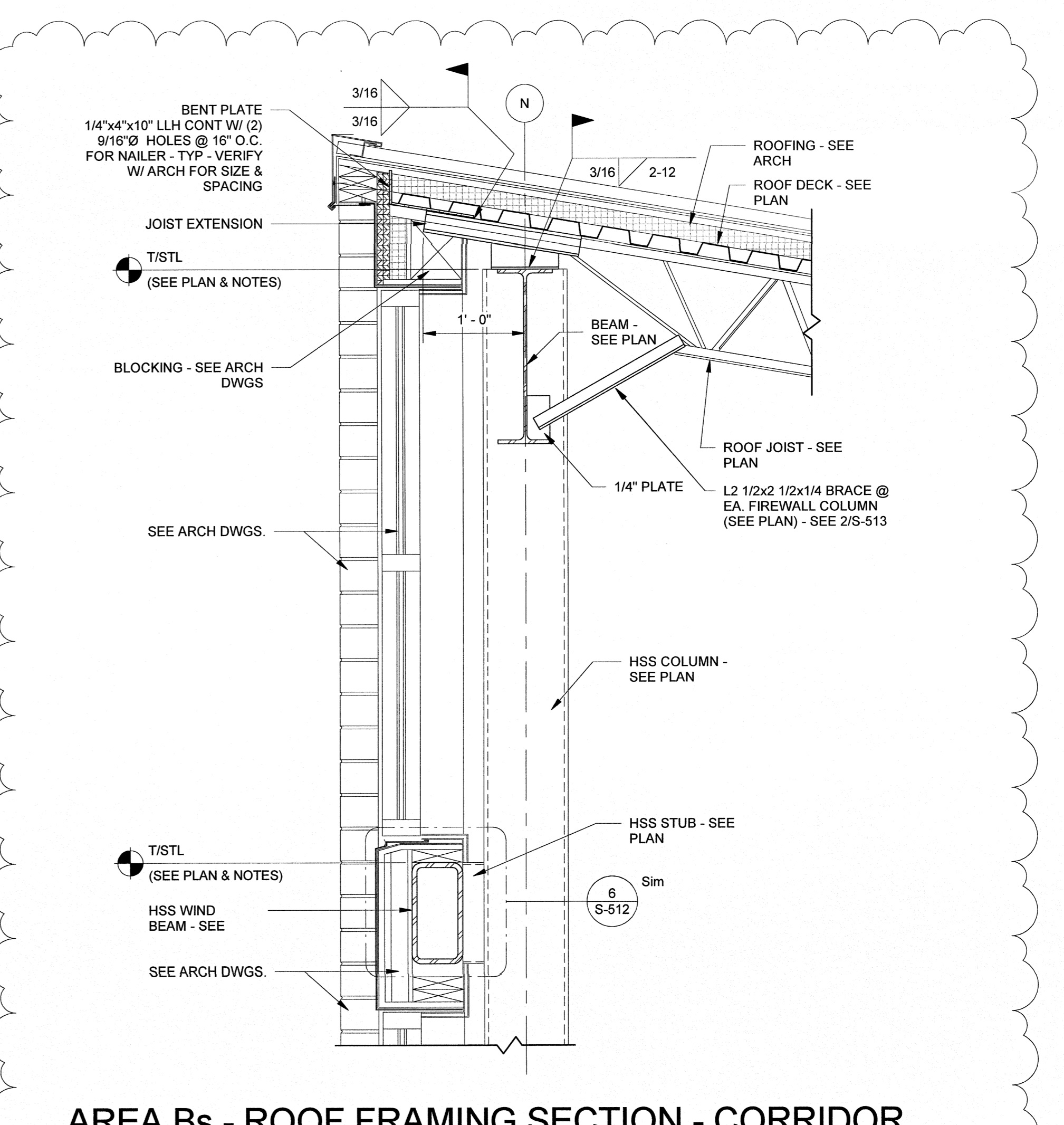
FIREWALL COLUMN TO BLDG. COLUMN
1" = 1'-0" 5



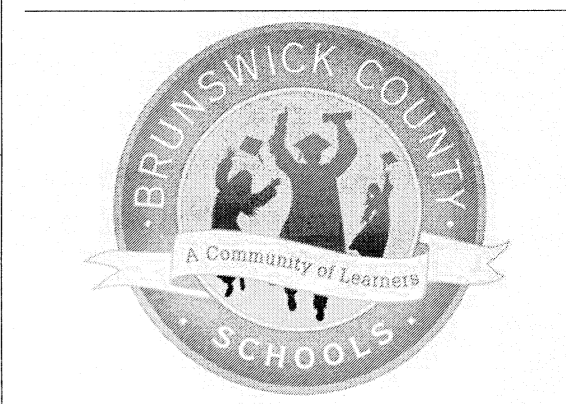
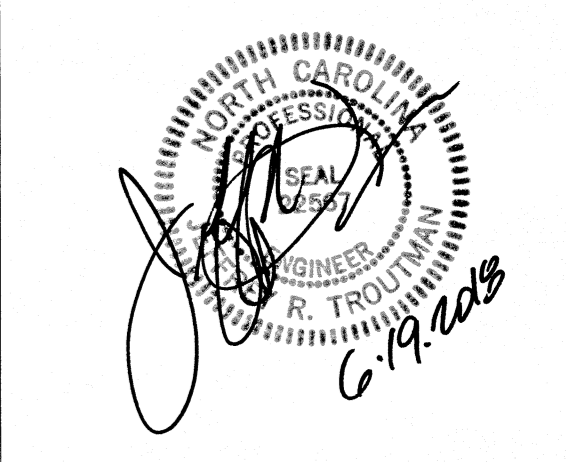
AREA Bs - ROOF FRAMING SECTION @ FIRE WALL - MEDIA
1" = 1'-0" 3



AREA Bs - ROOF FRAMING SECTION @ FIRE WALL
1" = 1'-0" 2

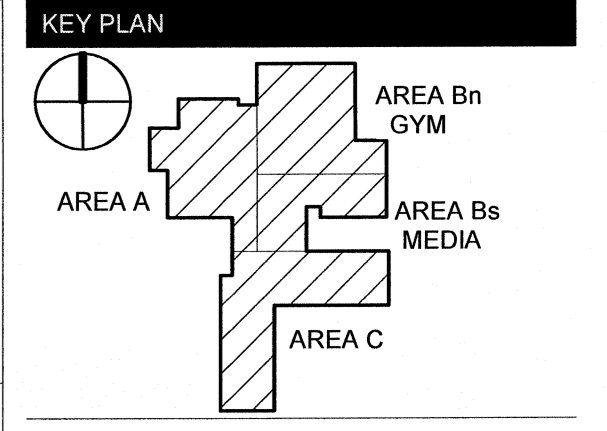


AREA Bs - ROOF FRAMING SECTION - CORRIDOR WEST WALL
1" = 1'-0" 1



TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE SE
WINNABOW, NC 28479

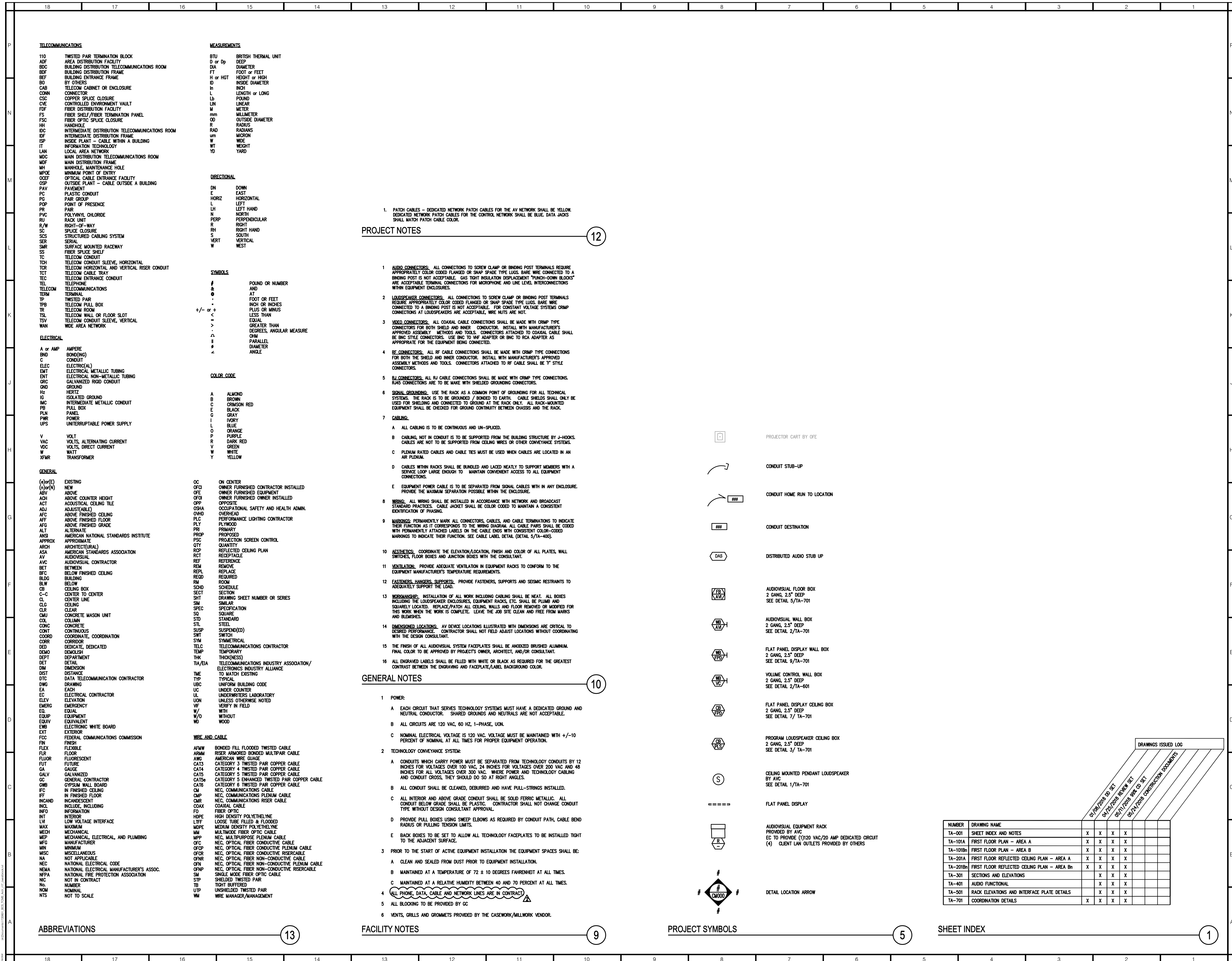


REVISIONS

No.	Description	Date
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ISSUED: CONSTRUCTION DOCUMENTS
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SCALE: 1" = 1'-0"
SHEET NAME: ROOF FRAMING SECTIONS
SHEET NUMBER:

S-513



TELECOMMUNICATIONS

110 TWISTED PAIR TERMINATION BLOCK
ADF AREA DISTRIBUTION FACILITY
BDC BUILDING DISTRIBUTION TELECOMMUNICATIONS ROOM
BDF BUILDING DISTRIBUTION FRAME
BEF BUILDING ENTRANCE FRAME
BO BY OTHERS
CAB TELECOM CABINET OR ENCLOSURE
CONN CONNECTOR
CSC COPPER SPLICE CLOSURE
CUE CONTROLLED ENVIRONMENT VAULT
FDF FIBER DISTRIBUTION FACILITY
FS FIBER SHELF/FIBER TERMINATION PANEL
FSC FIBER OPTIC SPLICE CLOSURE
HH HANDHOLE
IDC INTERMEDIATE DISTRIBUTION TELECOMMUNICATIONS ROOM
IDF INTERMEDIATE DISTRIBUTION FRAME
ISP INSIDE PLANT - CABLE WITHIN A BUILDING
IT INFORMATION TECHNOLOGY
LAN LOCAL AREA NETWORK
MDC MAIN DISTRIBUTION TELECOMMUNICATIONS ROOM
MDF MAIN DISTRIBUTION FRAME
MH MANHOLE, MAINTENANCE HOLE
MPOE MINIMUM POINT OF ENTRY
OCEF OPTICAL CABLE ENTRANCE FACILITY
OSP OUTSIDE PLANT - CABLE OUTSIDE A BUILDING
PAV PAVEMENT
PC PLASTIC CONDUIT
PG PAIR GROUP
POP POINT OF PRESENCE
PR PAIR
PVC POLYVINYL CHLORIDE
RU RACK UNIT
R/W RIGHT-OF-WAY
SC SPLICE CLOSURE
SCS STRUCTURED CABLING SYSTEM
SER SERIAL
SMR SURFACE MOUNTED RACEWAY
SS SS
TC TELECOM CONDUIT SLEEVE, HORIZONTAL
TCR TELECOM HORIZONTAL AND VERTICAL RISER CONDUIT
TCT TELECOM CABLE TRAY
TEC TELECOM ENTRANCE CONDUIT
TEL TELEPHONE
TELECOM TELECOMMUNICATIONS
TERM TERMINAL
TP TWISTED PAIR
TPB TELECOM PULL BOX
TR TELECOM TRAY
TSL TELECOM WALL OR FLOOR SLOT
TSV TELECOM CONDUIT SLEEVE, VERTICAL
WAN WIDE AREA NETWORK

ELECTRICAL

A or amp AMPERE
BND BOND(ING)
C CONDUIT
ELEC ELECTRICAL
EMT ELECTRICAL METALLIC TUBING
ENT ELECTRICAL NON-METALLIC TUBING
GRD GROUND
Hz HERTZ
IG ISOLATED GROUND
IMC INTERMEDIATE METALLIC CONDUIT
PB PULL BOX
PLN PANEL
PWR POWER
UPS UNINTERRUPTIBLE POWER SUPPLY

V VOLT
VAC VOLTS, ALTERNATING CURRENT
VDC VOLTS, DIRECT CURRENT
W WATT
XTRM TRANSFORMER

GENERAL

(X) or (E) EXISTING
(X) or (N) NEW
ABV ABOVE
ACH ABOVE COUNTER HEIGHT
ACT ACoustical CEILING TILE
ADJ ADJUSTABLE
AFC ABOVE FINISHED CEILING
AFF ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
ALT ALTERNATE
ANS AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX APPROXIMATE
ARCH ARCHITECTURAL
ASA AMERICAN STANDARDS ASSOCIATION
AV AUDIOVISUAL
AVC AUDIOVISUAL CONTRACTOR
BET BETWEEN
BFC BELOW FINISHED CEILING
BLDG BUILDING
BLW BELOW
CB CEILING BOX
C-C CENTER TO CENTER
CL CENTER LINE
CLG CEILING
CLR CLEAR
CMU CONCRETE MASON UNIT
COL COLUMN
CONC CONCRETE
CONT CONTINUOUS
COORD COORDINATE, COORDINATION
CORR CORRIDOR
DED DEDICATE, DEDICATED
DEMO DEMOLISH
DEPT DEPARTMENT
DET DETAIL
DIM DIMENSION
DST DISTANCE
DTC DATA TELECOMMUNICATION CONTRACTOR
DWG DRAWING
EA EACH
EC ELECTRICAL CONTRACTOR
ELEV ELEVATION
EMERG EMERGENCY
EQ EQUAL
EQUIP EQUIPMENT
EQUIV EQUIVALENT
EWB ELECTRONIC WHITE BOARD
EXT EXTERIOR
FCC FEDERAL COMMUNICATIONS COMMISSION
FIN FINISH
FLX FLEXIBLE
FLR FLOOR
FLUOR FLUORESCENT
FUT FUTURE
GA GAUGE
GALV GALVANIZED
GC GENERAL CONTRACTOR
GWB GYPSUM WALL BOARD
IFC IN FINISHED CEILING
IFD IN FINISHED FLOOR
INCLD INCLUDING
INCL INCLUDE, INCLUDING
INFO INFORMATION
INT INTERIOR
LVI LOW VOLTAGE INTERFACE
LW LOW
MAX MAXIMUM
MECH MECHANICAL
MEP MECHANICAL, ELECTRICAL, AND PLUMBING
MFG MANUFACTURER
MIN MINIMUM
MISC MISCELLANEOUS
NA NOT APPLICABLE
NEC NATIONAL ELECTRICAL CODE
NEMA NATIONAL ELECTRICAL MANUFACTURER'S ASSOC.
NFA NATIONAL FIRE PROTECTION ASSOCIATION
NIC NOT IN CONTRACT
NUMB NUMBER
NOM NOMINAL
NTS NOT TO SCALE

MEASUREMENTS

BTU BRITISH THERMAL UNIT
D or Dp DEEP
DA DIAMETER
FT FOOT or FEET
H or HGT HEIGHT or HIGH
ID INSIDE DIAMETER
IN INCH
L LENGTH or LONG
Lb POUND
LN LINEAR
M METER
mm MILLIMETER
OD OUTSIDE DIAMETER
R RADIUS
RAD RADIAN
um MICRON
W WIDE
WT WEIGHT
YD YARD

DIRECTIONAL

DN DOWN
E EAST
HORIZ HORIZONTAL
L LEFT
LH LEFT HAND
N NORTH
PERP PERPENDICULAR
R RIGHT
RH RIGHT HAND
S SOUTH
VERT VERTICAL
W WEST

SYMBOLS

POUND OR NUMBER
AND AND
AT AT
FOOT OR FEET
INCH OR INCHES
PLUS OR MINUS
LESS THAN
EQUAL
GREATER THAN
DEGREES, ANGULAR MEASURE
OHM
PARALLEL
DIAMETER
ANGLE

COLOR CODE

A ALMOND
B BROWN
C CRIMSON RED
E BLACK
G GRAY
I IVORY
L BLUE
O ORANGE
P PURPLE
R DARK RED
V GREEN
W WHITE
Y YELLOW

WIRE AND CABLE

AFMW BONDED FULL FLOODED TWISTED PAIR
ARMW RISER ARMORED BONDED MULTIPAIR CABLE
AWG AMERICAN WIRE GAUGE
CAT3 CATEGORY 3 TWISTED PAIR COPPER CABLE
CAT4 CATEGORY 4 TWISTED PAIR COPPER CABLE
CAT5 CATEGORY 5 TWISTED PAIR COPPER CABLE
CAT5e CATEGORY 5 ENHANCED TWISTED PAIR COPPER CABLE
CAT6 CATEGORY 6 TWISTED PAIR COPPER CABLE
CM NEC, COMMUNICATIONS CABLE
CMP NEC, COMMUNICATIONS PLENUM CABLE
CMP NEC, COMMUNICATIONS RISEN CABLE
COAX COAXIAL CABLE
FO FIBER OPTIC
HDPE HIGH DENSITY POLYETHYLENE
LTFE LOOSE TUBE FILLED & FLOODED
MDPE MEDIUM DENSITY POLYETHYLENE
MM MULTIMODE FIBER OPTIC CABLE
MW NEC, MULTIPURPOSE PLENUM CABLE
OFC NEC, OPTICAL FIBER CONDUCTIVE CABLE
OFCP NEC, OPTICAL FIBER CONDUCTIVE PLENUM CABLE
OFCR NEC, OPTICAL FIBER CONDUCTIVE RISER CABLE
OFR NEC, OPTICAL FIBER NON-CONDUCTIVE CABLE
OFNR NEC, OPTICAL FIBER NON-CONDUCTIVE RISEN CABLE
OFN NEC, OPTICAL FIBER NON-CONDUCTIVE PLENUM CABLE
OFNP NEC, OPTICAL FIBER NON-CONDUCTIVE RISER CABLE
SM SINGLE MODE FIBER OPTIC CABLE
STP SHIELDED TWISTED PAIR
TB TIGHT BUFFERED
UTP UNSHIELDED TWISTED PAIR
WM WIRE MANAGER/MANAGEMENT

PROJECT NOTES

- PATCH CABLES - DEDICATED NETWORK PATCH CABLES FOR THE AV NETWORK SHALL BE YELLOW. DEDICATED NETWORK PATCH CABLES FOR THE CONTROL NETWORK SHALL BE BLUE. DATA JACKS SHALL MATCH PATCH CABLE COLOR.
- AUDIO CONNECTORS:** ALL CONNECTIONS TO SCREW CLAMP OR BINDING POST TERMINALS REQUIRE APPROPRIATELY COLOR CODED FLANGED OR SNAP SPADE TYPE LUGS. BARE WIRE CONNECTED TO A BINDING POST IS NOT ACCEPTABLE. GAS TIGHT INSULATION DISPLACEMENT "PUNCH-DOWN BLOCKS" ARE ACCEPTABLE TERMINAL CONNECTIONS FOR MICROPHONE AND LINE LEVEL INTERCONNECTIONS WITHIN EQUIPMENT ENCLOSURES.
- LOUDSPEAKER CONNECTORS:** ALL CONNECTIONS TO SCREW CLAMP OR BINDING POST TERMINALS REQUIRE APPROPRIATELY COLOR CODED FLANGED OR SNAP SPADE TYPE LUGS. BARE WIRE CONNECTED TO A BINDING POST IS NOT ACCEPTABLE. FOR CONSTANT VOLTAGE SYSTEMS CRIMP CONNECTIONS AT LOUSPEAKERS ARE ACCEPTABLE. WIRE NUTS ARE NOT.
- VIDEO CONNECTORS:** ALL COAXIAL CABLE CONNECTIONS SHALL BE MADE WITH CRIMP TYPE CONNECTORS FOR BOTH SHIELD AND INNER CONDUCTOR. INSTALL WITH MANUFACTURER'S APPROVED ASSEMBLY METHODS AND TOOLS. CONNECTORS ATTACHED TO COAXIAL CABLE SHALL BE BNC STYLE CONNECTORS. USE BNC TO VHF ADAPTER OR BNC TO RCA ADAPTER AS APPROPRIATE FOR THE EQUIPMENT BEING CONNECTED.
- RF CONNECTORS:** ALL RF CABLE CONNECTIONS SHALL BE MADE WITH CRIMP TYPE CONNECTIONS FOR BOTH THE SHIELD AND INNER CONDUCTOR. INSTALL WITH MANUFACTURER'S APPROVED ASSEMBLY METHODS AND TOOLS. CONNECTORS ATTACHED TO RF CABLE SHALL BE "T" STYLE CONNECTORS.
- RJ CONNECTORS:** ALL RJ CABLE CONNECTIONS SHALL BE MADE WITH CRIMP TYPE CONNECTIONS. RJ45 CONNECTIONS ARE TO BE MADE WITH SHIELDED GROUNDING CONNECTORS.
- SIGNAL GROUNDING:** USE THE RACK AS A COMMON POINT OF GROUNDING FOR ALL TECHNICAL SYSTEMS. THE RACK IS TO BE GROUND/ BONDED TO EARTH. CABLE SHIELDS SHALL ONLY BE USED FOR SHIELDING AND CONNECTED TO GROUND AT THE RACK ONLY. ALL RACK-MOUNTED EQUIPMENT SHALL BE CHECKED FOR GROUND CONTINUITY BETWEEN CHASSIS AND THE RACK.
- CABLING:**
 - ALL CABLING IS TO BE CONTINUOUS AND UN-SPLICED.
 - CABLING, NOT IN CONDUIT IS TO BE SUPPORTED FROM THE BUILDING STRUCTURE BY J-HOOKS. CABLES ARE NOT TO BE SUPPORTED FROM CEILING WIRES OR OTHER CONVEYANCE SYSTEMS.
 - PLENUM RATED CABLES AND CABLE TIES MUST BE USED WHEN CABLES ARE LOCATED IN AN AIR PLENUM.
 - CABLES WITHIN RACKS SHALL BE BUNDLED AND LACED NEATLY TO SUPPORT MEMBERS WITH A SERVICE LOOP LARGE ENOUGH TO MAINTAIN CONVENIENT ACCESS TO ALL EQUIPMENT CONNECTIONS.
 - EQUIPMENT POWER CABLE IS TO BE SEPARATED FROM SIGNAL CABLES WITH AN ENCLOSURE. PROVIDE THE MAXIMUM SEPARATION POSSIBLE WITHIN THE ENCLOSURE.
- WIRING:** ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH NETWORK AND BROADCAST STANDARD PRACTICES. CABLE JACKET SHALL BE COLOR CODED TO MAINTAIN A CONSISTENT IDENTIFICATION OF PHASING.
- MARKINGS:** PERMANENTLY MARK ALL CONNECTORS, CABLES, AND CABLE TERMINATIONS TO INDICATE THEIR FUNCTION AS IT CORRESPONDS TO THE WIRING DIAGRAM. ALL CABLE PARS SHALL BE CODED WITH PERMANENTLY ATTACHED LABELS ON THE CABLE ENDS WITH CONSISTENT COLOR-CODED MARKINGS TO INDICATE THEIR FUNCTION. SEE CABLE LABEL DETAIL (DETAIL 5/TA-400).
- AESTHETICS:** COORDINATE THE ELEVATION/LOCATION, FINISH AND COLOR OF ALL PLATES, WALL SWITCHES, FLOOR BOXES AND JUNCTION BOXES WITH THE CONSULTANT.
- VENTILATION:** PROVIDE ADEQUATE VENTILATION IN EQUIPMENT RACKS TO CONFORM TO THE EQUIPMENT MANUFACTURER'S TEMPERATURE REQUIREMENTS.
- FASTENERS, HANGERS, SUPPORTS:** PROVIDE FASTENERS, SUPPORTS AND SEISMIC RESTRAINTS TO ADEQUATELY SUPPORT THE LOAD.
- WORKMANSHIP:** INSTALLATION OF ALL WORK INCLUDING CABLING SHALL BE NEAT. ALL BOXES INCLUDING THE LOUSPEAKER ENCLOSURES, EQUIPMENT RACKS, ETC. SHALL BE PLUMB AND SQUARELY LOCATED. REPLACE/PATCH ALL CEILING, WALLS AND FLOOR REMOVED OR MODIFIED FOR THIS WORK WHEN THE WORK IS COMPLETE. LEAVE THE JOB SITE CLEAN AND FREE FROM MARKS AND BLEMISHES.
- DIMENSIONED LOCATIONS:** AV DEVICE LOCATIONS ILLUSTRATED WITH DIMENSIONS ARE CRITICAL TO DESIRED PERFORMANCE. CONTRACTOR SHALL NOT FIELD ADJUST LOCATIONS WITHOUT COORDINATING WITH THE DESIGN CONSULTANT.
- THE FINISH OF ALL AUDIOVISUAL SYSTEM FACEPLATES SHALL BE ANODIZED BRUSHED ALUMINUM. FINAL COLOR TO BE APPROVED BY PROJECT'S OWNER, ARCHITECT, AND/OR CONSULTANT.
- ALL ENGRAVED LABELS SHALL BE FILLED WITH WHITE OR BLACK AS REQUIRED FOR THE GREATEST CONTRAST BETWEEN THE ENGRAVING AND FACEPLATE/LABEL BACKGROUND COLOR.

GENERAL NOTES

- POWER:**
 - EACH CIRCUIT THAT SERVES TECHNOLOGY SYSTEMS MUST HAVE A DEDICATED GROUND AND NEUTRAL CONDUCTOR. SHARED GROUNDS AND NEUTRALS ARE NOT ACCEPTABLE.
 - ALL CIRCUITS ARE 120 VAC, 60 HZ, 1-PHASE, UNO.
 - NOMINAL ELECTRICAL VOLTAGE IS 120 VAC. VOLTAGE MUST BE MAINTAINED WITH +/-10 PERCENT OF NOMINAL AT ALL TIMES FOR PROPER EQUIPMENT OPERATION.
- TECHNOLOGY CONVEYANCE SYSTEM:**
 - CONDUITS WHICH CARRY POWER MUST BE SEPARATED FROM TECHNOLOGY CONDUITS BY 12 INCHES FOR VOLTAGES OVER 100 VAC, 24 INCHES FOR VOLTAGES OVER 200 VAC AND 48 INCHES FOR ALL VOLTAGES OVER 300 VAC. WHERE POWER AND TECHNOLOGY CABLING AND CONDUIT CROSS, THEY SHOULD DO SO AT RIGHT ANGLES.
 - ALL CONDUIT SHALL BE CLEANED, DEBURRED AND HAVE PULL-STRINGS INSTALLED.
 - ALL INTERIOR AND ABOVE GRADE CONDUIT SHALL BE SOLID FERRIC METALLIC. ALL CONDUIT BELOW GRADE SHALL BE PLASTIC. CONTRACTOR SHALL NOT CHANGE CONDUIT TYPE WITHOUT DESIGN CONSULTANT APPROVAL.
 - PROVIDE PULL BOXES USING SNEEP ELBOWS AS REQUIRED BY CONDUIT PATH, CABLE BEND RADIUS OR PULLING TENSION LIMITS.
 - BACK BOXES TO BE SET TO ALLOW ALL TECHNOLOGY FACEPLATES TO BE INSTALLED TIGHT TO THE ADJACENT SURFACE.
- PRIOR TO THE START OF ACTIVE EQUIPMENT INSTALLATION THE EQUIPMENT SPACES SHALL BE:
 - CLEAN AND SEALED FROM DUST PRIOR TO EQUIPMENT INSTALLATION.
 - MAINTAINED AT A TEMPERATURE OF 72 ± 10 DEGREES FAHRENHEIT AT ALL TIMES.
 - MAINTAINED AT A RELATIVE HUMIDITY BETWEEN 40 AND 70 PERCENT AT ALL TIMES.
- ALL PHONE, DATA, CABLE AND NETWORK LINES ARE IN CONTRACT.
- ALL BLOCKING TO BE PROVIDED BY GC
- VENTS, GRILLS AND GROMMETS PROVIDED BY THE CASEWORK/MILLWORK VENDOR.

ABBREVIATIONS

FACILITY NOTES

PROJECT SYMBOLS

SHEET INDEX

NUMBER	DRAWING NAME	X	X	X	X
TA-001	SHEET INDEX AND NOTES	X	X	X	X
TA-101A	FIRST FLOOR PLAN - AREA A	X	X	X	X
TA-101Bh	FIRST FLOOR PLAN - AREA B	X	X	X	X
TA-201A	FIRST FLOOR REFLECTED CEILING PLAN - AREA A	X	X	X	X
TA-201Bh	FIRST FLOOR REFLECTED CEILING PLAN - AREA Bh	X	X	X	X
TA-301	SECTIONS AND ELEVATIONS	X	X	X	X
TA-401	AUDIO FUNCTIONAL	X	X	X	X
TA-501	RACK ELEVATIONS AND INTERFACE PLATE DETAILS	X	X	X	X
TA-701	COORDINATION DETAILS	X	X	X	X

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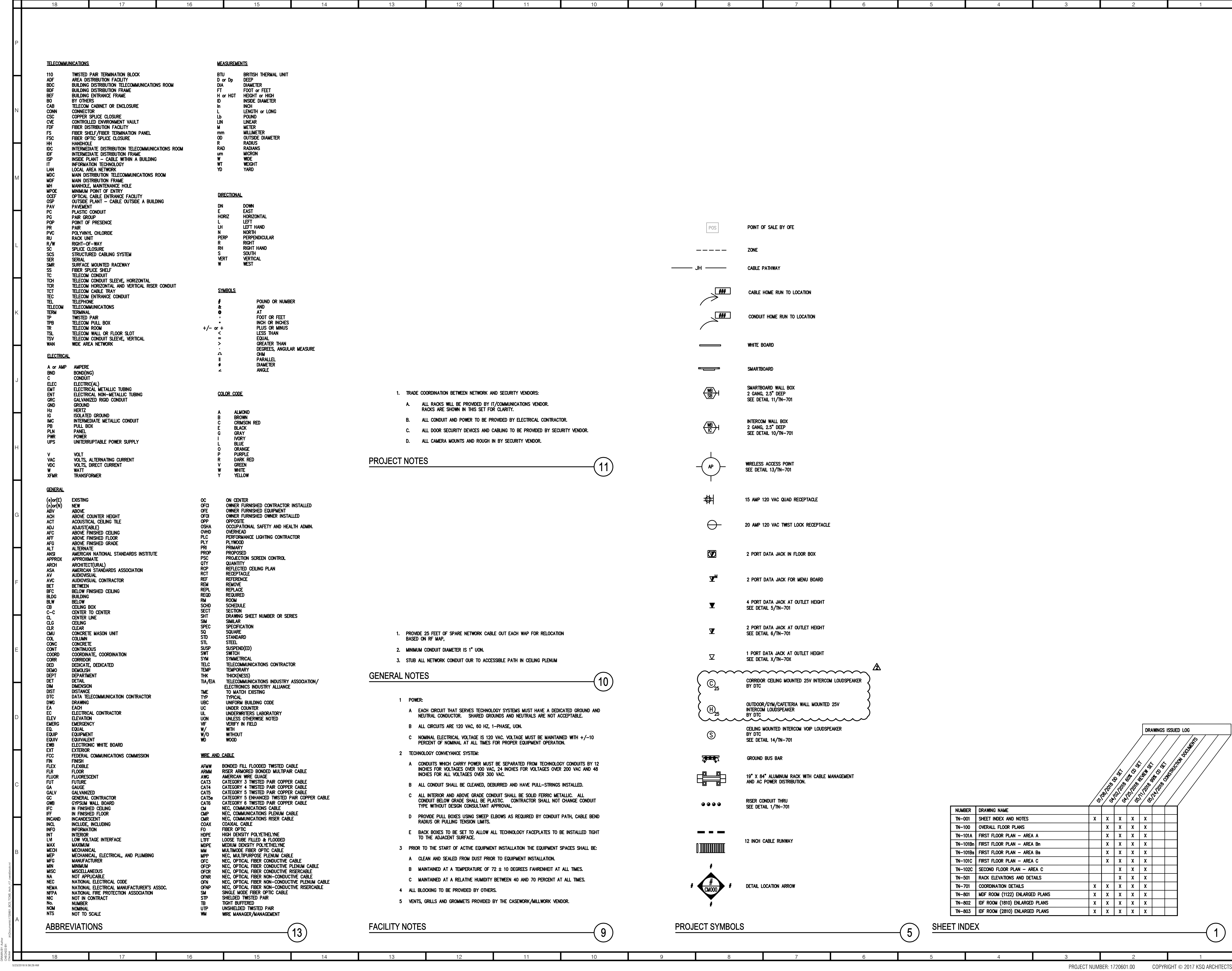
REVISIONS

No.	Description	Date
2	ADDENDUM #2	6/19/2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1/16" = 1'-0"
SHEET NAME:
SHEET INDEX AND NOTES
SHEET NUMBER:

TA-001



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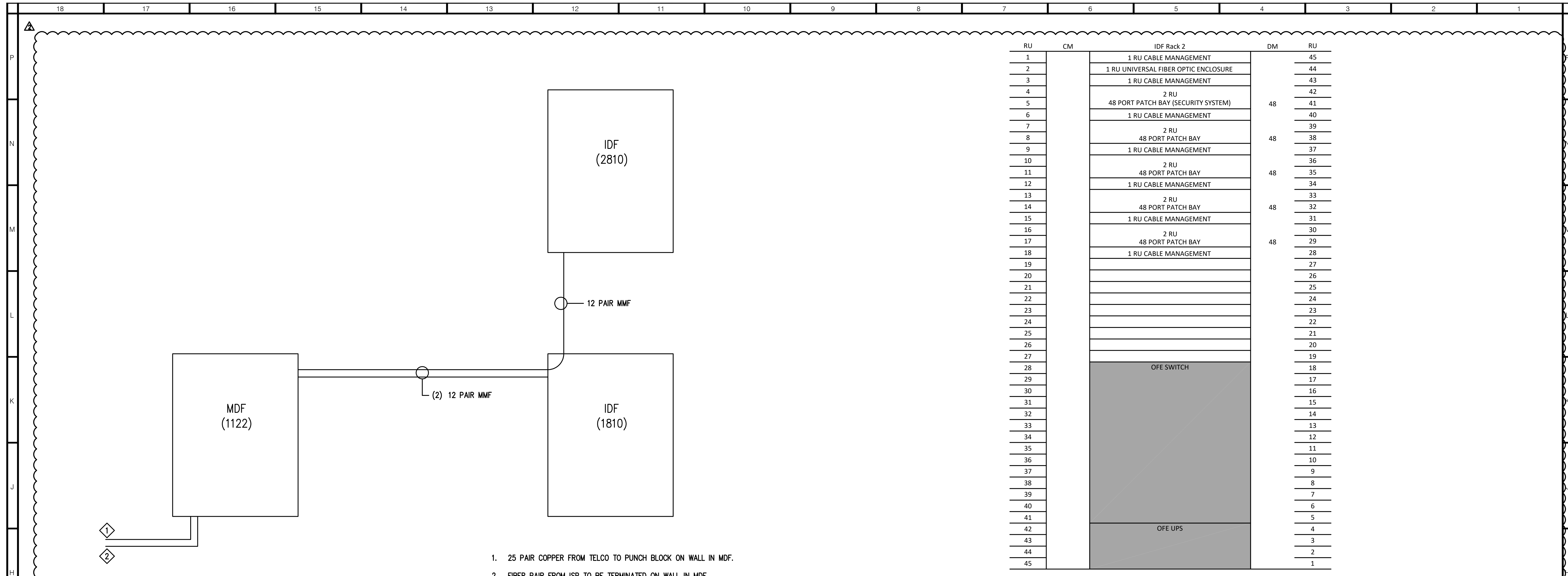
SCALE: 1/16" = 1'-0"

SHEET NAME:

SHEET INDEX AND NOTES

SHEET NUMBER:

TN-001



BACKBOX RISER DIAGRAM

11

RACK ELEVATION - IDF 2810

3

RU	CM	IDF Rack 2	DM	RU
1		1 RU CABLE MANAGEMENT		45
2		1 RU UNIVERSAL FIBER OPTIC ENCLOSURE		44
3		1 RU CABLE MANAGEMENT		43
4		2 RU		42
5		48 PORT PATCH BAY (SECURITY SYSTEM)	48	41
6		1 RU CABLE MANAGEMENT		40
7		2 RU		39
8		48 PORT PATCH BAY	48	38
9		1 RU CABLE MANAGEMENT		37
10				36
11		2 RU		35
12		48 PORT PATCH BAY	48	34
13		1 RU CABLE MANAGEMENT		33
14		2 RU		32
15		48 PORT PATCH BAY	48	31
16		1 RU CABLE MANAGEMENT		30
17		2 RU		29
18		48 PORT PATCH BAY	48	28
19		1 RU CABLE MANAGEMENT		27
20				26
21				25
22				24
23				23
24				22
25				21
26				20
27				19
28				18
29				17
30				16
31				15
32				14
33				13
34				12
35				11
36				10
37				9
38				8
39				7
40				6
41				5
42				4
43				3
44				2
45				1

RU	CM	MDF Rack 1	DM	RU
1		1 RU CABLE MANAGEMENT		45
2		1 RU UNIVERSAL FIBER OPTIC ENCLOSURE		44
3		1 RU CABLE MANAGEMENT		43
4		2 RU		42
5		48 PORT PATCH BAY (SECURITY SYSTEM)	48	41
6		1 RU CABLE MANAGEMENT		40
7		2 RU		39
8		48 PORT PATCH BAY	48	38
9		1 RU CABLE MANAGEMENT		37
10		2 RU		36
11		48 PORT PATCH BAY	48	35
12		1 RU CABLE MANAGEMENT		34
13		2 RU		33
14		48 PORT PATCH BAY	48	32
15		1 RU CABLE MANAGEMENT		31
16		2 RU		30
17		48 PORT PATCH BAY	48	29
18		1 RU CABLE MANAGEMENT		28
19		2 RU		27
20		48 PORT PATCH BAY	48	26
21		1 RU CABLE MANAGEMENT		25
22		2 RU		24
23		48 PORT PATCH BAY	48	23
24		1 RU CABLE MANAGEMENT		22
25		2 RU		21
26		48 PORT PATCH BAY (AS REQUIRED)	48	20
27		1 RU CABLE MANAGEMENT		19
28		OFF SWITCH		18
29				17
30				16
31				15
32				14
33				13
34				12
35				11
36				10
37				9
38				8
39				7
40				6
41				5
42				4
43				3
44				2
45				1

RACK ELEVATION - MDF 1122

9

RACK ELEVATION - IDF 1810

1

RU	CM	IDF Rack 1	DM	RU
1		1 RU CABLE MANAGEMENT		45
2		1 RU UNIVERSAL FIBER OPTIC ENCLOSURE		44
3		1 RU CABLE MANAGEMENT		43
4		2 RU		42
5		48 PORT PATCH BAY (SECURITY SYSTEM)	48	41
6		1 RU CABLE MANAGEMENT		40
7		2 RU		39
8		48 PORT PATCH BAY	48	38
9		1 RU CABLE MANAGEMENT		37
10		2 RU		36
11		48 PORT PATCH BAY	48	35
12		1 RU CABLE MANAGEMENT		34
13		2 RU		33
14		48 PORT PATCH BAY	48	32
15		1 RU CABLE MANAGEMENT		31
16		2 RU		30
17		48 PORT PATCH BAY	48	29
18		1 RU CABLE MANAGEMENT		28
19				27
20				26
21				25
22				24
23				23
24				22
25				21
26				20
27				19
28				18
29				17
30				16
31				15
32				14
33				13
34				12
35				11
36				10
37				9
38				8
39				7
40				6
41				5
42				4
43				3
44				2
45				1

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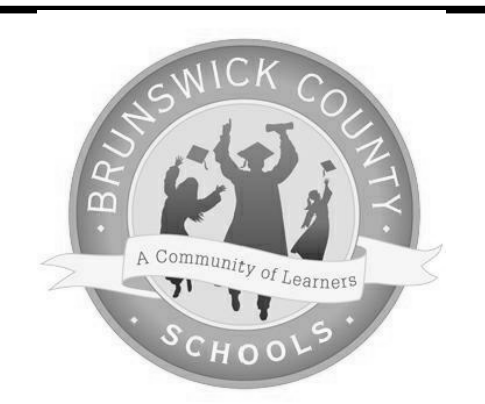
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**TOWN CREEK
 MIDDLE
 SCHOOL**

6370 LAKE PARK DRIVE
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REVISIONS

No.	Description	Date
2	ADDENDUM #2	6/19/2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018
SCALE: 1/16" = 1'-0"
SHEET NAME:
 RACK ELEVATIONS AND DETAILS

SHEET NUMBER:

TN-501



Town Creek Middle School
BID FORM

Project: Town Creek Middle School
Winnabow, North Carolina 28479

Mail To (Prior to Bid Day): W. M. Jordan Company
Attn: Seth Speight
1712 Eastwood Road, Suite 200
Wilmington, North Carolina 28403

Hand Deliver To (Bid Day Only): W.M. Jordan Company
Attn: Seth Speight
Hampton Inn (Near Home Depot)
124 Old Eastwood Rd.
Wilmington, NC 28403

Company Name: _____

Estimator: _____ Estimator's Phone #: _____

License #: _____ WMBE/HUB Status: _____

Acknowledgements:

We have received; visited and/or reviewed (please check the boxes to acknowledge):

- checkbox All materials provided in or referenced by the Project Manual
checkbox All drawings and Specifications and other exhibits referenced herein
checkbox Addenda issued by the Architect and referenced below
checkbox Site conditions relevant to the work
checkbox Supplemental Instructions to Bidders
checkbox WM Jordan Subcontractor Agreement

Clarifications:

Bidder acknowledges receipt of the clarifications listed below:

Table with 2 columns: Clarification No. and Initials. Contains 5 rows for recording clarifications.



Addenda:

Bidder acknowledges receipt of the addenda listed below:

Addendum No.	Initials:
Addendum No.	Initials:
Addendum No.	Initials:
Addendum No.	Initials:

The undersigned, as Bidder, hereby declares that the only person or persons interested in this Proposal as principal or principals is or are named herein and that no other person than herein mentioned has interest in this Proposal or in the contract to be entered. The Bidder further declares that he has examined the site of the Work and the Contract Documents relative thereto, and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed.

The Bidder proposes and agrees if this proposal is accepted to contract with W.M Jordan Company in the form of contract specified, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor required to complete the Work to the full and entire satisfaction of the State of North Carolina, Brunswick County Schools, KSQ Design and its Consultants.

Total bid price for all work, complete, in accordance with the Contract Documents, including all applicable Federal, State, and local taxes. All required insurance costs. Bids are good for 90 days.

Please list the Bid Package(s) ID to indicate the package(s) you are bidding.

Bid Package ID _____:

Town Creek Middle School: _____ 00/100 Dollars \$ _____



BP-32 (Division 10 & 11 Install and General Carpentry) Only:

Installation of each section is to be priced as if it were to be separate contracts. Award of install subcontracts may be broken up into several bidders pending pricing of individual sections. Refer to BP-32 Scope of Work.

1. Provide allowance for 300 man hours of carpentry labor to be used at the discretion of the CMR superintendent.

_____ 00/100 Dollars \$ _____

2. Provide and install pressure treated 2x4 wood blocking at all exterior windows (4 sides) and doors (3 sides).

_____ 00/100 Dollars \$ _____

3. Install all visual display surfaces per plans and specifications.
(Includes installing owner provided smartboards)

_____ 00/100 Dollars \$ _____

4. Install all toilet accessories and toilet partitions per plans and specifications
(Includes installing owner provided toilet accessories).

_____ 00/100 Dollars \$ _____

5. Install all wall protection per plans and specifications.

_____ 00/100 Dollars \$ _____

6. Install all fire extinguishers and fire extinguisher cabinets per plans and specifications.

_____ 00/100 Dollars \$ _____

7. Install flagpole per plans and specifications.

_____ 00/100 Dollars \$ _____

8. Install residential appliances per plans and specifications.

_____ 00/100 Dollars \$ _____

9. Install site benches per plans and specifications.

_____ 00/100 Dollars \$ _____



Alternates:

CM-Alt #1: Add for payment and performance bond.

(ADD) _____ 00/100 Dollars \$ _____

BP-03A-Alt #1: Provide add to furnish and install footings for walkway cover extension alternate from the new middle school to the existing elementary school per plans and specifications. See plans for extent of walkway in base bid vs alternate.

(ADD) _____ 00/100 Dollars \$ _____

BP-08A-Alt #1: Provide mortise locks by Schlage L9000 series in lieu of other acceptable manufacturers.

(ADD) _____ 00/100 Dollars \$ _____

BP-08A-Alt #2: Provide cylindrical locks by Schlage BD 92 series in lieu of other acceptable manufacturers.

(ADD) _____ 00/100 Dollars \$ _____

BP-08A- Alt #3: Provide exit devises by Von Duprin 98/35 series in lieu of other acceptable manufacturers.

(ADD) _____ 00/100 Dollars \$ _____

BP-08A- Alt #4: Provide door closers by LCN 4010/4110 series in lieu of other acceptable manufacturers.

(ADD) _____ 00/100 Dollars \$ _____

BP-08A- Alt #5: Provide door cylinders by Schlage in lieu of other acceptable manufacturers.

(ADD) _____ 00/100 Dollars \$ _____



BP-10A- Alt #1: Provide add to install visual display boards per BP-10A scope of work. (Includes install of owner provided smartboards).

(ADD) _____ 00/100 Dollars \$ _____

BP-10C- Alt #1: Provide add to install toilet accessories, toilet partitions per BP-10C scope of work. (Includes install of owner provided toilet accessories)

(ADD) _____ 00/100 Dollars \$ _____

BP-10D- Alt #1: Provide add to install fire extinguishers and fire extinguisher cabinets per BP-10D scope of work.

(ADD) _____ 00/100 Dollars \$ _____

BP-10F- Alt #1: Provide add to furnish and install walkway cover extension alternate from the new middle school to the existing elementary school per plans and specifications. See plans for extent of walkway in base bid vs alternate.

(ADD) _____ 00/100 Dollars \$ _____

BP-10F- Alt #2: Provide add to furnish and install exterior door canopies per BP-10G plans and specifications.

(ADD) _____ 00/100 Dollars \$ _____

BP-10H- Alt #1: Provide add to install flagpole per BP-10H scope of work.

(ADD) _____ 00/100 Dollars \$ _____

BP-10I- Alt #1: Provide add to install wall protection per BP-10I scope of work.

(ADD) _____ 00/100 Dollars \$ _____

BP-11B- Alt #1: Provide add to install residential appliances per BP-11B.

(ADD) _____ 00/100 Dollars \$ _____



BP-11F- Alt #1: Provide add to furnish and install divider curtain in gym per plans and specifications.

(ADD) _____ 00/100 Dollars \$ _____

BP-12E- Alt #1: Provide add to install site benches per plans and specifications.

(ADD) _____ 00/100 Dollars \$ _____

BP-23A- Alt #1: Provide and install controls by Schneider Electric in lieu of other acceptable manufacturers.

(ADD) _____ 00/100 Dollars \$ _____

BP-26A- Alt #1: Provide and install school video system by Video Insight (recently purchased by Panasonic) lieu of other acceptable manufacturers.

(ADD) _____ 00/100 Dollars \$ _____

BP-26A- Alt #2: Provide and install AD 300 electric locks to tie into a proprietary lock data base. New locks will require licenses, which are to be included in scope. All locks tying into the system need to be purchased through open options dealer. This is in lieu of other acceptable manufacturers.

(ADD) _____ 00/100 Dollars \$ _____

BP-26A- Alt #3: Provide and install walkway canopy lighting for the walkway cover extension alternate from the new middle school to the existing elementary school per plans and specifications. See architectural plans for extent of walkway in base bid vs alternate.

(ADD) _____ 00/100 Dollars \$ _____



Company: _____

Signature: _____

Date: _____

Title: _____

MINORITY BUSINESS PARTICIPATION REQUIREMENTS

Provide with the bid - Under GS 143-128.2(c) the undersigned bidder shall identify **on its bid** (Identification of Minority Business Participation Form) the minority businesses that it will use on the project with the total dollar value of the bids that will be performed by the minority businesses. **Also** list the good faith efforts (Affidavit **A**) made to solicit minority participation in the bid effort.

NOTE: A contractor that performs all of the work with its own workforce may submit an Affidavit (**B**) to that effect in lieu of Affidavit (**A**) required above. The MB Participation Form must still be submitted even if there is zero participation.

After the bid opening - The Owner will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (**C**) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary;

*** OR ***

If less than the 10% goal, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

Note: Bidders must always submit **with their bid** the Identification of Minority Business Participation Form listing all MB contractors, vendors and suppliers that will be used. If there is no MB participation, then enter none or zero on the form. Affidavit A **or** Affidavit B, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

(Name of Bidder)

Affidavit of _____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- 1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- 2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- 3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- 4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- 5 – (10 pts)** Attended prebid meetings scheduled by the public owner.
- 6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- 7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- 8 – (25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- 9 – (20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- 10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

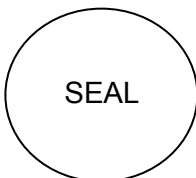
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of _____

Affidavit of _____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____ contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

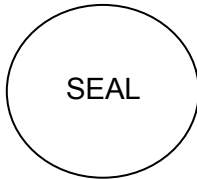
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

TELECOMMUNICATIONS

110 TWISTED PAIR TERMINATION BLOCK
 ADF AREA DISTRIBUTION FACILITY
 BDC BUILDING DISTRIBUTION TELECOMMUNICATIONS ROOM
 BDF BUILDING DISTRIBUTION FRAME
 BEF BUILDING ENTRANCE FRAME
 BO BY OTHERS
 CAB TELECOM CABINET OR ENCLOSURE
 COIN CONNECTOR
 CSC COPPER SPICE CLOSURE
 CWF CONTROLLED ENVIRONMENT VAULT
 FDF FIBER DISTRIBUTION FACILITY
 FS FIBER SHELF/FIBER TERMINATION PANEL
 FSC FIBER OPTIC SPICE CLOSURE
 HH HANDHOLE
 IDC INTERMEDIATE DISTRIBUTION TELECOMMUNICATIONS ROOM
 IDF INTERMEDIATE DISTRIBUTION FRAME
 ISP INSIDE PLANT - CABLE WITHIN A BUILDING
 IT INFORMATION TECHNOLOGY
 LAN LOCAL AREA NETWORK
 MDC MAIN DISTRIBUTION TELECOMMUNICATIONS ROOM
 MDF MAIN DISTRIBUTION FRAME
 MH MANHOLE, MAINTENANCE HOLE
 MPE MINIMUM POINT OF ENTRY
 OCF OPTICAL CABLE ENTRANCE FACILITY
 OUP OUTSIDE PLANT - CABLE OUTSIDE A BUILDING
 PAV PAVEMENT
 PC PLASTIC CONDUIT
 PG PAIR GROUP
 POP POINT OF PRESENCE
 PR PAIR
 PVC POLYVINYL CHLORIDE
 RU RACK UNIT
 R/W RIGHT-OF-WAY
 SC SPICE CLOSURE
 SCS STRUCTURED CABLING SYSTEM
 SER SERIAL
 SMR SURFACE MOUNTED RACEWAY
 SS FIBER SPICE SHELF
 TCEM TELECOM CONDUIT
 TCH TELECOM CONDUIT SLEEVE, HORIZONTAL
 TOR TELECOM HORIZONTAL AND VERTICAL RISER CONDUIT
 TOT TELECOM CABLE TRAY
 TEC TELECOM ENTRANCE CONDUIT
 TEL TELEPHONE
 TCEM TELECOMMUNICATIONS
 TERM TERMINAL
 TP TWISTED PAIR
 TPB TELECOM PULL BOX
 TR TELECOM ROOM
 TSL TELECOM WALL OR FLOOR SLOT
 TSV TELECOM CONDUIT SLEEVE, VERTICAL
 WAN WIDE AREA NETWORK

ELECTRICAL

A or AMP AMPERE
 BND BOND(ING)
 C CONDUIT
 ELEC ELECTRICAL
 EMT ELECTRICAL METALLIC TUBING
 ENT ELECTRICAL NON-METALLIC TUBING
 GRC GALVANIZED RIGID CONDUIT
 GND GROUND
 Hz HERTZ
 IG ISOLATED GROUND
 IMC INTERMEDIATE METALLIC CONDUIT
 PB PULL BOX
 PLN PANEL
 PWR POWER
 UPS UNINTERRUPTIBLE POWER SUPPLY

V VOLT
 VAC VOLTS, ALTERNATING CURRENT
 VDC VOLTS, DIRECT CURRENT
 W WATT
 XFR TRANSFORMER

GENERAL

(e)or(f) EXISTING
 (n)or(m) NEW
 ABV ABOVE
 ACH ABOVE COUNTER HEIGHT
 ACT ACoustical CEILING TILE
 ADJ ADJUSTABLE
 AFC ABOVE FINISHED CEILING
 AFF ABOVE FINISHED FLOOR
 AFD ABOVE FINISHED GRADE
 ALT ALTERNATE
 ANS AMERICAN NATIONAL STANDARDS INSTITUTE
 APPROX APPROXIMATE
 ARCH ARCHITECT(URAL)
 ASA AMERICAN STANDARDS ASSOCIATION
 AV AUDIOVISUAL
 AYC AUDIOVISUAL CONTRACTOR
 BET BETWEEN
 BFC BUILDING FINISHED CEILING
 BLDG BUILDING
 BLW BELOW
 CB CEILING BOX
 C-C CENTER TO CENTER
 CL CENTER LINE
 CLG CEILING
 CLR CLEAR
 CMU CONCRETE MASON UNIT
 COL COLUMN
 CONC CONCRETE
 CONT CONTINUOUS
 COORD COORDINATE, COORDINATION
 CORR CORRUGATED
 DED DEDICATE, DEDICATED
 DEMO DEMOLISH
 DEPT DEPARTMENT
 DET DETAIL
 DIM DIMENSION
 DIST DISTANCE
 DTC DATA TELECOMMUNICATION CONTRACTOR
 DWG DRAWING
 EA EACH
 EC ELECTRICAL CONTRACTOR
 ELEV ELEVATION
 EMERG EMERGENCY
 EQ EQUAL
 EQUIP EQUIPMENT
 EQUIV EQUIVALENT
 EWB ELECTRONIC WHITE BOARD
 EXT EXTERIOR
 FCC FEDERAL COMMUNICATIONS COMMISSION
 FIN FINISH
 FLEX FLEXIBLE
 FLR FLOOR
 FLUR FLOURESCENT
 FUT FUTURE
 GA GAUGE
 GALV GALVANIZED
 GC GENERAL CONTRACTOR
 GMB GYPSUM WALL BOARD
 IN FINISHED CEILING
 INF IN FINISHED FLOOR
 INCAN INCANDESCENT
 INCL INCLUDE, INCLUDING
 INF INFORMATION
 INT INTERIOR
 LV LOW VOLTAGE INTERFACE
 MAX MAXIMUM
 MECH MECHANICAL
 MEP MECHANICAL, ELECTRICAL, AND PLUMBING
 MFG MANUFACTURER
 MIN MINIMUM
 MISC MISCELLANEOUS
 NA NOT APPLICABLE
 NEC NATIONAL ELECTRICAL CODE
 NEMA NATIONAL ELECTRICAL MANUFACTURER'S ASSOC.
 NFPA NATIONAL FIRE PROTECTION ASSOCIATION
 NIC NOT IN CONTRACT
 NO. NUMBER
 NOM NOMINAL
 NTS NOT TO SCALE

MEASUREMENTS

BTU BRITISH THERMAL UNIT
 D or Dp DEEP
 DIA DIAMETER
 FT FOOT OR FEET
 H or HGT HEIGHT or HIGH
 ID INSIDE DIAMETER
 IN INCH OR INCHES
 L LENGTH or LONG
 LB POUND
 LN LINEAR
 M METER
 mm MILLIMETER
 OD OUTSIDE DIAMETER
 R RADIUS
 RAD RADIANS
 um MICRON
 W WIDE
 WT WEIGHT
 YD YARD

DIRECTIONAL

DN DOWN
 E EAST
 HORIZ HORIZONTAL
 L LEFT
 LH LEFT HAND
 N NORTH
 PERP PERPENDICULAR
 R RIGHT
 RH RIGHT HAND
 S SOUTH
 VERT VERTICAL
 W WEST

SYMBOLS

POINT OR NUMBER
 & AND
 @ AT
 ' FOOT OR FEET
 " INCH OR INCHES
 +/- or + PLUS OR MINUS
 < LESS THAN
 = EQUAL
 > GREATER THAN
 ° DEGREES, ANGULAR MEASURE
 ∥ PARALLEL
 ∅ DIAMETER
 ∠ ANGLE

COLOR CODE

A ALMOND
 B BROWN
 C ORANGE RED
 E BLACK
 G GRAY
 I IVORY
 L BLUE
 O ORANGE
 P PURPLE
 R DARK RED
 V GREEN
 W WHITE
 Y YELLOW

WIRE AND CABLE

AFNM BONDED FILL FLOODED TWISTED CABLE
 ARM ARMED
 AWG AMERICAN WIRE GAUGE
 CAT3 CATEGORY 3 TWISTED PAIR COPPER CABLE
 CAT4 CATEGORY 4 TWISTED PAIR COPPER CABLE
 CAT5 CATEGORY 5 TWISTED PAIR COPPER CABLE
 CAT5e CATEGORY 5 ENHANCED TWISTED PAIR COPPER CABLE
 CAT6 CATEGORY 6 TWISTED PAIR COPPER CABLE
 CM NEC, COMMUNICATIONS CABLE
 CMP IN NEC, COMMUNICATIONS PLENUM CABLE
 CMR NEC, COMMUNICATIONS RISER CABLE
 COAX COAXIAL CABLE
 FO FIBER OPTIC
 HDPE HIGH DENSITY POLYETHYLENE
 LF LOOSE TUBE FILLED & FLOODED
 MDPE MEDIUM DENSITY POLYETHYLENE
 MM MULTIMODE FIBER OPTIC CABLE
 MPP NEC, MULTIPURPOSE PLENUM CABLE
 OFC NEC, OPTICAL FIBER CONDUCTIVE CABLE
 OFP NEC, OPTICAL FIBER CONDUCTIVE PLENUM CABLE
 OFR NEC, OPTICAL FIBER CONDUCTIVE RISER CABLE
 OFN NEC, OPTICAL FIBER NON-CONDUCTIVE CABLE
 OFNP NEC, OPTICAL FIBER NON-CONDUCTIVE PLENUM CABLE
 OFNPN NEC, OPTICAL FIBER NON-CONDUCTIVE RISER CABLE
 SM SINGLE MODE FIBER OPTIC CABLE
 STP SHIELDED TWISTED PAIR
 TB TIGHT BUFFERED
 UTP UNSHIELDED TWISTED PAIR
 WM WIRE MANAGER/MANAGEMENT

ABBREVIATIONS

GENERAL NOTES

FACILITY NOTES

PROJECT NOTES

1. **WIRE CONNECTIONS:** ALL COAXIAL CABLE CONNECTIONS SHALL BE MADE WITH CRIMP TYPE CONNECTORS FOR BOTH SHIELD AND INNER CONDUCTOR. INSTALL WITH MANUFACTURER'S APPROVED ASSEMBLY METHODS AND TOOLS. CONNECTORS ATTACHED TO COAXIAL CABLE SHALL BE BNC TYPE CONNECTORS. USE BNC TO W/F ADAPTER OR BNC TO RCA ADAPTER AS APPROPRIATE FOR THE EQUIPMENT BEING CONNECTED.

2. **RJ CONNECTIONS:** ALL RJ CABLE CONNECTIONS SHALL BE MADE WITH CRIMP TYPE CONNECTIONS. RJ45 CONNECTIONS ARE TO BE MADE WITH SHIELDED GROUNDING CONNECTORS.

3. **SIGNAL GROUNDING:** USE THE RACK AS A COMMON POINT OF GROUNDING FOR ALL TECHNICAL SYSTEMS. THE RACK IS TO BE GROUNDED / BONDED TO EARTH. CABLE SHIELDS SHALL ONLY BE USED FOR SHIELDING AND CONNECTED TO GROUND AT THE RACK ONLY. ALL RACK-MOUNTED EQUIPMENT SHALL BE CHECKED FOR GROUND CONTINUITY BETWEEN CHASSIS AND THE RACK.

4. **CABLING:**
 A ALL CABLING IS TO BE CONTINUOUS AND UN-SPLICED.
 B CABLE RUNWAY SYSTEMS SHALL BE UTILIZED AS THE MAIN DISTRIBUTION OF ALL CABLES. J-HOOK SUPPORTS SPACED NO MORE THAN SIX FEET ON CENTER TO BE USED TO REACH INDIVIDUAL OUTLET LOCATIONS AS NEEDED.
 C PLENUM RATED CABLES AND CABLE TIES MUST BE USED WHEN CABLES ARE LOCATED IN AN AIR PLENUM.
 D CABLES WITHIN RACKS SHALL BE BUNDLED AND LACED NEATLY TO SUPPORT MEMBERS WITH A SERVICE LOOP LARGE ENOUGH TO MAINTAIN CONVENIENT ACCESS TO ALL EQUIPMENT CONNECTIONS.
 E EQUIPMENT POWER CABLE IS TO BE SEPARATED FROM SIGNAL CABLES WITH IN ANY ENCLOSURE. PROVIDE THE MAXIMUM SEPARATION POSSIBLE WITHIN THE ENCLOSURE.

5. **WIRING:** ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH NETWORK AND BROADCAST STANDARD PRACTICES. CABLE JACKET SHALL BE COLOR CODED TO MAINTAIN A CONSISTENT IDENTIFICATION OF PHASING.

6. **MARKINGS:** PERMANENTLY MARK ALL CONNECTORS, CABLES, AND CABLE TERMINATIONS TO INDICATE THEIR FUNCTION AS IT CORRESPONDS TO THE WIRING SCHEDULE. ALL CABLE PAINS SHALL BE CODED WITH PERMANENTLY ATTACHED LABELS ON THE CABLE ENDS WITH CONSISTENT COLOR-CODED MARKINGS TO INDICATE THEIR FUNCTION. SEE CABLE LABEL DETAIL (DETAIL 5/15-400).

7. **AESTHETICS:** COORDINATE THE ELEVATION/LOCATION, FINISH AND COLOR OF ALL PLATES, WALL SWITCHES, FLOOR BOXES AND JUNCTION BOXES WITH THE CONSULTANT.

8. **VENTILATION:** PROVIDE ADEQUATE VENTILATION IN EQUIPMENT RACKS TO CONFORM TO THE EQUIPMENT MANUFACTURER'S TEMPERATURE REQUIREMENTS.

9. **FASTENERS, HANGERS, SUPPORTS:** PROVIDE FASTENERS, SUPPORTS AND SEISMIC RESTRAINTS TO ADEQUATELY SUPPORT THE LOAD.

10. **WORKMANSHIP:** INSTALLATION OF ALL WORK INCLUDING CABLING SHALL BE NEAT. ALL BOXES INCLUDING THE CAMERA ENCLOSURES, EQUIPMENT RACKS, ETC. SHALL BE PLUMB AND SQUARELY LOCATED. REPLACE/PATCH ALL CEILING, WALLS AND FLOOR REMOVED OR MODIFIED FOR THIS WORK WHEN THE WORK IS COMPLETE. LEAVE THE JOB SITE CLEAN AND FREE FROM MARKS AND BLEMISHES.

11. **DIMENSIONED LOCATIONS:** ALL DEVICE LOCATIONS ILLUSTRATED WITH DIMENSIONS ARE CRITICAL TO DESIRED PERFORMANCE. CONTRACTOR SHALL NOT FIELD ADJUST LOCATIONS WITHOUT COORDINATING WITH THE DESIGN CONSULTANT.

12. **THE FINISH OF ALL AUDIOVISUAL SYSTEM FACEPLATES SHALL BE ANODIZED BRUSHED ALUMINUM. FINAL COLOR TO BE APPROVED BY PROJECT'S OWNER, ARCHITECT, AND/OR CONSULTANT.**

13. **ALL ENGRAVED LABELS SHALL BE FILLED WITH WHITE OR BLACK AS REQUIRED FOR THE GREATEST CONTRAST BETWEEN THE ENGRAVING AND FACEPLATE/LABEL BACKGROUND COLOR.**

14. **ALL BLOCKING TO BE PROVIDED BY OTHERS.**

TRADE COORDINATION BETWEEN NETWORK AND SECURITY VENDORS:

A. ALL RACKS WILL BE PROVIDED BY IT/COMMUNICATIONS VENDOR. RACKS ARE SHOWN IN THIS SET FOR CLARITY.

B. ALL CONDUIT AND POWER TO BE PROVIDED BY ELECTRICAL CONTRACTOR.

C. ALL DOOR SECURITY DEVICES AND CABLING TO BE PROVIDED BY SECURITY VENDOR.

D. ALL CAMERA MOUNTS AND ROUGH IN BY SECURITY VENDOR.

POWER:

A EACH CIRCUIT THAT SERVES TECHNOLOGY SYSTEMS MUST HAVE A DEDICATED GROUND AND NEUTRAL CONDUCTOR. SHARED GROUNDS AND NEUTRALS ARE NOT ACCEPTABLE.

B ALL CIRCUITS ARE 120 VAC, 60 HZ, 1-PHASE, UNO.

C NOMINAL ELECTRICAL VOLTAGE IS 120 VAC. VOLTAGE MUST BE MAINTAINED WITH +/-10 PERCENT OF NOMINAL AT ALL TIMES FOR PROPER EQUIPMENT OPERATION.

TECHNOLOGY CONVEYANCE SYSTEM:

A CONDUITS WHICH CARRY POWER MUST BE SEPARATED FROM TECHNOLOGY CONDUITS BY 12 INCHES FOR VOLTAGES OVER 100 VAC, 24 INCHES FOR VOLTAGES OVER 200 VAC AND 48 INCHES FOR ALL VOLTAGES OVER 300 VAC.

B ALL CONDUIT SHALL BE CLEANED, DEBURRED AND HAVE PULL-STRINGS INSTALLED.

C ALL INTERIOR AND ABOVE GRADE CONDUIT SHALL BE SOLID FERRIC METALLIC. ALL CONDUIT BELOW GRADE SHALL BE PLASTIC. CONTRACTOR SHALL NOT CHANGE CONDUIT TYPE WITHOUT DESIGN CONSULTANT APPROVAL.

D PROVIDE PULL BOXES USING SWEEP ELBOWS AS REQUIRED BY CONDUIT PATH, CABLE BEND RADIUS OR PULLING TENSION LIMITS.

E BACK BOXES TO BE SET TO ALLOW ALL TECHNOLOGY FACEPLATES TO BE INSTALLED TIGHT TO THE ADJACENT SURFACE.

PRIOR TO THE START OF ACTIVE EQUIPMENT INSTALLATION THE EQUIPMENT SPACES SHALL BE:

A CLEAN AND SEALED FROM DUST PRIOR TO EQUIPMENT INSTALLATION.

B MAINTAINED AT A TEMPERATURE OF 72 ± 10 DEGREES FAHRENHEIT AT ALL TIMES.

C MAINTAINED AT A RELATIVE HUMIDITY BETWEEN 40 AND 70 PERCENT AT ALL TIMES.

ALL NETWORK CABLES (CAT 6A) ARE IN CONTRACT.

ALL BLOCKING TO BE PROVIDED BY OTHERS.

SYMBOL LIST

CONDUIT DESTINATION
 CONDUIT STUB UP
 CABLE HOME RUN TO LOCATION
 CONDUIT HOME RUN TO LOCATION

DURESS BUTTON
 MOTION DETECTOR
 KEY PAD
 DOOR CONTACT
 CARD READER
 FLUSH BOLT, MANUAL
 ELECTRIC LOCKSET WITH INTERNAL REX SWITCH
 POWER TRANSFER HINGE/PVOT
 DOME CAMERA, PAN/TILT/ZOOM
 DOME CAMERA, 360 DEGREE
 EXTERIOR CAMERA, FIXED, BULLET (ALTERNATE)
 WALL MOUNTED CAMERA, FIXED, BULLET
 CEILING MOUNTED CAMERA, FIXED, BULLET

DRAWINGS ISSUED LOG

NO.	DESCRIPTION	DATE
1	ADDEDUM #1	6/19/2018
2	ADDEDUM #2	6/19/2018

REVISIONS

NO.	DESCRIPTION	DATE
1	ADDEDUM #1	6/19/2018
2	ADDEDUM #2	6/19/2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018

SCALE: 1/16" = 1'-0"

SHEET NAME:

SHEET INDEX AND NOTES

SHEET NUMBER:

NUMBER DRAWING NAME

NUMBER	DRAWING NAME								
TY-001	SHEET INDEX AND NOTES	X	X	X	X	X			
TY-100	OVERALL FLOOR PLANS		X	X	X	X			
TY-101A	FIRST FLOOR PLAN - AREA A						X		
TY-101Bn	FIRST FLOOR PLAN - AREA Bn						X		
TY-101Bc	FIRST FLOOR PLAN - AREA Bc						X		
TY-101C	FIRST FLOOR PLAN - AREA C						X		
TY-200	OVERALL REFLECTED CEILING PLANS		X	X	X	X			
TY-701	COORDINATION DETAILS	X	X	X	X	X			

SHEET INDEX

TY-001

ksqdesign

NEW YORK OKLAHOMA NORTH CAROLINA
 TEXAS COLORADO SOUTH CAROLINA

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 CHARLOTTE, NC 28203
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 704.364.7080 fax
 www.ksqdesign.com

Owner
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 BOLIVIA, NC 28422
 910.253.2900 office
 www.bcschool.net

Civil Engineer
 MCGILL ASSOCIATES
 1712 VILLAGE ROAD SW, SUITE 103
 SHALLOTTE, NC 28470
 910.755.5872 office
 www.mcgillengineer.com

Structural Engineer
 CRISER, TROUTMAN, TANNER
 3809 PEACHTREE AVE, SUITE 102
 WILMINGTON, NC 28403
 910.397.2971 office
 www.ctengineering.com

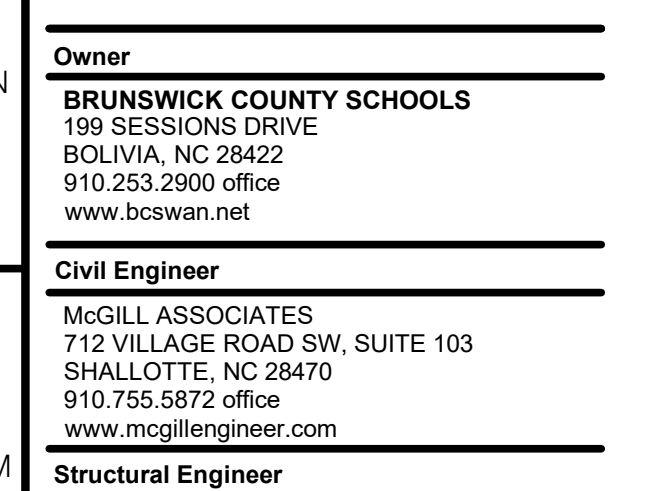
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 #350 INDIAN LAND SC 29707
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 djenette@qualityconsultingengineers.com

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Food Service Consultant
 HERBIN DESIGN
 17325 DORN CIRCLE
 CHARLOTTE, NC 28212-6914
 704.900.0922
 www.herbin.com



TOWN CREEK MIDDLE SCHOOL

6370 LAKE PARK DRIVE
 SE
 WINNABOW, NC 28479

NO.	DESCRIPTION	DATE
1	ADDEDUM #1	6/19/2018
2	ADDEDUM #2	6/19/2018

ISSUED: CONSTRUCTION DOCUMENTS

DATE: 05/24/2018

SCALE: 1/16" = 1'-0"

SHEET NAME:

SHEET INDEX AND NOTES

SHEET NUMBER:

TY-001



W. M. JORDAN COMPANY'S ADDENDUM NO. 02

TOWN CREEK MIDDLE SCHOOL CD BID

JUNE 19, 2018

1. Bids are to be submitted on the project bid form in a sealed envelope. Emailed bids will not be accepted. Please refer to "Instructions to Bidders" for proper bid submission requirements.
2. The bid date of June 26th @ 2:00pm remains unchanged.
3. Bid Bonds: A bid bond of an amount equal to or not less than five percent (5%) of the bid amount is to be included with the bids for bid packages that are \$300,000 and above.
4. Bid package: BP-26A- Any licenses needed for electric locks or security cameras are to be included in the bid. Owner is not providing any licenses.
5. Bid packages BP-03A and BP-10F: BP-03A is to include concrete footings for the walkway canopies columns per the attached sketches from the structural engineer. BP-03A will now have walkway canopy footings in the base bid as well as the alternate for the walkway canopy extension to the existing elementary school (See drawings for extent of base bid vs alternate. Front entrance canopy is in the base bid). Concrete footings and BIM requirements have been removed from BP-10F. BP-10F will still have an alternate for the walkway cover extension to the existing elementary school (See drawings for extent of base bid vs alternate. Front entrance canopy is in the base bid also).
6. Bid package: BP-10F now has an add alternate to furnish and install the door canopies (per BP-10G) this add could be taken if subcontractor is awarded BP-10F. Bidders pre-qualified for bidding BP-10G should also bid BP-10G as a separate package and treat the package as a separate contract not contingent on being awarded any other packages.
7. Bid package BP-22A to make connections for domestic water piping to fire pump with domestic booster pump. Fire pump is to be furnished and install in BP-21A per BP-21A Scope of work.
8. The below manufacturers have been added as approved:
Art Metal Products- Lockers
IPI/Bison- Gym Equipment, etc.
Nevco-Scoreboards
Sheridian-Bleachers

9. Savaria Vertical Wheelchair lift for BP-14B is an approved substitution.
10. Bid Package: BP-07C to include top of wall blocking and metal cap flashing at top of split face dumpster screen wall per new detail in Addendum #2. Also see RFI below (#23).
11. Bid Package: BP-06A to include fixed media center wall shelving along the walls per plans and media center desk. The movable furniture items in the middle of the room labeled F9 are not to be included.
12. Bid bonds are to be made out to W.M. Jordan Company.
13. Project bid form has been revised dated (2018.06.19).
14. Question: BP-04 Scope of Work, B.6 states "Supply and Install Rebar for own work BP-04 Scope of Work, B.11 states "Masonry Rebar, above slab..." is Mason to carry Horizontal Rebar within Bond Beam shown below slab per detail 2/S-502 along perimeter of Building foundation?
Answer: Yes- It is within a masonry unit.
15. Question: BP-04 Scope of Work, B.6 states "Supply and Install Rebar for own work BP-04 Scope of Work, B.11 states "Masonry Rebar, above slab..." is Mason to carry Vertical and Horizontal Rebar within Foundation shown below slab per details 6, 7 & 10/S-502 along Gym Wall Foundation?
Answer: Yes- Pick up rebar that is above the footing Concrete sub should carry rebar that extends out of foundation. Mason will connect to piece that extend out.
16. Question: S-001 Masonry Note 8 states "Fill all cores with masonry grout". Please confirm this is describing MEP Horizontal through wall Cores for Conduits, not fill all Masonry Cells with Masonry Grout.
Answer: These notes were edited slightly in addendum #1- Please refer.
17. Question: S-001 Masonry Note 17, Please confirm this is stating only cells that have reinforcing bars to be grouted.
Answer: These notes were edited slightly in addendum #1- Please refer.
18. Question: S-001 Masonry Note 19, States 5' Lifts. Current Masonry Standards have been revised to 5'4" lifts. Please confirm this is acceptable for the project engineer.
Answer: 5'-4" lifts are acceptable.
19. Question: S-101Bn 13&14 state "Fully Grouted" Please confirm this is only referring to Cells with reinforcing, or Below Grade per Details 4, 5, 6, 7, 10/S-502.
Answer: These notes were edited slightly in addendum #1- Please refer
20. Question: 8/S502 Please confirm Welding of CMU ties to Steel by Structural Steel Sub. Supply by Mason.
7/S510 Please confirm Welding of CMU Rebar to Steel beams by Structural Steel Sub. Supply by Mason
Answer: Mason is responsible to weld own rebar and ties.

21. Question: 2/S508 Bolting Elevator Guide plate to CMU to be done by which sub?
Elevator Sub?
Answer: Correct, unless embed is provided.
22. Question: 2&4/S510 Bolting Masonry Steel Shelve Angle to CMU to be done by which sub? Mason Sub?
Answer: Correct
23. Question: 11/S512 Bolting Concession Stand Ceiling Framing to CMU to be done by which sub?
Answer: Framing Subcontractor.
24. Question: Has a Color and Brand of Brick Mortar been selected? Are we to carry cost for full range of color or a Budget?
Answer: Per specs, the brick is still carried as an allowance.
25. Question: 32/A-521 Steel Brick Shelf on Steel Studs, Which sub is to install?
Answer: Mason, correct Brick shelf will be provided loose. Mason to install
26. Question:
1. Sheet A-200, elevations M1, K10, A5 show ground face CMU block. Per VE discussions and specification 04 20 00- 2.02- D the dumpster screen wall is to be split face CMU. Please advise/revise notes on elevations.
2. A cut section of the split face CMU dumpster screen wall is also needed for bidding subcontractors
Answer:
1. Revised note (split face CMU) on exterior elevations will be submitted in Addendum #2
2. Detail was provided on RFI 053.
27. Question: Sheet S-501 detail #7 shows a cut of the dumpster screen wall and references architectural drawings. We have been unable to locate an architectural cut section of the dumpster screen wall. Please advise.
Answer: See attached detail. Detail will be on sheet A-501 Addendum #2.
28. Question: The Door schedule on A-601 has Door #'s 1100C and 1501A listed as solid alum door with a narrow vision lite kit in an aluminum frame, yet when you reference the details they call for a Hollow metal frame, with a door per door schedule. Please advise which is correct.
Answer: Door 1100C to be hollow metal door with 4" wide x 25" high vision glass in a hollow metal frame. Door 1501A is to be a pair of non-thermal aluminum doors to match glazing configuration depicted in 1500B.
29. Question: The Spec 08 41 13-4 2.04 A. 1. Calls for 1-3/4" aluminum entrance doors, and 1a just below that calls for a Thermal door, and then below that it calls for a medium stile door with 3-1/2" rails and stiles. A thermal door is going to be thicker than 1-3/4" either 2 or 2-1/4" depending on the manufacturer and a medium stile thermal door will not have 3-1/2" rails and stiles they will be larger. Will standard non thermal doors that are 1-3/4" thick and have 3 1/2" rails and stiles be acceptable? Please advise.
Answer: Aluminum doors are to be non-thermal 1 3/4" thick with medium stiles and rails.

30. Question: The specs 08 41 13-4 2.03 B and 2.04 A both make reference to Kawneer part number 451tcg113 for the mullions. This is a ultra heavy wall vertical mullion that adds considerable cost to the glazing system, and seems to be unnecessary. Should we use this mullion everywhere as it is called for in the specs? Or should we use it only where it is shown in the drawings sections? Or only use it when and if it is required for structural purposes? Please advise.

Answer: Ultra-heavy walled storefront mullions are required to meet 130mph wind loading. Engineering calculations for the storefront systems are also required so this wind loading requirement is not be overlooked.

31. Question: Spec. 08 41 13-5 2.09 A -1 Calls for a 2 coat 70% PVCF painted finish color selected by architect to match existing. Will a standard color as selected from the manufacturer's standard colors be acceptable?

Answer: 2-coat 70% PVCF color may be selected from manufacturer's standard.

32. Question: BP-08C- G. What are the expectations for protection of our materials after they are installed? How will this be enforced? After we install our materials how are we to be responsible for the actions of other trades? Can you please clarify what we need to be realistically prepared for with regards to material protection?

Answer: Lower storefront (3'-00" below should be covered with Cardboard to keep trades from scratching it. Horizontal mullions under 6'-00" need to be covered with card board) Once protection is in place, you will get the superintendent to agree it is installed properly. It will at that time become our responsibility to keep other trades from removing it. Unless you remove it for your own work, then it will be yours to reinstall.

33. Question: BP-08C- H: We certainly will repair or replace any materials that we damage during installation, What are the expectations for repairing and replacing materials damaged by others? How will this be documented or policed?

Answer: After you install your product and your foreman says it is ready to be looked at, our superintendent will review to confirm no damage exists. IF damage occurs it will be WM Jordan's responsibility to confirm who is responsible.

34. Question: BP-08C- I: We will remove all stickers and shipping pads at the time of installation, however we do not typically include an additional final cleaning prior to the turnover of the project to the owner, will this be acceptable?

Answer: All surfaces will be clean from foreign matter. Oil, residue, dirt will be removed.

35. Question: BP-08C- L: I am not aware of access panels in our scope. Does this apply only to Mechanical trades?

Answer: This paragraph would not be applicable

36. Question: BP-08C- M: What is the anticipation for BIM modeling within our scope, Does this really only apply again to mechanical trades? I need to know what will be required from us as it specifically applies to our glazing scope with regards to BIM Modeling.

Answer: Not Applicable

37. Question: Please confirm this projects storefront systems are non-impact.

Answer: We can confirm that the storefront system is not missile-impact resistant.

38. Question: CMS Controls would like to request if Distech Controls or Siemens Talon can be added to the list of acceptable manufacturers for this project? Currently it list Schneider Electric, Allerton and Delta controls as acceptable manufacturers for this project per Specification section 23 09 23-1.5-D.
Answer: No
39. Question: Sheet S-121Bn does not show the bearing heights of the gym roof joists. 3/A-511 says see plan, however we have not been able to locate them? Please advise.
Answer: Joist bearing at the high roof end of the gym is clarified to be at 30'-8" AFF.
Joist bearing elevation will be added to sheet S-121Bn Addendum #2.
40. Question: Sheet A-871. The science lab tables, teacher's desk and demonstration mobile workstation do not have furnishings tags. Please confirm these are owner FF&E items.
Answer: OFOI
41. Question: We have not been able to locate a detail/cut section of the media center desk. Please advise.
Answer: Drawing will be submitted in Addendum #2.
42. Question: The canopy design shown on Section A1/A-311 will not work, the gutter fascia to beam connection as shown will not work structurally, also, the deck required to achieve the ~19'-0" span will not fit inside the gutter fascia.
Answer: The deck span will be divided in half, and supported by back to back gutters. Canopy bidders are to follow the design intent illustrated in these documents.
43. Question: Sheets A-621 and A-622 lists glazing types G1-G6, however specification 08 80 00- 2.04 only list G1,G2,G5. Please advise on the specs for the missing glazing types in the specifications.
Answer: Revised spec section 08 80 00 will be submitted in Addendum #2.