

Project Name: Willow - Bid Package 2 – New Build

Project No.: 221125-090

Architect: Kingscott

Date: 3/5/2024

Bid Package No.: 1

Bid Due Date: 3/14/2024 @ 2:00PM

This Addendum is issued to inform the bidders of modifications in the scope of work being bid for this project.

A. Documents included in this Addendum:

- Kingscott Addendum I Cover Page
- Specification sections dated 3/01/2024:

221005 – PLUMBING PIPING	231123 – NATURAL-GAS PIPING
232113 – HYDRONIC PIPING	275116 – PUBLIC ADDRESS SYSTEM

- Drawings dated 3/01/2024:

S1.01 – Foundation Plan Unit 100	S1.02 – Foundation Plan Unit 200, 300, 400	S1.30 – Enlarged Steel Framing Plans and Details	S4.01 - Details
A0.4 – Code Compliance Plan	A1.5 – Equipment Plan - Unit 100	A1.9 – Equipment Schedules & Details	A4.3 – Wall Sections
A6.1 – Door Schedule	A6.2 – Opening Elevations	A8.1 – Color Layout Plan - Unit 100	FS2.1 - Foodservice Plumbing/Mechanical Plan
FS3.1 – Foodservice Equipment Electrical Plan	FS4.1 – Special Conditions and Detail Call-out Plan	M6.0 – Mechanical Schedules	[INTENTIONALLY BLANK]

B. Other modifications:

- RFI's attached.
- Pre-Bid Agenda attached.
- Pre-Bid Conference Attendance attached.
- Project Manual changes;
 - Added note 34 on Specification 00210 Special Provisions regarding mobile equipment/material requirements.

"All materials within the footprint of the building (after the building has been enclosed and concrete floor poured) must be stored on pallets or movable rubber wheeled carts. The intent is all materials, equipment, etc. to be easily movable at all times."

- WC02 – Revised WC Specific note 12;

"Coordinate with WC 08 (landscaping) on installation of exterior amphitheater seating. This WC responsible for all sub-base requirements including geotextile fabric and

crushed stone as shown on amphitheater detail C5.2. up to 1" of required grade. Crushed stone, geotextile fabric, and seating stones shall be furnished and installed by others (WC08)."

- WC03 - Added Related Work by Others note 2;
"Geothermal liquid fill provided and installed by others."
- WC08 – Specific Notes & Details – Removed note 2
~~*"Install redi-rock amphitheater seating, including everything above 6" crushed stone/6AA stone. Work with WC 02 on coordination and installation timelines."*~~
- WC08 - Specific Notes & Details – Added note 3
"WC02 Amphitheater sub base by others up to 1" of required grade (WC02). Crushed stone, geotextile fabric, and seating stones shall be furnished and installed by this WC."
- WC08 – Removed note 7;
~~*"Furnish and install protective fencing as required for all existing trees as shown and/or required."*~~
- WC14 - Added Specific note 6;
*"Furnish and install tectum decking, include cutting for roof penetrations & coordinate with MEP trades for all locations.
This WC responsible for cutting of all tectum decking as required, including for roof drains, plumbing, mechanical, etc. as required. Coordinate with WC 27, 28, 14 for locations.
Corrective work for damaged tectum, or improper cutting to be the responsibility of this WC and corrected by this WC."*
- WC20 - Removed Specific note 9 regarding tectum decking.
- WC20 - Added Specific note 11 regarding cubicle system
"Furnish and install cubicle system."
- WC20 – Removed "Exterior Benches" from Specific Note 9
- WC21 - Removed Specific note regarding cubicle system
 - Remove specification section requirement in WC Specification Index
- WC21 - Revised Work Category Note 5;
"Furnish and install all fireproofing where this WC is responsible to join fire rated assembly walls, and all penetrations made by with WC's activities per the drawings and specifications."
 - Add specification section requirement in WC Specification Index
- WC 27- Remove Specific Note 3;
~~*"This WC shall assume that pre-fabricated walls (by WC 21) are base bid, and this WC is responsible to coordinate with pre-fabricated wall contractor. This coordination is to ensure all in-wall rough ins are complete and in place prior to enclosing"*~~

~~walls, this may include coordination between trades for shop time for fabricated materials. Failure to coordinate and install all in-wall material will need to be corrected, and this WC will be responsible for any repairs, painting, etc. as required to correct revised work."~~

- WC 27 - Added Specific note 4;
"Upon completion of Geothermal System installation, provide liquid fill to complete level."
- WC 27 - Added note under I. A;
"Controls Contractor shall provide their own underground conduit for all controls wiring between buildings as necessary."
- WC 28 - Remove Specific Note 10;
~~*"This WC shall assume that pre-fabricated walls (by WC 21) are base bid, and this WC is responsible to coordinate with pre-fabricated wall contractor. This coordination is to ensure all in-wall rough-ins are complete and in place prior to enclosing walls, this may include coordination between trades for shop time for fabricated materials. Failure to coordinate and install all in-wall material will need to be corrected, and this WC will be responsible for any repairs, painting, etc. as required to correct revised work."*~~
- WC21 & WC15 – Revised annotated detail changing Zee Girt installation to be by WC 15 at metal panels, not WC21 as previously shown.
- Bid Form;
 - Added Voluntary Alternate for WC 21; Install air & vapor barrier in pre-fabricated assembly
 - Added Unit Price for WC 13; Deduct cost for air & vapor barrier removal

C. Bids are due 3/14/2024 @ 2:00PM.

- **Include in your bid the increase or decrease for all materials, labor, supervision, overhead and profit required to properly and completely execute the work described in this Addendum.**
- **Acknowledge receipt of this Addendum on the Bid Proposal Form.**

The applicable provisions of the Contract Documents shall govern all work included herein unless specifically noted otherwise.

END OF ADDENDUM NO. [#1]

Date: 03/01/2024
Project: Willow School
Owner: Lansing School District
Location: Lansing, MI
A/E #: 2616.01A

ADDENDUM NO. 01

SPECIAL NOTE:

The Notice to Bidders, Instructions to Bidders, General Conditions of the Contract for Construction, Supplementary Conditions of the Contract for Construction, and all modifications and previously issued Contract Documentation are a part of this Addendum.

SCOPE OF WORK:

The following items are changes, additions, deletions, clarifications and/or errors and omissions in plans & specifications and shall be considered by each Bidder in making up and submitting their proposal. All items shall be considered a part of the Contract Documents.

NOTICE TO ALL BIDDERS:

All Bidders shall take note of all items covered by this Addendum. Each Bidder shall review the total scope of his responsibilities with respect to his contract work and his interface with the work of others, as well as his required interface with their work.

SPECIFICATIONS:

- Item No. 1. Refer to specification section 221005 (re-Issued):
A. Added Paragraphs: 2.2D, 2.6B
- Item No. 2. Refer to specification section 231123 (re-Issued):
A. Added Paragraphs: 2.1 Natural Gas Piping Buried Beyond 5 Feet of Building
B. Added Paragraph 2.2C for natural gas buried within 5ft of building.
- Item No. 3. Refer to specification section 232113 (re-Issued):
A. Revised Paragraph 2.2B to include Type L Copper.
B. Added Paragraph 2.2B.4 to allow press fittings on copper pipe.
C. Revised Paragraph 3.2A.1 to include press fittings on copper pipe.
- Item No. 4. Refer to specification section 275116 (re-Issued):
A. Added item 1.2 D to provide EPIC District View Head End Server and an additional System Kiosk for the public safety office.

KALAMAZOO
259 E. Michigan Ave., Suite 308
Kalamazoo, MI 49007
T: 800.632.7815

GRAND RAPIDS
801 Broadway NW, Suite 306
Grand Rapids, MI 49504
T: 800.632.7815

CHELSEA
300 N. Main Street, Suite 204
Chelsea, MI 48118
T: 800.632.7815

ROYAL OAK
818 W. Eleven Mile Road
Royal Oak, MI 48067
T: 800.632.7815

DRAWINGS:**S1.01: Foundation Plan Unit 100**

- Revised footing schedule “F5” to be top and bottom each way, hooked ends.
- Shifted kitchen walk-in cooler to the west and changed slab depression from 8” to 8 1/2”.

S1.02: Foundation Plan Units 200, 300, 400

- Revised footing schedule “F5” to be top and bottom each way, hooked ends.

S1.30: Enlarged Steel Framing Plans and Details

- 3,4,5/S1.30: Graphically depicted top and bottom each way, hooked ends at canopy footings.

S4.01: Details

- 1/S4.01: Changed pier verticals from #8 to #6 bars.
- 2/S4.01: Changed pier verticals from #8 to #6 bars.
- 6/S4.01: Changed slab depression from 8” to 8 1/2”.
- 7/S4.01: Changed slab depression from 8” to 8 1/2”.
- 15/S4.01: Changed pier verticals from #8 to #6 bars.
- 16/S4.01: Changed pier verticals from #8 to #6 bars.
- 17/S4.01: Changed pier verticals from #8 to #6 bars, and graphically depicted top and bottom each way, hooked ends at canopy footings

A0.4 – Code Compliance Plan

- Modified Code Compliance Legend to include missing text.

A1.5 – Equipment Plan – Unit 100

- Added additional scoreboard to gymnasium.

A1.9 – Equipment Schedules & Details

- Modified color codes for Acoustic Wall Panel Schedules

A4.3 – Wall Sections

- Modified Detail 3 to stop metal panel at soffit.

A6.1 – Door Schedule

- Change door type for Door 156B.

A6.2 – Opening Elevations

- Noted that BL-2 requires 45 min. rated glazing.
- Modified Frame Type 5 to eliminate the transom.
- Removed Storefront Types B and C.

A8.1 – Color Layout Plan – Unit 100

- Modified FRP-1 height in Dry Storage.

KALAMAZOO

259 E. Michigan Ave., Suite 308
Kalamazoo, MI 49007
T: 800.632.7815

GRAND RAPIDS

801 Broadway NW, Suite 306
Grand Rapids, MI 49504
T: 800.632.7815

CHELSEA

300 N. Main Street, Suite 204
Chelsea, MI 48118
T: 800.632.7815

ROYAL OAK

818 W. Eleven Mile Road
Royal Oak, MI 48067
T: 800.632.7815

- Added corner guards to Gymnasium.

FS2.1 – Foodservice Plumbing/Mechanical Plan

- Shifted drains to the west at cooler.

FS3.1 – Foodservice Equipment Plan

- Shifted cooler to the west.

FS4.1 – Special Conditions and Detail Call-Out Plan

- Shifted cooler to the west.

M6.0 – Mechanical Schedules

- Revised RTU Schedule Note 2 to specify controls by TCC.
- Revised Expansion Tank Schedule.

END OF ADDENDUM

KALAMAZOO

259 E. Michigan Ave., Suite 308
Kalamazoo, MI 49007
T: 800.632.7815

GRAND RAPIDS

801 Broadway NW, Suite 306
Grand Rapids, MI 49504
T: 800.632.7815

CHELSEA

300 N. Main Street, Suite 204
Chelsea, MI 48118
T: 800.632.7815

ROYAL OAK

818 W. Eleven Mile Road
Royal Oak, MI 48067
T: 800.632.7815

SECTION 221005
PLUMBING PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Sanitary waste piping, buried within 5 feet of building.
- B. Sanitary waste piping, above grade.
- C. Domestic water piping, buried within 5 feet of building.
- D. Domestic water piping, above grade.
- E. Storm drainage piping, buried within 5 feet of building.
- F. Storm drainage piping, above grade.
- G. Condensate drains.
- H. Pipe flanges, unions, and couplings.
- I. Pipe hangers and supports.

1.2 RELATED REQUIREMENTS

- A. Section 220516 - Expansion Fittings and Loops for Plumbing Piping.
- B. Section 220553 - Identification for Plumbing Piping and Equipment.
- C. Section 220719 - Plumbing Piping Insulation.

1.3 REFERENCE STANDARDS

- A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2021.
- B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2021.
- C. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings: DWV; 2021.
- D. ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings—DWV; 2017.
- E. ASME B31.9 - Building Services Piping; 2020.
- F. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings; 2021.
- G. ASTM B32 - Standard Specification for Solder Metal; 2020.
- H. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 2020.

- I. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2022.
- J. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2020.
- K. ASTM B306 - Standard Specification for Copper Drainage Tube (DWV); 2020.
- L. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2016.
- M. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2016.
- N. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings; 2020a.
- O. ASTM C1277 - Standard Specification for Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings; 2020.
- P. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets; 2020.
- Q. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023a.
- R. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; 2017.
- S. AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast; 2017, with Errata (2018).
- T. AWWA C651 - Disinfecting Water Mains; 2014, with Addendum (2020).
- U. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications; 2021.
- V. CISPI 310 - Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications; 2020.
- W. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018, with Amendment (2019).
- X. NSF 61 - Drinking Water System Components - Health Effects; 2022, with Errata.
- Y. NSF 372 - Drinking Water System Components - Lead Content; 2022.
- Z. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.4 SUBMITTALS

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

- B. Product Data: Provide data on pipe materials, pipe fittings, and accessories. Provide manufacturers catalog information.
 - 1. Grooved joint couplings and fittings shall be referred to on drawings and product submittals, and be identified by the manufacturer's listed model or series designation.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes.
- B. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.
- C. All grooved couplings, fittings, valves, and specialties shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components.
 - 1. All castings used for couplings housings, fittings, or valve and specialty bodies shall be date stamped for quality assurance and traceability.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- B. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.7 FIELD CONDITIONS

- A. Do not install underground piping when bedding is wet or frozen.

1.8 PERFORMANCE REQUIREMENTS

- A. Provide components and installation capable of producing plumbing piping systems with the following minimum working-pressure ratings:
 - 1. Hot-Water Piping: 80 psig at 140 deg. F
 - 2. Hot-Water Return Piping: 80 psig at 140 deg. F
 - 3. Cold-Water Piping: 80 psig at 75 deg. F

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.
- B. Plenum-Installed Acid Waste Piping: Flame-spread index equal or below 25 and smoke-spread index equal or below 50 according to ASTM E84 or UL 723 tests.

2.2 SANITARY WASTE PIPING, BURIED WITHIN 5 FEET OF BUILDING

- A. Cast Iron Pipe: ASTM A74 extra heavy weight.
 - 1. Fittings: Cast iron.
 - 2. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene gaskets or lead and oakum.
- B. Cast Iron Pipe & Fittings: CISPI 301, ASTM A 888 hubless.
 - 1. Tensile Strength: 21,000 psig minimum.
 - 2. Pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and listed by NSF International.
 - 3. Each length of pipe and each fitting shall be plainly marked with size, country of origin, and name of manufacturer, or manufacturer's registered trademark by which the manufacturer can be readily identified after installation.
 - 4. Heavy-Duty, Hubless-Piping Couplings:
 - a. Manufacturers: Subject to compliance with requirements. Provide products by one of the following:
 - 1) Ideal Tridon
 - 2) ANACO-Husky
 - 3) Tyler Couplings
 - 4) Mission Rubber Company
 - b. Standards: ASTM C 1540.
 - c. Description: Shield Assemblies shall consist of stainless-steel bi-directional corrugated shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop.
- C. Copper Tube: ASTM B306, DWV.
 - 1. Fittings: ASME B16.23, cast copper, or ASME B16.29, wrought copper.
 - 2. Joints: ASTM B32, alloy Sn50 solder.
- D. PVC Pipe:
 - 1. Comply with NSF 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with "NSF-dwv" for plastic drain, waste, and vent piping and "NSF-sewer" for plastic sewer piping.

2. Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent.
3. Cellular-Core PVC Pipe: ASTM F 891, Schedule 40 **will not be accepted**.
4. PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns.
5. PVC Pressure Fittings: ASTM D 2466, Socket Type
6. Primer: ASTM F 656.
 - a. Primer shall have a VOC content of 550g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24)
 - b. Adhesive primer shall comply with the testing and product requirements of the California Department of Health Services "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers"
7. Solvent Cement: ASTM D 2564.
 - a. PVC solvent cement shall have a VOC content of 510 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24)
 - b. Solvent cement shall comply with the testing and product requirements of the California Department of Health Services "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers"

2.3 SANITARY WASTE PIPING, ABOVE GRADE

- A. Cast Iron Pipe & Fittings: CISPI 301, ASTM A 888 hubless.
 1. Fittings: Cast iron.
 2. Joints: CISPI 310, neoprene gasket and stainless steel clamp and shield assemblies.
 3. Tensile Strength: 21,000 psig minimum.
 4. Pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and listed by NSF International.
 5. Each length of pipe and each fitting shall be plainly marked with size, country of origin, and name of manufacturer, or manufacturer's registered trademark by which the manufacturer can be readily identified after installation.
 6. CISPI, Hubless-Piping Couplings:
 - a. Manufacturers: Subject to compliance with requirements. Provide products by one of the following:

- 1) Ideal Tridon
- 2) ANACO-Husky
- 3) Tyler Couplings
- 4) Mission Rubber Company

- b. Standards: ASTM C 1277 and CISPI 310.
- c. Description: Shield Assemblies shall consist of stainless-steel bi-directional corrugated shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop. Couplings shall bear the trademark NSF International.

B. Copper Tube: ASTM B306, DWV.

1. Fittings: ASME B16.29, wrought copper, or ASME B16.23, solvent.
2. Joints: ASTM B32, alloy Sn50 solder.

2.4 DOMESTIC WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Copper Pipe: ASTM B42, hard drawn.

1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22 wrought copper and bronze.
2. Joints: ASTM B32, alloy Sn95 solder.

B. Ductile Iron Pipe: AWWA C151/A21.51.

1. Fittings: Ductile iron, standard thickness.
2. Joints: AWWA C111/A21.11, styrene butadiene rubber (SBR) or vulcanized SBR gasket with 3/4 inch diameter rods.

2.5 DOMESTIC WATER PIPING, ABOVE GRADE

A. Copper Pipe: ASTM B88 (ASTM B88M), Type L (B) or K (A), Drawn (H). Type M (C) will not be accepted.

1. Fittings:
 - a. ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
 - b. Grooved end fittings manufactured to copper-tube dimensions. (Flaring of tube or fitting ends to accommodate alternate sized couplings is not permitted.)
2. Joints:
 - a. ASTM B32, solder.

- b. Grooved joint coupling consisting of two ductile iron housings cast with offsetting angle-pattern bolt pads, Fluoroelastomer center-leg gasket with pipe stop to ensure proper groove engagement, alignment, and pipe insertion depth, and ASTM A449 compliant bolts and nuts. Installation ready rigid coupling for direct stab installation without field disassembly.
 - 1) UL classified in accordance with NSF-61 for potable water service. The system shall meet the low-lead requirements of NSF-372.
 3. Mechanical Press Sealed Fittings: Double-pressed type, NSF 61 and NSF 372 approved or certified, utilizing EPDM, nontoxic, synthetic rubber sealing elements.
 - a. Manufacturers:
 - 1) Apollo Valves: www.apollovalves.com/#sle.
 - 2) Nibco: www.nibco.com.
 - 3) Substitutions: See Section 016000 - Product Requirements.

2.6 STORM DRAINAGE PIPING, BURIED WITHIN 5 FEET OF BUILDING

- A. Cast Iron Pipe & Fittings: CISPI 301, ASTM A 888 hubless.
 1. Fittings: Cast iron.
 2. Joints: CISPI 310, neoprene gasket and stainless steel clamp and shield assemblies.
 3. Tensile Strength: 21,000 psig minimum.
 4. Pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and listed by NSF International.
 5. Each length of pipe and each fitting shall be plainly marked with size, country of origin, and name of manufacturer, or manufacturer's registered trademark by which the manufacturer can be readily identified after installation.
 6. Heavy-Duty, Hubless-Piping Couplings:
 - a. Manufacturers: Subject to compliance with requirements. Provide products by one of the following:
 - 1) Ideal Tridon
 - 2) ANACO-Husky
 - 3) Tyler Couplings
 - 4) Mission Rubber Company
 - b. Standards: ASTM C 1540.

- c. Description: Shield Assemblies shall consist of stainless-steel bi-directional corrugated shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop.

B. PVC Pipe:

1. Comply with NSF 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with "NSF-dwv" for plastic drain, waste, and vent piping and "NSF-sewer" for plastic sewer piping.
2. Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent.
3. Cellular-Core PVC Pipe: ASTM F 891, Schedule 40 **will not be accepted**.
4. PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns.
5. PVC Pressure Fittings: ASTM D 2466, Socket Type
6. Primer: ASTM F 656.
 - a. Primer shall have a VOC content of 550g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24)
 - b. Adhesive primer shall comply with the testing and product requirements of the California Department of Health Services "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers"
7. Solvent Cement: ASTM D 2564.
 - a. PVC solvent cement shall have a VOC content of 510 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24)
 - b. Solvent cement shall comply with the testing and product requirements of the California Department of Health Services "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers"

2.7 STORM DRAINAGE PIPING, ABOVE GRADE

A. Cast Iron Pipe & Fittings: CISPI 301, ASTM A 888 hubless.

1. Fittings: Cast iron.
2. Joints: CISPI 310, neoprene gasket and stainless steel clamp and shield assemblies.
3. Tensile Strength: 21,000 psig minimum.

4. Pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute ® and listed by NSF International.
5. Each length of pipe and each fitting shall be plainly marked with size, country of origin, and name of manufacturer, or manufacturer's registered trademark by which the manufacturer can be readily identified after installation.
6. CISPI, Hubless-Piping Couplings:
 - a. Manufacturers: Subject to compliance with requirements. Provide products by one of the following:
 - 1) Ideal Tridon
 - 2) ANACO-Husky
 - 3) Tyler Couplings
 - 4) Mission Rubber Company
 - b. Standards: ASTM C 1277 and CISPI 310.
 - c. Description: Shield Assemblies shall consist of stainless-steel bi-directional corrugated shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop. Couplings shall bear the trademark NSF International.

2.8 CONDENSATE DRAINS SERVING INDIVIDUAL EQUIPMENT

- A. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), drawn; using one of the following joint types:
 1. Solder joints: ASME B16.18 cast brass/bronze or ASME B16.22 solder wrought copper fittings; ASTM B32 lead-free solder, HB alloy (95-5 tin-antimony) or tin and silver.

2.9 CONDENSATE DRAINAGE SYSTEMS SERVING MULTIPLE PIECES OF EQUIPMENT.

- A. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), drawn; using one of the following joint types:
 1. Solder joints: ASME B16.18 cast brass/bronze or ASME B16.22 solder wrought copper fittings; ASTM B32 lead-free solder, HB alloy (95-5 tin-antimony) or tin and silver.
- B. PVC Pipe: ASTM D2665.
 1. Fittings: PVC
 2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.10 PIPE FLANGES, UNIONS, AND COUPLINGS

- A. Unions for Pipe Sizes 3 inch and Under:
 - 1. Ferrous Pipe: Class 150 malleable iron threaded unions.
 - 2. Copper Tube and Pipe: Class 150 bronze unions with soldered joints.
- B. Flanges for Pipe Sizes Over 1 inch:
 - 1. Ferrous Pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.
 - 2. Copper Tube and Pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.
- C. Unions or flanges for servicing and disconnect are not required in installations using grooved joint couplings.
- D. No-Hub Couplings:
 - 1. Testing: In accordance with ASTM C1277 and CISPI 310.
 - 2. General: Comply with ASTM C1277 and CISPI 310.
 - 3. Gasket Material: Neoprene complying with ASTM C564.
 - 4. Band Material: Stainless steel complying with ASTM A240.
 - 5. Eyelet Material: Stainless steel.
 - 6. Manufacturers:
 - a. MIFAB, Inc: www.mifab.com/#sle.
 - b. Anaco-Husky: www.anaco-husky.com.
 - c. Substitutions: See Section 016000 - Product Requirements.
- E. Dielectric Connections:
 - 1. Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
 - 2. Waterway Fitting: Copper-silicon casting conforming to UNS C87850, and UL classified in accordance with ANSI / NSF-61 for potable water service. Fittings shall have threaded ends, grooved ends, or a combination.

2.11 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.
 - 1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.

2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
3. Trapeze Hangers: Welded steel channel frames attached to structure.
4. Vertical Pipe Support: Steel riser clamp. Riser clamps shall be isolated from the building structure by placing felt or rubber pads between the clamp and the structure.

B. Pipe Stands on Rooftops

1. General Requirements for Pipe Stands: Shop- or field-fabricated assemblies made of manufactured corrosion-resistant components to support roof-mounted piping.
2. High-Type, Single-Pipe Stand:
 - a. Description: Assembly of base, vertical and horizontal members, and pipe support, for roof installation without membrane penetration
 - b. Base: Plastic or Stainless Steel
 - c. Vertical Members: Two or more cadmium-plated-steel or stainless-steel, continuous-thread rods.
 - d. Horizontal Member: Cadmium-plated-steel or stainless-steel rod with plastic or stainless-steel, roller-type pipe support.
3. High-Type, Multiple-Pipe Stand:
 - a. Description: Assembly of bases, vertical and horizontal members, and pipe supports, for roof installation without membrane penetration.
 - b. Bases: One or more; plastic.
 - c. Vertical Members: Two or more protective-coated-steel channels.
 - d. Horizontal Member: Protective-coated-steel channel.
 - e. Pipe Supports: Galvanized-steel, clevis-type pipe hangers.

PART 3 EXECUTION

3.1 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges, grooved joint couplings, or unions.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions. Cast iron soil pipe installed in accordance to CISPI's Handbook.
- B. Install aboveground PVC piping according to ASTM D 2665.
- C. Install underground PVC piping according to ASTM D 2321.
- D. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- E. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- F. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- G. Group piping whenever practical at common elevations.
- H. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- I. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- J. Provide access where valves and fittings are not exposed. Coordinate size and location of access door with Division 01.
- K. Establish elevations of buried piping outside the building to ensure not less than 4 ft of cover.
- L. Provide support for utility meters in accordance with requirements of utility companies.
- M. Install valves with stems upright or horizontal, not inverted. See Section 220523.
- N. Install water piping to ASME B31.9.
- O. Slope water piping and arrange to drain at low points.
- P. Install sub-soil drainage piping (perforated) from lowest end of slope to highest, solidly bedded in filtering or drainage fill. Shape bed for bells of piping (if any). Place bells/hubs and groove end of units up-stream. Lay perforated pipe with perforations down.
- Q. Sub-soil drain pipe tube or tile shall be laid in trench with a minimum of 6" gravel on all sides. Provide filter sock and/or filter fabric on pipe.
- R. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.

- S. Grooved joints shall be installed in accordance with the manufacturer's latest published instructions. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service. Gaskets shall be molded and produced by the grooved coupling manufacturer. Grooved ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to groove. Grooved coupling manufacturer's factory trained field representative shall provide on-site training for contractor's field personnel in the proper use of grooving tools, application of groove, and installation of grooved piping products. Factory trained representative shall periodically visit the jobsite to ensure best practices in grooved product installation are being followed. Contractor shall remove and replace any improperly installed products.
- T. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.
- U. Sleeve pipes passing through partitions, walls, and floors.
- V. Pipe Stand Installation: Assemble components and mount on smooth roof surface. Do not penetrate roof membrane.
- W. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.
- X. Pipe Hangers and Supports:
 - 1. Install in accordance with ASME B31.9.
 - 2. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
 - 3. Install lateral bracing with pipe hangers and supports to prevent swaying.
 - 4. Provide copper plated hangers and supports for copper piping.
- Y. Pipe Sleeve-Seal Systems:
 - 1. Install manufactured sleeve-seal systems in sleeves located in grade slabs and exterior concrete walls at piping entrances into building.
 - 2. Provide sealing elements of the size, quantity, and type required for the piping and sleeve inner diameter or penetration diameter.
 - 3. Locate piping in center of sleeve or penetration.
 - 4. Install field assembled sleeve-seal system components in annular space between sleeve and piping.
 - 5. Tighten bolting for a watertight seal.
 - 6. Install in accordance with manufacturer's recommendations.

- Z. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.
- AA. In general, all piping, and similar items shall be installed concealed from view above ceiling, in partitions, shafts, chases, unless otherwise indicated.
- BB. Where pipes are in partitions, furred out spaces and chases, obtain information as to their exact location and size and install work so as to be entirely concealed in allotted space. If conflicts arise making this impossible, obtain instructions from Architect/Engineer before proceeding with work.
- CC. Where there is evidence that plumbing work will interfere with other work, assist in working out space conditions and/or structure, make necessary adjustments to accommodate work.
- DD. Plumbing work installed before coordinating with other work so as to cause interference with other work to be changed to correct such condition without additional cost to Owner.
- EE. Appliances and equipment to be installed and connected with best engineering practices and in accordance with manufacturer's instructions and recommendations. Piping, valves, connections and other like items recommended by manufacturer or as required for proper operation to be provided without additional cost to Owner.
- FF. In no case will any pipe, conduit or duct be installed where it is supported on or suspended from another pipe, conduit or duct.

3.3 APPLICATION

- A. Install unions downstream of valves and at equipment or apparatus connections.
- B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
- C. Provide flow controls in water recirculating systems where indicated.

3.4 TOLERANCES

- A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/8 inch per foot slope; 1/4 inch per foot slope for piping serving low flow fixtures.
- B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

3.5 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Prior to starting work, verify system is complete, flushed, and clean.
- B. Ensure acidity (pH) of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).

- C. Inject disinfectant, free chlorine in liquid, powder, tablet, or gas form throughout system to obtain 50 to 80 mg/L residual.
- D. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
- E. Maintain disinfectant in system for 24 hours.
- F. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
- G. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.
- H. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

3.6 SERVICE CONNECTIONS

- A. Provide new sanitary and storm sewer services. Before commencing work, check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.
- B. Provide new natural gas service. Coordinate incoming line size, meter location, regulator settings, etc. with Utility Company prior to the start of any work.
- C. Provide new water service complete with approved wye strainer, reduce pressure backflow preventer, and water meter with by-pass valves.
 - 1. Provide 18 gauge, 0.0478-inch galvanized sheet metal sleeve around service main to 6 inch above floor and 6 feet minimum below grade. Size for minimum of 2 inches of loose batt insulation stuffing.

This page intentionally left blank

SECTION 231123
NATURAL-GAS PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pipe, pipe fittings, valves, and connections for natural gas piping systems.

1.2 RELATED REQUIREMENTS

- A. Section 078400 - Firestopping.
- B. Section 099113 - Exterior Painting.
- C. Section 230516 - Expansion Fittings and Loops for HVAC Piping.
- D. Section 230553 - Identification for HVAC Piping and Equipment.
- E. Section 312316 - Excavation.
- F. Section 312316.13 - Trenching.
- G. Section 312323 - Fill.
- H. Section 335216 - Gas Hydrocarbon Piping.

1.3 REFERENCE STANDARDS

- A. ANSI Z21.18/CSA 6.3 - Gas Appliance Pressure Regulators; 2019.
- B. ANSI Z21.80/CSA 6.22 - Line Pressure Regulators; 2019.
- C. ANSI Z223.1 - National Fuel Gas Code; 2021.
- D. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2021.
- E. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2021.
- F. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2021.
- G. ASME B31.1 - Power Piping; 2022.
- H. ASME B31.9 - Building Services Piping; 2020.
- I. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.
- J. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

- K. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service; 2023a.
- L. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2022.
- M. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2020.
- N. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2016.
- O. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2016.
- P. ASTM D2513 - Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings; 2020.
- Q. ASTM D2683 - Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing; 2020.
- R. AWS A5.8M/A5.8 - Specification for Filler Metals for Brazing and Braze Welding; 2019.
- S. AWWA C105/A21.5 - Polyethylene Encasement for Ductile-Iron Pipe Systems; 2018.
- T. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010, with Errata .

1.4 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

1.5 QUALITY ASSURANCE

- A. Valves: Manufacturer's name and pressure rating marked on valve body.

1.6 FIELD CONDITIONS

- A. Do not install underground piping when bedding is wet or frozen.

PART 2 PRODUCTS

2.1 NATURAL GAS PIPING, BURIED BEYOND 5 FEET OF BUILDING

- A. Steel Pipe: ASTM A53/A53M, Grade B, Type F, Schedule 40 black.
 - 1. Fittings: ASTM A234/A234M, wrought steel welding type, with AWWA C105/A21.5 polyethylene jacket or double layer, half-lapped 10 mil polyethylene tape.
 - 2. Joints: ASME B31.1, welded.

B. Copper Tubing: Listed, ASTM B88 (ASTM B88M), Type K (A), annealed.

1. Fittings: ASME B16.18 cast copper or ASME B16.22 wrought copper.
2. Joints: Compression connection or AWS A5.8M/A5.8, BCuP silver braze.
3. Mechanical Press Sealed Fittings: Double-pressed type and approved or certified, utilizing EPDM, nontoxic, synthetic rubber sealing elements.

C. Flexible Gas Piping:

1. Pre-Sleeved Corrugated Stainless Steel Tubing: Comply with ANSI LC1 / CSA 6.26.
2. System shall be sleeved in a fully vent-capable polyethylene sleeve. Fittings shall have plastic containment coupling and 1/4" vent port.
3. Fittings: Provided by piping system manufacturer.
4. Manufacturers:
 - a. Omega Flex, Inc: www.omegaflex.com/#sle.

D. Polyethylene Pipe: ASTM D2513, SDR 11.

1. Fittings: ASTM D2683 or ASTM D2513 socket type.
2. Joints: Fusion welded.

2.2 NATURAL GAS PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Steel Pipe: ASTM A53/A53M, Grade B, Type F, Schedule 40 black.

1. Fittings: ASTM A234/A234M, wrought steel welding type.
2. Joints: ANSI Z223.1, welded.
3. Jacket: AWWA C105/A21.5 polyethylene jacket or double layer, half-lapped 10 mil polyethylene tape.

B. Flexible Gas Piping:

1. Pre-Sleeved Corrugated Stainless Steel Tubing: Comply with ANSI LC1 / CSA 6.26.
2. System shall be sleeved in a fully vent-capable polyethylene sleeve. Fittings shall have plastic containment coupling and 1/4" vent port.
3. Fittings: Provided by piping system manufacturer.
4. Manufacturers:
 - a. Omega Flex, Inc: www.omegaflex.com/#sle.

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

C. Polyethylene Pipe: ASTM D2513, SDR 11.

- 1. Fittings: ASTM D2683 or ASTM D2513 socket type.
- 2. Joints: Fusion welded.

2.3 NATURAL GAS PIPING, ABOVE GRADE

A. Steel Pipe: ASTM A53/A53M, Grade B, Type F, Schedule 40 black.

- 1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M, wrought steel welding type.
- 2. Joints: Threaded or welded to ASME B31.1.
- 3. Exterior Applications Only: Mechanical Press Sealed Fittings (Where approved by local AHJ): Double-pressed type and approved or certified, utilizing EPDM/HNBR, nontoxic, synthetic rubber sealing elements.

a. Manufacturers:

- 1) Viega LLC: www.viega.us/#sle.
- 2) Nibco: www.nibco.com
- 3) Substitutions: See Section 016000 - Product Requirements.

b. Listings and Certifications:

- 1) ANSI LC-4/CSA 6.32
- 2) ICC-ES PMG 1502
- 3) IAPMO/UPC LC-4

2.4 FLANGES, UNIONS, AND COUPLINGS

A. Unions for Pipe Sizes 3 Inches and Under:

- 1. Ferrous Pipe: Class 150 malleable iron threaded unions.
- 2. Copper Tube and Pipe: Class 150 bronze unions with soldered joints.

B. Flanges for Pipe Size Over 1 Inch:

- 1. Ferrous Pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.
- 2. Copper Tube and Pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.

2.5 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.
1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
 2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
 3. Trapeze Hangers: Welded steel channel frames attached to structure.
 4. Vertical Pipe Support: Steel riser clamp.
 5. Rooftop Supports for Low-Slope Roofs: Steel pedestals with bases that rest on top of roofing membrane, not requiring any attachment to the roof structure and not penetrating the roofing assembly, with support fixtures as specified; and as follows:
 - a. Bases: High density polypropylene.
 - b. Base Sizes: As required to distribute load sufficiently to prevent indentation of roofing assembly.
 - c. Steel Components: Stainless steel, or carbon steel hot-dip galvanized after fabrication in accordance with ASTM A123/A123M.
 - d. Attachment/Support Fixtures: As recommended by manufacturer, same type as indicated for equivalent indoor hangers and supports; corrosion resistant material.
 - e. Height: Provide minimum clearance of 6 inches under pipe to top of roofing.

2.6 BALL VALVES

- A. Manufacturers:
1. Apollo Valves: www.apollovalves.com/#sle.
 2. Milwaukee Valve Company: www.milwaukeevalve.com/#sle.
 3. Nibco, Inc: www.nibco.com/#sle.
 4. Jomar Valves: www.jomarvalve.com
 5. Bonomi: www.bonominorthamerica.com
 6. Substitutions: See Section 016000 - Product Requirements.
- B. Construction, 2 Inches and Smaller: MSS SP-110, Class 150, 400 psi CWP, bronze or hot forged brass body, 304 stainless steel or chrome plated brass or bronze ball, regular port, Teflon seats and stuffing box ring, blow-out proof stem, lever handle, solder or threaded ends with union.

2.7 LINE PRESSURE REGULATORS AND APPLIANCE REGULATORS INDICATORS

A. Manufacturers:

1. Maxitrol Company: www.maxitrol.com/#sle.
2. Fisher
3. Eaton
4. Harper Wyman Co
5. Pietro Fiorentini
6. Substitutions: See Section 016000 - Product Requirements.

B. Compliance Requirements:

1. Appliance Regulator: ANSI Z21.18/CSA 6.3.
2. Line Pressure Regulator: ANSI Z21.80/CSA 6.22.

C. Provide with inlet and outlet pressure gage on piping.

D. Regulator shall be capable of downturn from 10 psi (or max pressure required by Utility Company) to median pressure range of equipment served.

E. Regulator to be "ventless" where installed indoors, as approved by AHJ.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- H. Provide access where valves and fittings are not exposed.

- I. Provide support for utility meters in accordance with requirements of utility companies.
- J. Prepare exposed, unfinished pipe, fittings, supports, and accessories ready for finish painting.
- K. Install valves with stems upright or horizontal, not inverted.
- L. Pipe vents from gas pressure reducing valves to outdoors and terminate in weather proof hood.
- M. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813.
- N. Sleeve pipes passing through partitions, walls and floors.
- O. Pipe Hangers and Supports:
 - 1. Install in accordance with ASME B31.9.
 - 2. Provide copper plated hangers and supports for copper piping.
 - 3. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
- P. Underground piping shall be installed with warning tape that states: "WARNING BURIED GAS LINE BELOW." The tape shall be in trench at least 12 inches above the gas piping.

3.2 APPLICATION

- A. Install unions downstream of valves and at equipment or apparatus connections.
- B. Provide regulators at all pieces of equipment in project. Optionally, line regulators can be provided to protect groups of equipment from abnormal conditions that may cause pressure increases, including but not limited to unusual operating conditions of the Utility service regulator.
- C. Provide with drip leg and isolation valve as required by IFGC.
- D. For interior buried applications, utilize pre-sleeved CSST with accessories or provide vented conduit encasement as required by IFGC.

3.3 SERVICE CONNECTIONS

- A. Provide new gas service complete with gas meter and regulators in accordance with local Utility requirements. Gas service distribution piping to have initial minimum pressure indicated on plans.
- B. Contractor is responsible for coordinating new service with Utility, including any elevated pressure requests.

This page intentionally left blank

SECTION 232113
HYDRONIC PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Hydronic system requirements.
- B. Geothermal heat pump loop water piping, above grade.
- C. Equipment drains and overflows.
- D. Pipe hangers and supports.
- E. Unions, flanges, mechanical couplings, and dielectric connections.

1.2 RELATED REQUIREMENTS

- A. Section 083100 - Access Doors and Panels.
- B. Section 220516 - Expansion Fittings and Loops for Plumbing Piping.
- C. Section 220719 - Plumbing Piping Insulation.
- D. Section 230523 - General-Duty Valves for HVAC Piping.
- E. Section 230553 - Identification for HVAC Piping and Equipment.
- F. Section 230719 - HVAC Piping Insulation.
- G. Section 232114 - Hydronic Specialties.
- H. Section 232500 - HVAC Water Treatment: Pipe cleaning.

1.3 REFERENCE STANDARDS

- A. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators; 2023.
- B. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2021.
- C. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2021.
- D. ASME B31.9 - Building Services Piping; 2020.
- E. ASTM B32 - Standard Specification for Solder Metal; 2020.
- F. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2022.
- G. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2020.

- H. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers; 2024.
- I. ASTM F1476 - Standard Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications; 2007 (Reapproved 2019).
- J. AWWA C606 - Grooved and Shouldered Joints; 2022.
- K. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018, with Amendment (2019).

1.4 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data:
 - 1. Include data on pipe materials, pipe fittings, and accessories.
 - 2. Show grooved joint couplings, fittings, and specialties on drawings and product submittals, specifically identified with the manufacturer's style or series designation.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with minimum three years of documented experience.
- B. Provide all grooved joint couplings, fittings, valves, specialties, and grooving tools from a single manufacturer.
- C. Coupling Manufacturer:
 - 1. Perform on-site training by factory-trained representative to the Contractor's field personnel in the proper use of grooving tools and installation of grooved joint products.
 - 2. Periodic job site visits by factory-trained representative to ensure best practices in grooved joint installation.
- D. Welder Qualifications: Certify in accordance with ASME BPVC-IX.

1.6 FIELD CONDITIONS

- A. Do not install underground piping when bedding is wet or frozen.

PART 2 PRODUCTS

2.1 HYDRONIC SYSTEM REQUIREMENTS

- A. Comply with ASME B31.9 and applicable federal, state, and local regulations.
- B. Piping: Provide piping, fittings, hangers, and supports as required, as indicated, and as follows:

1. Where more than one piping system material is specified, provide joining fittings that are compatible with piping materials and ensure that the integrity of the system is not jeopardized.
 2. Use non-conducting dielectric connections whenever jointing dissimilar metals.
 3. Grooved mechanical joints may be used in accessible locations only.
 - a. Accessible locations include those exposed on interior of building, in pipe chases, and in mechanical rooms, aboveground outdoors, and as approved by Architect.
 - b. Use rigid joints unless otherwise indicated.
 4. Provide pipe hangers and supports in accordance with ASME B31.9 or MSS SP-58 unless indicated otherwise.
- C. Pipe-to-Valve and Pipe-to-Equipment Connections: Use flanges, unions, or grooved couplings to allow disconnection of components for servicing; do not use direct welded, soldered, or threaded connections.
- D. Valves: Provide valves where indicated:
1. Provide drain valves where indicated, and if not indicated, provide at least at main shut-off, low points of piping, bases of vertical risers, and at equipment. Use 3/4 inch gate valves with cap; pipe to nearest floor drain.

2.2 GEOTHERMAL HEAT PUMP LOOP WATER PIPING, ABOVE GRADE

- A. Steel Pipe: ASTM A53/A53M, Schedule 40, black; using one of the following joint types:
1. Welded Joints: ASTM A234/A234M, wrought steel welding type fittings; AWS D1.1/D1.1M welded.
 2. Threaded Joints: ASME B16.3, malleable iron fittings.
 3. Grooved Joints: AWWA C606 grooved pipe, fittings of same material, and mechanical couplings.
- B. Copper Tube: ASTM B88 (ASTM B88M), Type K (A) or Type L, hard drawn; using one of the following joint types:
1. Solder Joints: ASME B16.18 cast brass/bronze or ASME B16.22, solder wrought copper fittings.
 - a. Solder: ASTM B32 lead-free solder, HB alloy (95-5 tin-antimony) or tin and silver.
 2. Grooved Joints: AWWA C606 grooved tube, fittings of same material, and copper-tube-dimension mechanical couplings.

3. Tee Connections: Mechanically extracted collars with notched and dimpled branch tube.
4. Mechanical Press Sealed Fittings: Double pressed type complying with ASME B16.22, utilizing EPDM, nontoxic synthetic rubber sealing elements.
 - a. Manufacturers:
 - 1) Apollo Valves: www.apollovalves.com/#sle.
 - 2) Grinnell Products: www.grinnell.com/#sle.
 - 3) Viega LLC: www.viega.us/#sle.

2.3 EQUIPMENT DRAINS AND OVERFLOWS

- A. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), drawn; using one of the following joint types:
 1. Solder Joints: ASME B16.18 cast brass/bronze or ASME B16.22 solder wrought copper fittings; ASTM B32 lead-free solder, HB alloy (95-5 tin-antimony) or tin and silver.

2.4 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.
 1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
- B. In grooved installations, use rigid couplings with offsetting angle-pattern bolt pads or with wedge-shaped grooves in header piping to permit support and hanging in accordance with ASME B31.9.

2.5 UNIONS, FLANGES, MECHANICAL COUPLINGS, AND DIELECTRIC CONNECTIONS

- A. Unions for Pipe 2 Inches and Less:
 1. Ferrous Piping: 150 psig malleable iron, threaded.
 2. Copper Pipe: Bronze, soldered joints.
- B. Flanges for Pipe 2 Inches and Greater:
 1. Ferrous Piping: 150 psig forged steel, slip-on.
 2. Copper Piping: Bronze.
 3. Gaskets: 1/16 inch thick, preformed neoprene.
- C. Mechanical Couplings for Grooved and Shouldered Joints: Two or more curved housing segments with continuous key to engage pipe groove, circular C-profile gasket, and bolts to secure and compress gasket.

1. Dimensions and Testing: In accordance with AWWA C606.
2. Mechanical Couplings: Comply with ASTM F1476.
3. Bolts and Nuts: Hot dipped galvanized or zinc-electroplated steel.
4. When pipe is field grooved, provide coupling manufacturer's grooving tools.
5. Manufacturers:
 - a. Anvil International: www.anvilintl.com/#sle.
 - b. Grinnell Products: www.grinnell.com/#sle.
 - c. Victaulic Company: www.victaulic.com/#sle.
 - d. Substitutions: See Section 016000 - Product Requirements.

D. Dielectric Connections:

1. Waterways:
 - a. Water impervious insulation barrier capable of limiting galvanic current to 1 percent of short circuit current in a corresponding bimetallic joint.
 - b. Dry insulation barrier able to withstand 600-volt breakdown test.
 - c. Construct of galvanized steel with threaded end connections to match connecting piping.
 - d. Suitable for the required operating pressures and temperatures.
2. Flanges:
 - a. Dielectric flanges with same pressure ratings as standard flanges.
 - b. Water impervious insulation barrier capable of limiting galvanic current to 1 percent of short circuit current in a corresponding bimetallic joint.
 - c. Dry insulation barrier able to withstand 600-volt breakdown test.
 - d. Construct of galvanized steel with threaded end connections to match connecting piping.
 - e. Suitable for the required operating pressures and temperatures.

PART 3 EXECUTION

3.1 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

- B. Prepare pipe for grooved mechanical joints as required by coupling manufacturer.
- C. Remove scale and dirt on inside and outside before assembly.
- D. Prepare piping connections to equipment using jointing system specified.
- E. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.
- F. After completion, fill, clean, and treat systems. Refer to Section 232500 for additional requirements.

3.2 PIPING APPLICATIONS

- A. Geothermal heat pump water piping, above ground:
 - 1. Pipe sizes 3/4" - 2": Copper, soldered/brazed, or press joints; schedule 40 black steel threaded joints.
 - 2. Pipe sizes 2 1/2" and larger: Schedule 40 black steel, welded or grooved joints.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Route piping in orderly manner, parallel to building structure, and maintain gradient.
- C. Install piping to conserve building space and to avoid interference with use of space.
- D. Group piping whenever practical at common elevations.
- E. Sleeve pipe passing through partitions, walls, and floors.
- F. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified.
- G. Slope piping and arrange to drain at low points.
- H. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- I. Grooved Joints:
 - 1. Install in accordance with the manufacturer's latest published installation instructions.
 - 2. Gaskets to be suitable for the intended service, molded, and produced by the coupling manufacturer.
- J. Pipe Hangers and Supports:
 - 1. Install in accordance with ASME B31.9, ASTM F708, or MSS SP-58.

2. Install hangers to provide minimum 1/2-inch space between finished covering and adjacent work.
 3. Place hangers within 12 inches of each horizontal elbow.
 4. Use hangers with 1-1/2 inches minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
 5. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.
 6. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
 7. Provide copper plated hangers and supports for copper piping.
- K. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- L. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors with Section 083100 .
- M. Use eccentric reducers to maintain top of pipe level.
- N. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc-rich primer to welds.
- O. Install valves with stems upright or horizontal, not inverted.
- 3.4 FIELD QUALITY CONTROL
- A. Prepare hydronic piping according to ASME B31.9 and as follows:
1. Leave joints, including welds, uninsulated and exposed for examination during test.
 2. Provide temporary restraints for expansion joints that cannot sustain reactions due to test pressure. If temporary restraints are impractical, isolate expansion joints from testing.
 3. Flush hydronic piping systems with clean water; then remove and clean or replace strainer screens.
 4. Isolate equipment from piping. If a valve is used to isolate equipment, its closure shall be capable of sealing against test pressure without damage to valve. Install blinds in flanged joints to isolate equipment.
 5. Install safety valve, set at a pressure no more than one-third higher than test pressure, to protect against damage by expanding liquid or other source of overpressure during test.
- B. Perform the following tests on hydronic piping:

1. Use ambient temperature water as a testing medium unless there is risk of damage due to freezing. Another liquid that is safe for workers and compatible with piping may be used.
 2. While filling system, use vents installed at high points of system to release air. Use drains installed at low points for complete draining of test liquid.
 3. Isolate expansion tanks and determine that hydronic system is full of water.
 4. Subject piping system to hydrostatic test pressure that is not less than 1.5 times the system's working pressure. Test pressure shall not exceed maximum pressure for any vessel, pump, valve, or other component in system under test. Verify that stress due to pressure at bottom of vertical runs does not exceed 90 percent of specified minimum yield strength or 1.7 times the "SE" value in Appendix A in ASME B31.9, "Building Services Piping."
 5. After hydrostatic test pressure has been applied for at least 4 hours, examine piping, joints, and connections for leakage. Eliminate leaks by tightening, repairing, or replacing components, and repeat hydrostatic test until there are no leaks.
 6. Prepare written report of testing.
- C. Perform the following before operating the system:
1. Open manual valves fully.
 2. Inspect pumps for proper rotation. Set makeup pressure-reducing valves for required system pressure.
 3. Inspect air vents at high points of system and determine if all are installed and operating freely (automatic type), or bleed air completely (manual type).
 4. Set temperature controls so all coils are calling for full flow.
 5. Inspect and set operating temperatures of hydronic equipment, such as boilers, chillers, cooling towers, to specified values.
 6. Verify lubrication of motors and bearings.

This page intentionally left blank

SECTION 27 5116 – PUBLIC ADDRESS SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Specification Sections:
 - 1. 27 0000 – General Technology Requirements
 - 2. 27 1000 – General Cabling Requirements
 - 3. 27 4116 – Classroom AV Systems

1.2 OVERVIEW

- A. Install an Audio Enhancement EPIC system using the classroom Optimum soundfield systems along with amplifiers, speakers, etc. for areas without classroom soundfield (e.g. corridors, kitchen, offices, etc.) to create a comprehensive PA system.
- B. Include EPIC headend server, EPIC System Kiosk for the main office, and configure for paging from the office as well as call and emergency buttons from classrooms initiating communication with the office.
- C. Contractor is to load building map into the system and configure for individual zones to be selected for paging and highlighted during all call/emergency communications.
- D. Provide an EPIC District View Head End Server and an additional System Kiosk for the public safety office. Configure to send emergency alerts from any building to the central Kiosk, and send email/text notifications to both the group assigned for each building and also the group assigned for district alerts. Contractor is to setup the first distribution groups and train the Owner on maintaining the list.
 - 1. Install the server in the district data center located in the Hill Center. Rack space and network connection will be provided. Upon contract award provide any network requirements to be provided by the district (e.g. connectivity, IP, VLAN information, etc.)
 - 2. Install the System Kiosk in the public safety office.
 - 3. Provide separate demonstrations for web access to the building administration, central district administration, technology staff, and public safety staff.

1.3 SUMMARY

- A. PA system shall provide paging, emergency signal sounding, and time-event signals (bell system) to selectable zones (interior and exterior).
- B. PA system is to be network-accessible allowing for administration from any computer on the Owner's network, paging at a remote-building, and multi-building pages for emergency announcements.

- C. Provide bell system schedule through browser-based system. Contractor to obtain the standard daily bell schedule and the bell schedule for pre-programmed non-standard days (e.g. half day, early release, etc.) and create the initial bell schedules in the system.
- D. Provide ports, installation, and configuration to integrate with the access control system to play pre-recorded messages during building lockdown.
- E. Include a push-to-talk microphone in the main office on the receptionist desk configured for the All-Call paging zone.
- F. The system will play pre-recorded messages and tones when initiated from the administrative software or from an alert sent from an external system. Contractor to work with Owner to record all initial messages.
- G. The system will be configured to play recorded music (MP3) or music from other electronics through an aux port.
- H. Configure system to synchronize time with the master clock system.
- I. PA system shall allow for talkback from each classroom. Provide a preannounce tone over speakers before two-way communication is enabled.
- J. PA system shall be integrated with the phone system allowing announcements from authorized users to be made from any handset. Announcements shall be active until the user terminates the session by hanging up the handset.
- K. Provide a microphone in the main office for all-call announcements in addition to the phone system integration.
- L. Include a tones for emergency situations or drills (e.g. tornado drill).
- M. PA system will have separate zones for the following areas. Speakers in support spaces can be part of the zone the support space is associated with (e.g. kitchen, server, kitchen office, food storage areas, etc. can all be included in the cafeteria zone).
 - 1. All Call (all interior speakers)
 - 2. Emergency (all interior + exterior speakers)
 - 3. All exterior speakers
 - 4. Each Instructional Space (classrooms, computer labs, media center, etc.)
 - 5. Cafeteria
 - 6. Gymnasium

1.4 DEFINITIONS

- A. PA: Public Address

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated, provide a product data sheet in both hard-copy and electronic (PDF) formats. Data sheets indicating multiple products must have the applicable product highlighted or marked.
 - 1. Speakers (ceiling, surface mount, horn, etc.)
 - 2. Microphone

3. Cable

- B. Shop Drawings: For each drawing indicated, provide in hard-copy and electronic (PDF) formats.
 - 1. Include a composite floorplan identifying speaker locations and zone assignments.
- C. Qualification Data: Include written confirmation from the manufacturer that the Contractor is an authorized factory agent or distributor for the submitted products.

1.6 QUALITY ASSURANCE

- A. Audio Enhancement EPIC System must be provided by an authorized EPIC reseller, and installed by Audio Enhancement EPIC Level II Certified installer.
- B. Comply with the requirements of NFPA 70.
- C. The Contractor shall install in accordance with all applicable codes and standards, including federal, state, and local codes and authorities.

1.7 COORDINATION

- A. Coordinate layout, rough-in requirements, and installation of the work of this section with the Owner's equipment, furniture, electrical, mechanical, architectural, and other technology trades.
- B. For new-wall construction, provide speaker backboxes to the contractor identified by the Construction Manager for installation.
- C. Coordinate the telephone integration with the telephone contractor or with the Owner's telephone service company.

PART 2 - PRODUCTS

2.1 SYSTEM REQUIREMENTS

- A. The PA system equipment shall be wall-mounted or rack-mounted in the MDF.
- B. Provide a UPS to maintain full system functionality between a power outage and the generator restoring power.
- C. Integrate with existing Shoretel IP telephone system to allow paging from existing handsets, and paging over existing speakerphones.
 - 1. Provide FXO to FXS connection or SIP trunk to SIP Station handoff as required for interconnection.
 - 2. Coordinate interface and connection with Owner's telephone system service provider
 - 3. PA system Contractor is responsible for installing the cable between the 2 systems.
- D. Provide bell system schedule through a browser-based system. Provide and configure the initial school year bell calendar including holidays and non-typical days.

- E. Synchronize time with the Master Time System. System shall automatically adjust for daylight savings time.
- F. The PA system shall provide a minimum of four (4) distinct tones for emergency alerts that are to be initiated through web interface. Each tone shall be programmable for volume, pitch, and duration. Emergency alerts should be distributed to all speakers unless directed otherwise by the Owner or Technology Designer.
- G. Provide local volume control in the locations indicated by the drawings and specifications.
- H. System shall be addressable to allow each speaker to be assigned to one or multiple zones.
- I. System shall contain adequate number of zone cards to meet zone requirements at each building.
- J. Amplifiers shall be sized to accommodate all speaker locations defined in the plans and specifications. The system shall also allow for additional speakers to be added (allow for 20% growth).
- K. Each input shall have individual volume controls. The unit shall have 1 master volume control.
- L. Include programming software, if required.
- M. Provide a preannounce tone over loudspeakers.
- N. The Contractor is to use plenum rated cabling and accessories throughout the project. All cables shall be continuous and free from splices.

2.2 MANUFACTURERS

- A. The following are acceptable manufacturers for general equipment within this section, unless noted otherwise for any product. Any deviations must be approved in writing by the Technology Designer before installation.
 - 1. Audio Enhancement EPIC
Manufacturer Contact Info:
Alex North
alex.north@audioenhancement.com
(574) 298-4880
 - 2. Approved equivalent

2.3 MICROPHONE

- A. Provide desk-type low impedance microphone with push-to-talk switch.

2.4 SPEAKERS

- A. All speaker cabling is to be shielded.
- B. Where possible, speakers shall be recessed-mounted in suspended ceiling tiles and protected with white grilles.

- C. Ceiling PA speakers and grilles are to be rust-resistant Quam speakers or equivalent with load bearing tile support bridge.
- D. Wall/open-ceiling PA speakers are to be Quam System 6VP or equivalent vandal resistant loudspeaker assemblies with durable white powder coat finish. Coordinate backboxes with the masonry and electrical contractors for a final flush-mount speaker.
- E. Outdoor PA speakers are to be Quam System 36VPS or equivalent vandal resistant horn loudspeaker assemblies with durable stainless steel construction with white powder coat finish.
- F. Any non-recessed speakers must match the surrounding architectural finishes. Speaker selection requires Technology Designer and Architect approval.
- G. Appropriate mounting accessories (grilles, enclosures, baffles, etc.) shall be provided and installed with each speaker. Accessories shall be chosen to accommodate installation location.
- H. All speakers to be equipped with appropriately sized transformers.
- I. Include protective cage for speakers in the gym.

2.5 SPEAKER CABLING

- A. Wiring shall be done per manufacturer's recommendation.
- B. All terminal connections to be on barrier strips.
- C. All cables to be labeled by room.
- D. All speaker cabling is to be shielded and plenum rated.
- E. Contractor to install conduit between speakers / backboxes where cabling is not concealed above accessible ceiling.

2.6 TELEPHONE ACCESS MODULE

- A. Provide a telephone access module or PA to telephone system interface to enable a standard Owner's handsets to interface with the PA system allowing announcements from authorized users to be made from any handset.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. It is the Contractor's responsibility to review the site work, architectural, structural, mechanical, and electrical drawings, specifications, and field conditions, for any details that may impact the installation or provisioning of the system.
- B. Provide all cabling, equipment, and devices to ensure the system will properly function. Any issues with the systems, design, or installation must be brought to the attention of the Technology Designer before the bid is submitted.

- C. Examine pathway elements intended for cabling to verify proposed routes of pathways. Check raceways, cable trays, and other elements for compliance with space allocations, clearances, installation tolerances, hazards to cable installation, and other conditions affecting installation. Verify that cabling can be installed complying with manufacturer requirements.
- D. Verify that penetrations of rated fire walls are made using products labeled for type of wall penetrated.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. The Contractor shall provide all miscellaneous items and accessories required to make the system operational whether or not such items are specifically mentioned in the plans and specifications.
- B. The Contractor shall protect equipment and components during installation, and clean all equipment before Owner acceptance using methods and materials recommended by the manufacturer.
- C. The Contractor shall be familiar with the site and the rooms to ensure a proper installation. The final installation methods are left to the discretion of the contractor in accordance with this specification, within standards of generally accepted workmanship, and in accordance with manufacturer's recommended installation practices.
- D. Contractor shall review zone speaker assignments, zone numbering scheme, and tone generator designations with the Owner and Technology Designer before beginning installation. Configure according to Owner requirements.
 - 1. Zone assignments will be consistent for similar spaces across buildings. For example, each building is to have the same assignment for all-call, emergency zones, gymnasiums, cafeterias, etc.
- E. After balancing the system, Contractor shall mark all components with variable sound levels indicating the levels recommended.
- F. Splice cable only in accessible junction boxes or at terminal block units. Make cable shields continuous at splices and connect speaker circuit shield to equipment ground only at amplifier.
- G. Leave 24" excess cable at each termination at microphone, volume pad, speaker, or other system outlet. Leave 6 feet of excess cable at each termination at the system cabinet. Service loop to be arranged and secured.

3.3 IDENTIFICATION

- A. Cable runs shall be machine labeled within 1" of each termination. All cabling is to be tagged in a consistent manner, approved by the Technology Designer.
- B. Zone paging modules, tone generators, etc. shall be labeled to designate their configuration.

3.4 FIELD QUALITY CONTROL

- A. Measure and record sound power levels (dB SPL) in all areas (rooms, center of each corridor, near outdoor speakers).
- B. Document call and talkback functionality performs properly in all rooms.
 - 1. Verify correct speakers assigned to each paging zones
 - 2. Talk back
 - 3. Emergency tones

3.5 DEMONSTRATION

- A. Contractor must test system to make sure all call, zoning, talkback, and lock down drills work properly prior to demonstration. District personnel must be present for an all call and lock down drill test.
- B. Demonstrate all system functions (timed events, emergency tones, telephone and clock interfaces, etc.) to Technology Designer.
- C. System training to be scheduled at Owner's convenience. Contractor to provide site-specific documentation on the basic operation, programming, bell schedules (standard and holidays), and troubleshooting of the system. Contractor to record training sessions.

3.6 SYSTEM ADJUSTMENTS

- A. After initial setup, contractor may be required to make additional site visits within the first year of operation (as set forth from date of substantial completion) to adjust speaker volumes for individual speakers or zones.

3.7 DOCUMENTATION

- A. As-Built Documentation:
 - 1. Include composite drawing for each building indicating paging zones, paging zone numbers, and paging instructions.
 - 2. Provide test results log of all systems and zones with date and time of test, the db reading, and who performed the test.
 - 3. Include scaled drawings reflecting all changes between the bid documents and the final installation including cable routing, location of all equipment, speakers, remote volume controls, etc.
 - 4. Drawings for systems showing location and cabinet/enclosure layout. Include all components identifying component manufacturer and model, serial numbers, label, and connections.
 - 5. Schematic drawing indicating equipment models, interconnections, naming, serial numbers, and MAC addresses for IP-based components. Include interconnections to other systems.
 - 6. Spreadsheet indicating the sound level recorded in each area and the test date.
 - 7. Spreadsheet indicating call and talkback functionality has been tested in each room.

END OF SECTION 27 5100

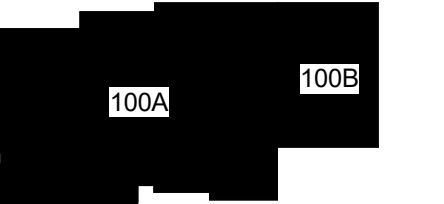
Willow School

Lansing School District

1012 W. Willow
Lansing, MI 48915



ISSUANCES	DATE
Schematic	04/21/23
Design Development	08/18/23
Bid and Construction	01/26/24
Bid Addendum 01	03/01/24

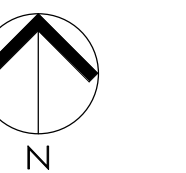


200

300

400

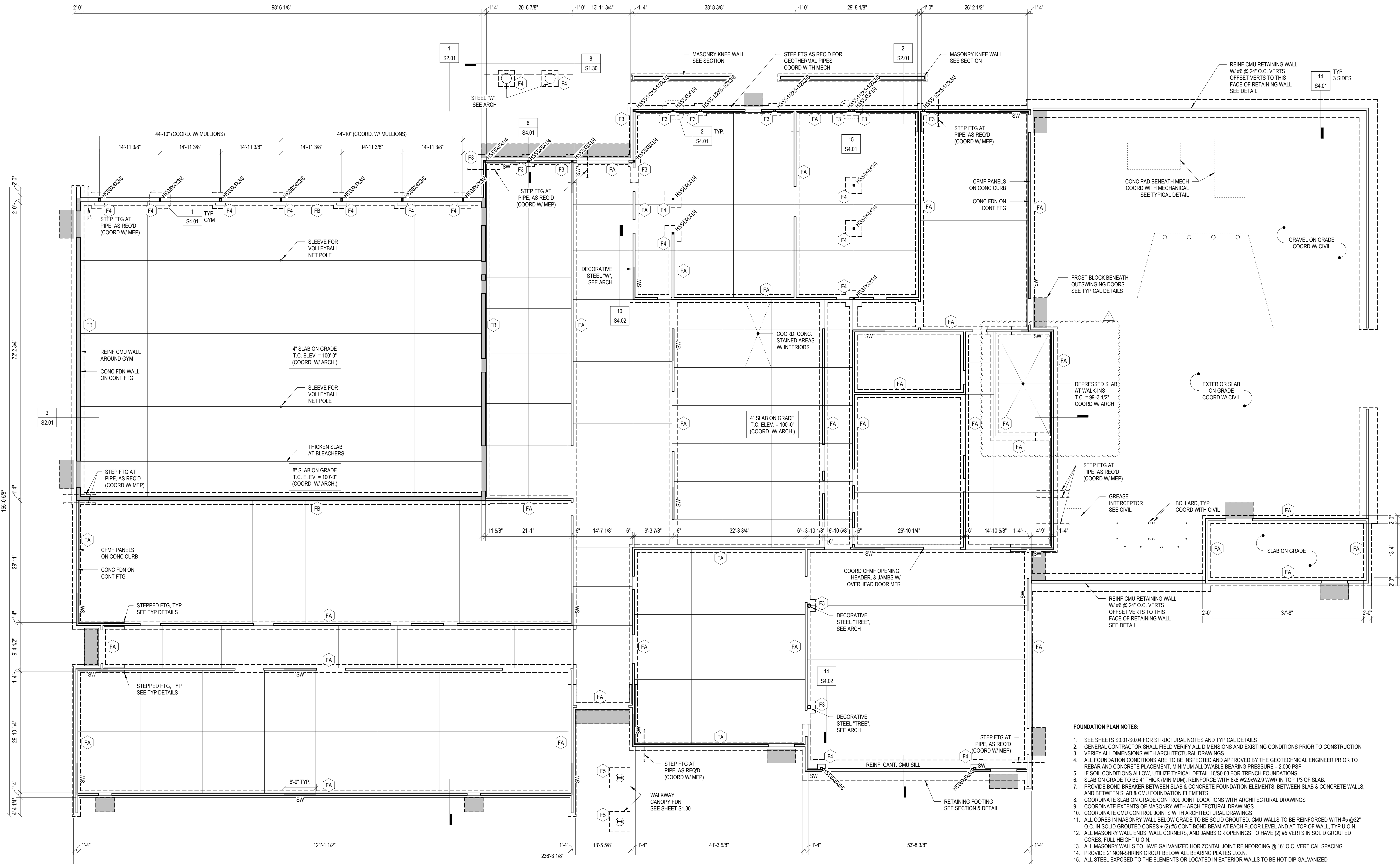
RDA NO. 23008
LSD NO. SB-0059
JOB NO. 2616.01A



SHEET TITLE
**FOUNDATION PLAN
UNIT 100**

SHEET NO.

S1.01



- FOUNDATION PLAN NOTES:**
- SEE SHEETS S0.01-S0.04 FOR STRUCTURAL NOTES AND TYPICAL DETAILS
 - GENERAL CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION
 - VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS
 - ALL FOUNDATION CONDITIONS ARE TO BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO REBAR AND CONCRETE PLACEMENT. MINIMUM ALLOWABLE BEARING PRESSURE = 2,000 PSF
 - IF SOIL CONDITIONS ALLOW, UTILIZE TYPICAL DETAIL 1050.03 FOR TRENCH FOUNDATIONS
 - SLAB ON GRADE TO BE 4" THICK (MINIMUM). REINFORCE WITH #4 @ 12" O.C. W/ 2' W/ 1' O.C. IN TOP 1/3 OF SLAB.
 - PROVIDE BOND BREAKER BETWEEN SLAB & CONCRETE FOUNDATION ELEMENTS, BETWEEN SLAB & CONCRETE WALLS, AND BETWEEN SLAB & CMU FOUNDATION ELEMENTS
 - COORDINATE SLAB ON GRADE CONTROL JOINT LOCATIONS WITH ARCHITECTURAL DRAWINGS
 - COORDINATE EXTENTS OF MASONRY WITH ARCHITECTURAL DRAWINGS
 - COORDINATE CMU CONTROL JOINTS WITH ARCHITECTURAL DRAWINGS
 - ALL CORES IN MASONRY WALL BELOW GRADE TO BE SOLID GROUTED. CMU WALLS TO BE REINFORCED WITH #5 @ 32" O.C. IN SOLID GROUTED CORES + (2) #5 CONT BOND BEAM AT EACH FLOOR LEVEL AND AT TOP OF WALL. TYP U.O.N.
 - ALL MASONRY WALL ENDS, WALL CORNERS, AND JAMBS OR OPENINGS TO HAVE (2) #5 VERTS IN SOLID GROUTED CORES. FULL HEIGHT U.O.N.
 - ALL MASONRY WALLS TO HAVE GALVANIZED HORIZONTAL JOINT REINFORCING @ 16" O.C. VERTICAL SPACING
 - PROVIDE 2" NON-SHRINK GROUT BELOW ALL BEARING PLATES U.O.N.
 - ALL STEEL EXPOSED TO THE ELEMENTS OR LOCATED IN EXTERIOR WALLS TO BE HOT-DIP GALVANIZED

FOUNDATION SCHEDULE		
MARK	SIZE	REINFORCING
F3	36" x 36" x 12"	(4) #5 BOT EA WAY
F4	48" x 48" x 12"	(6) #5 BOT EA WAY
F5	60" x 60" x 15"	(6) #5 TOP & BOT EA WAY. HOOK ALL ENDS
FA	Continuous Footing - 2'-0" x 12"	CONT (3) #5 BOT
FB	Continuous Footing - 3'-0" x 12"	CONT (4) #5 BOT

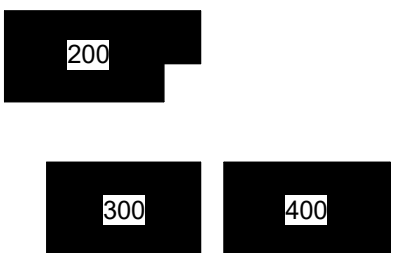
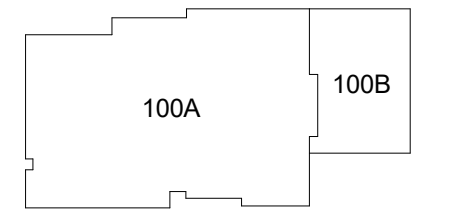
Willow School

Lansing School District

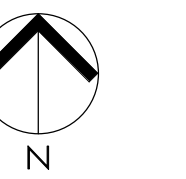
1012 W. Willow
Lansing, MI 48915



ISSUANCES	DATE
Schematic	04/21/23
Design Development	08/18/23
Bid and Construction	01/26/24
Bid Addendum 01	03/01/24



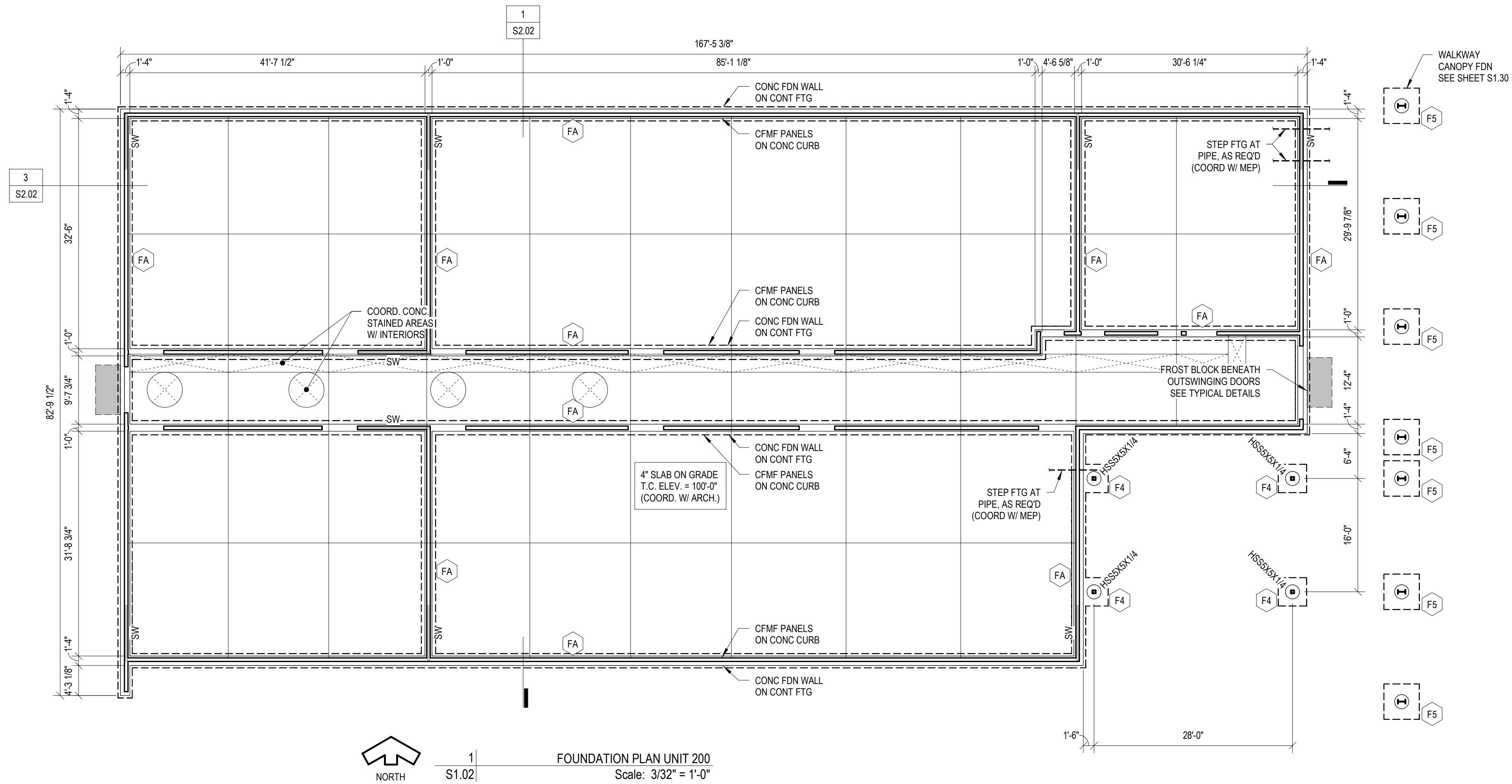
RDA NO. 23008
LSD NO. SB-0059
JOB NO. 2616.01A



SHEET TITLE
FOUNDATION PLAN
UNITS 200, 300, 400

SHEET NO.

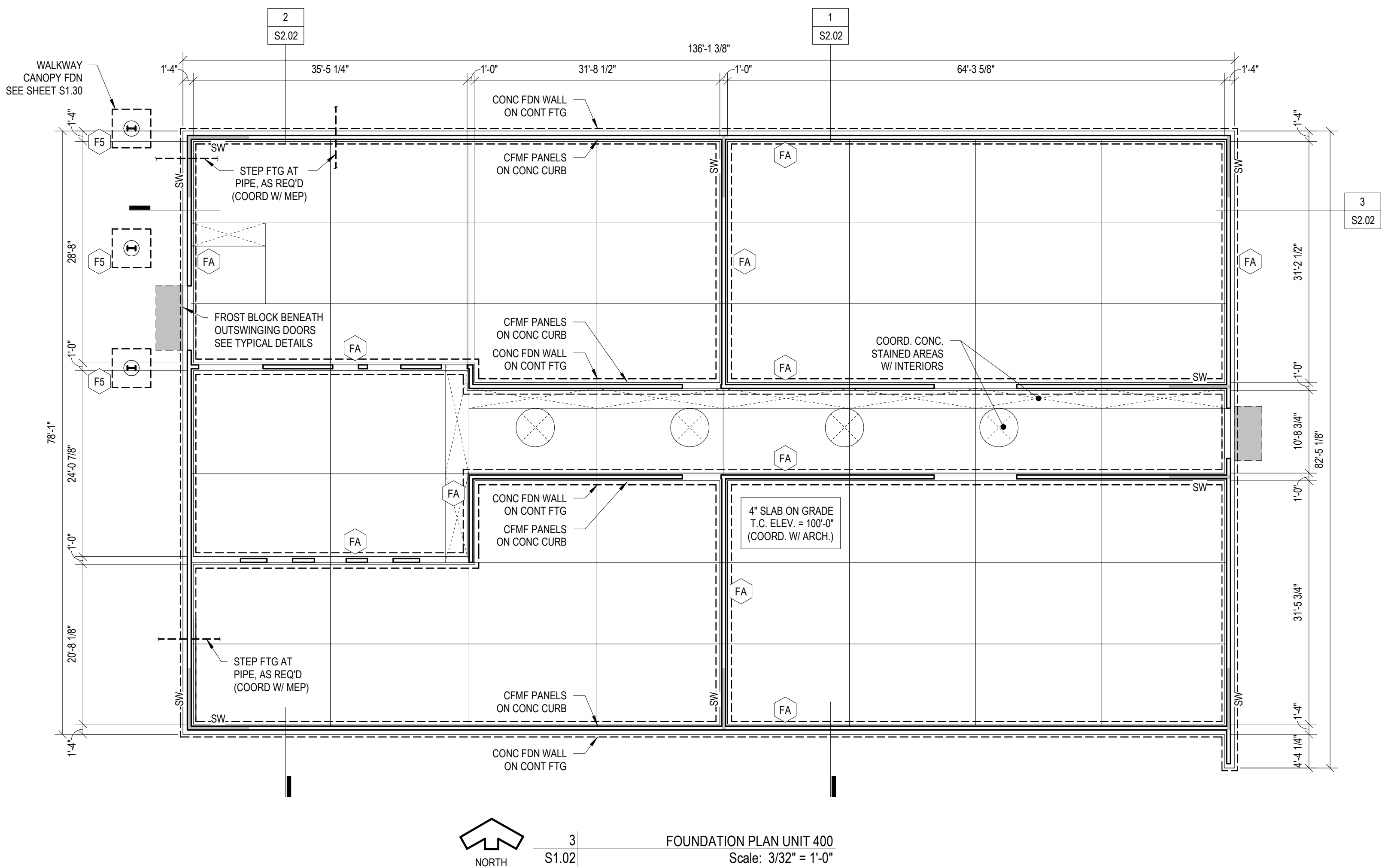
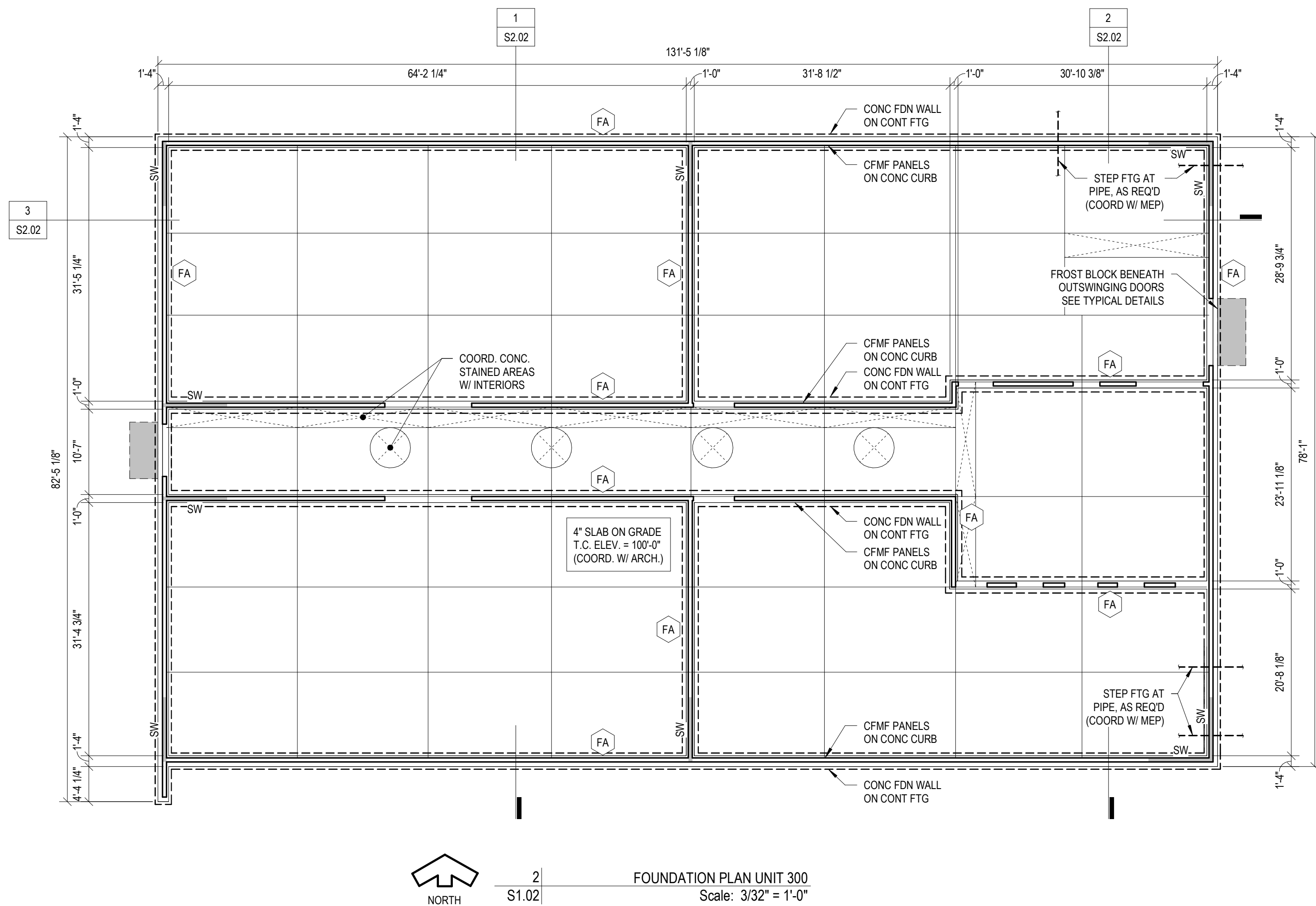
S1.02



FOUNDATION SCHEDULE		
MARK	SIZE	REINFORCING
F3	36" x 36" x 12"	(4) #5 BOT EA WAY
F4	48" x 48" x 12"	(5) #5 BOT EA WAY
F5	60" x 60" x 15"	(6) #5 TOP & BOT EA WAY, HOOK ALL ENDS
FA	Continuous Footing - 2'-0" x 12"	CONT (3) #5 BOT
FB	Continuous Footing - 3'-0" x 12"	CONT (4) #5 BOT

FOUNDATION PLAN NOTES:

- SEE SHEETS S0.01-S0.04 FOR STRUCTURAL NOTES AND TYPICAL DETAILS
- GENERAL CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION
- VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS
- ALL FOUNDATION CONDITIONS ARE TO BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO REBAR AND CONCRETE PLACEMENT. MINIMUM ALLOWABLE BEARING PRESSURE = 2,000 PSF
- IF SOIL CONDITIONS ALLOW, UTILIZE TYPICAL DETAIL 1000.03 FOR TRENCH FOUNDATIONS.
- SLAB ON GRADE TO BE 4\"/>
- PROVIDE BOND BREAKER BETWEEN SLAB & CONCRETE FOUNDATION ELEMENTS, BETWEEN SLAB & CONCRETE WALLS, AND BETWEEN SLAB & CMU FOUNDATION ELEMENTS
- COORDINATE SLAB ON GRADE CONTROL JOINT LOCATIONS WITH ARCHITECTURAL DRAWINGS
- COORDINATE EXTENTS OF MASONRY WITH ARCHITECTURAL DRAWINGS
- COORDINATE CMU CONTROL JOINTS WITH ARCHITECTURAL DRAWINGS
- ALL CORES IN MASONRY WALL BELOW GRADE TO BE SOLID GROUTED. CMU WALLS TO BE REINFORCED WITH #5 @32\"/>
- ALL MASONRY WALL ENDS, WALL CORNERS, AND JAMBS OR OPENINGS TO HAVE (2) #5 VERTS IN SOLID GROUTED CORES, FULL HEIGHT U.O.N.
- ALL MASONRY WALLS TO HAVE GALVANIZED HORIZONTAL JOINT REINFORCING @ 16\"/>
- PROVIDE 2\"/>
- ALL STEEL EXPOSED TO THE ELEMENTS OR LOCATED IN EXTERIOR WALLS TO BE HOT-DIP GALVANIZED





Lansing School District



Lansing[®]
School District

RDA NO. 23008
LSD NO. SB-0059
JOB NO. 2616.01A

SHEET NO.

W.P. TYP.

5'-4 3/4"

5'-4 3/4"

5'-4 3/4"

5'-4 3/4"

1/4" FILLET WELD NSFS, TYP.

1/2" CAP PL. SEAL WELD, TYP.

STEEL CANOPY FRAME ABOVE

CJP WELDS HSS TO HSS

HSS 10X10X1/8

HSS 10X10X1/8

HSS 10X10X1/8

HSS 10X10X1/8

1" Ø DRAIN HOLE TYP. AS REQ'D COORD. GRADE W/ CIVIL

3/4" BASE PLATE ON 2" NS GROUT

8'-4"

3'-6" MIN.

T.C. @ FIRST FLOOR 100'-0"

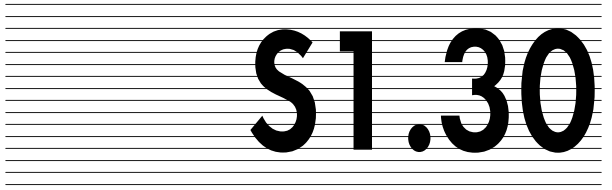
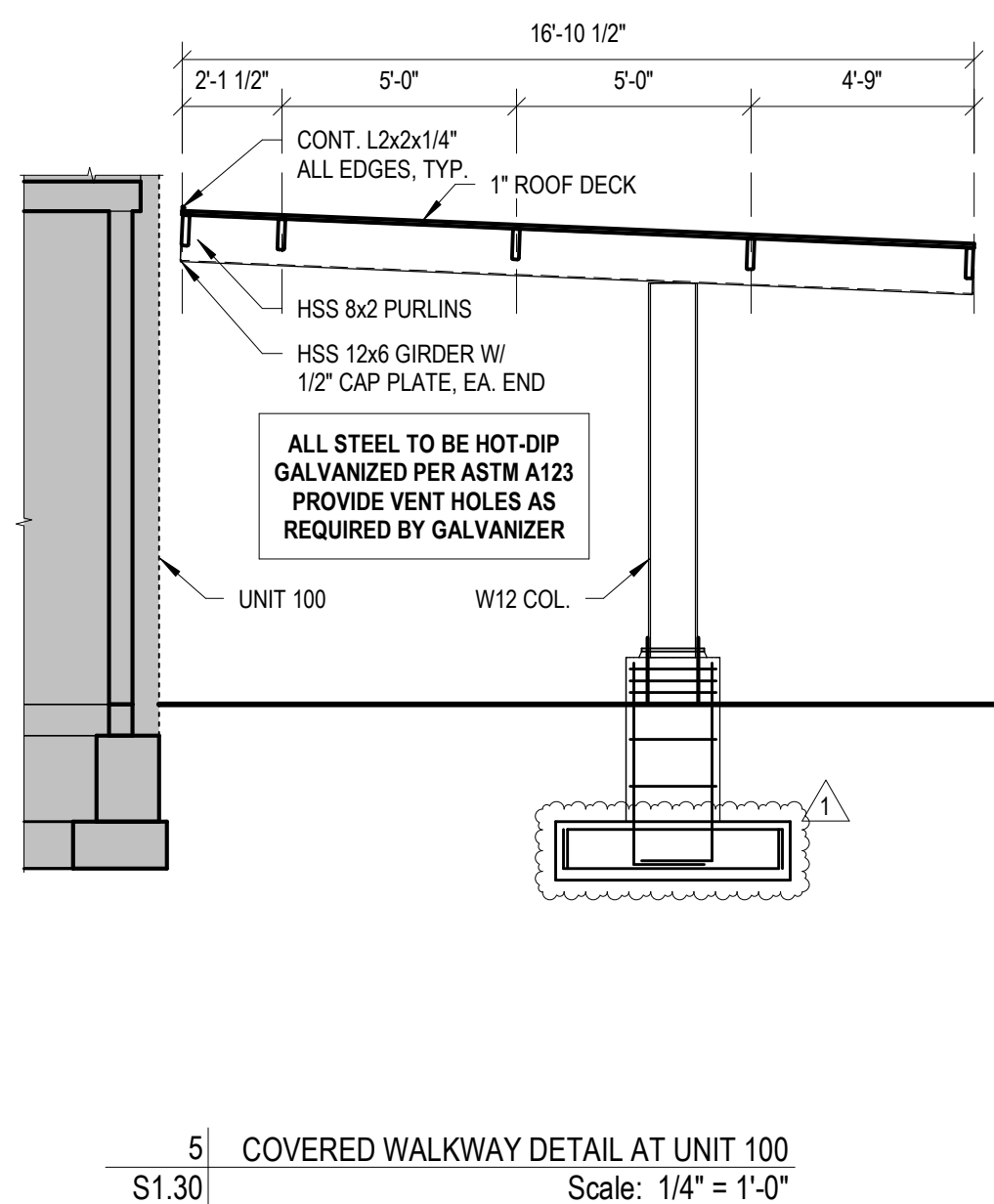
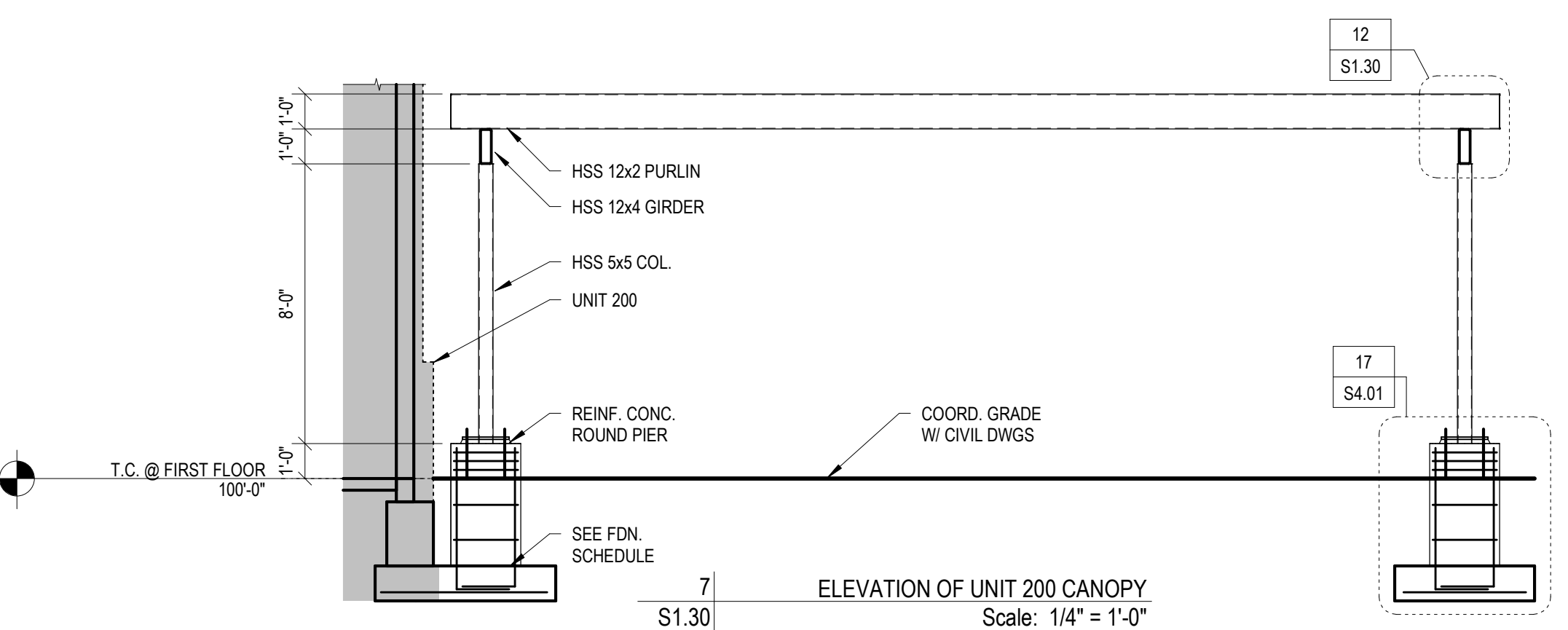
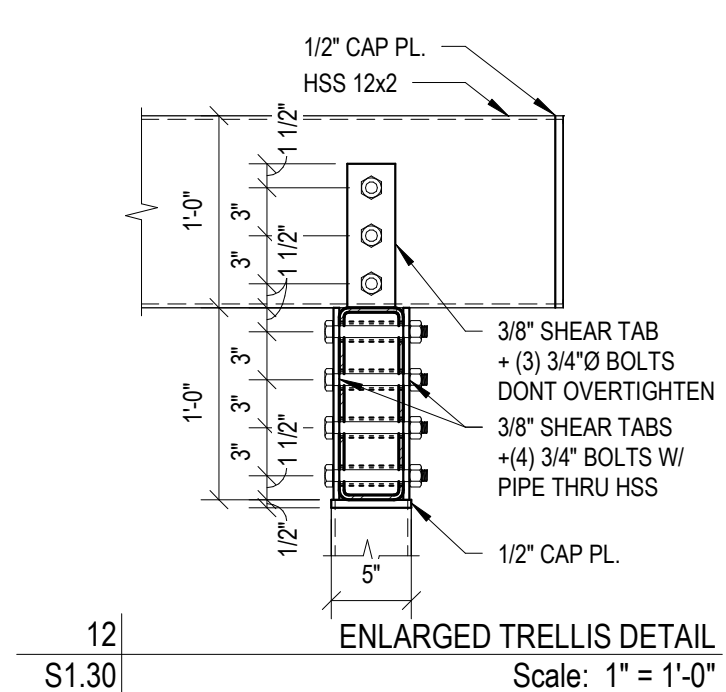
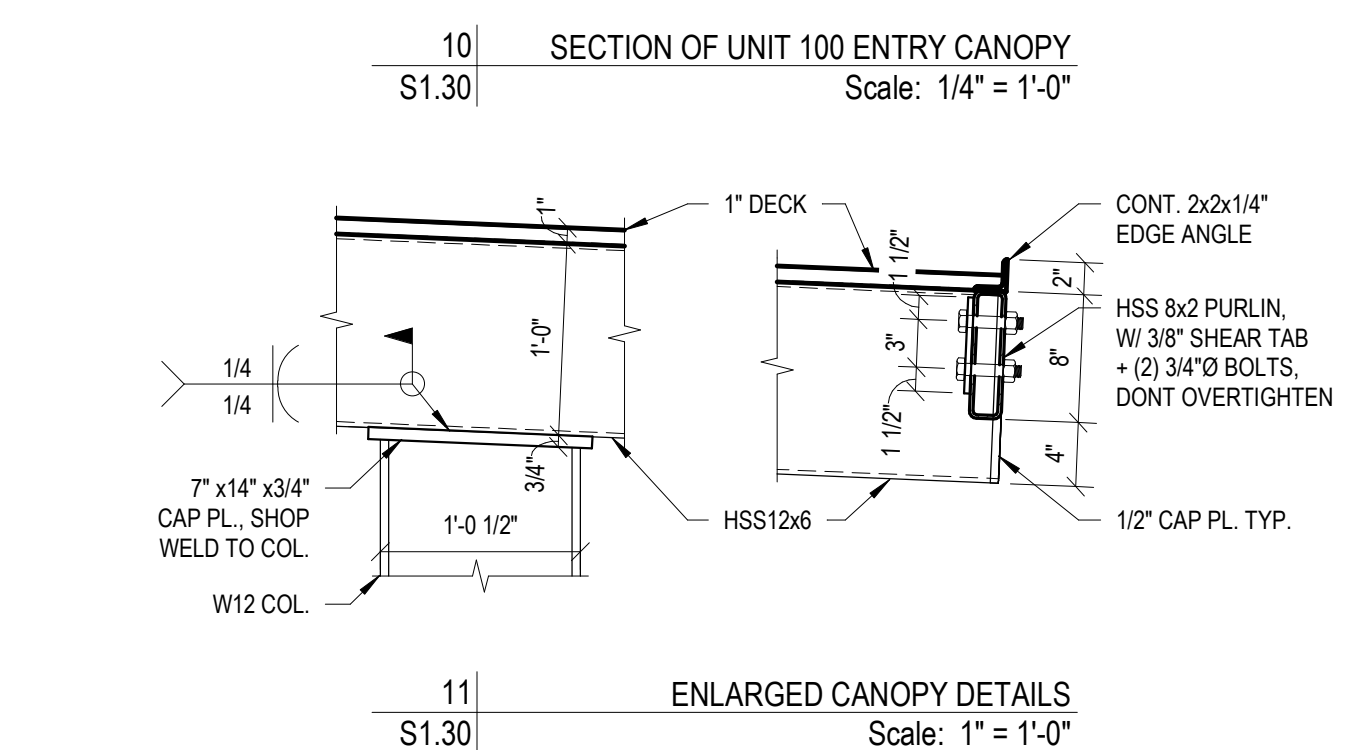
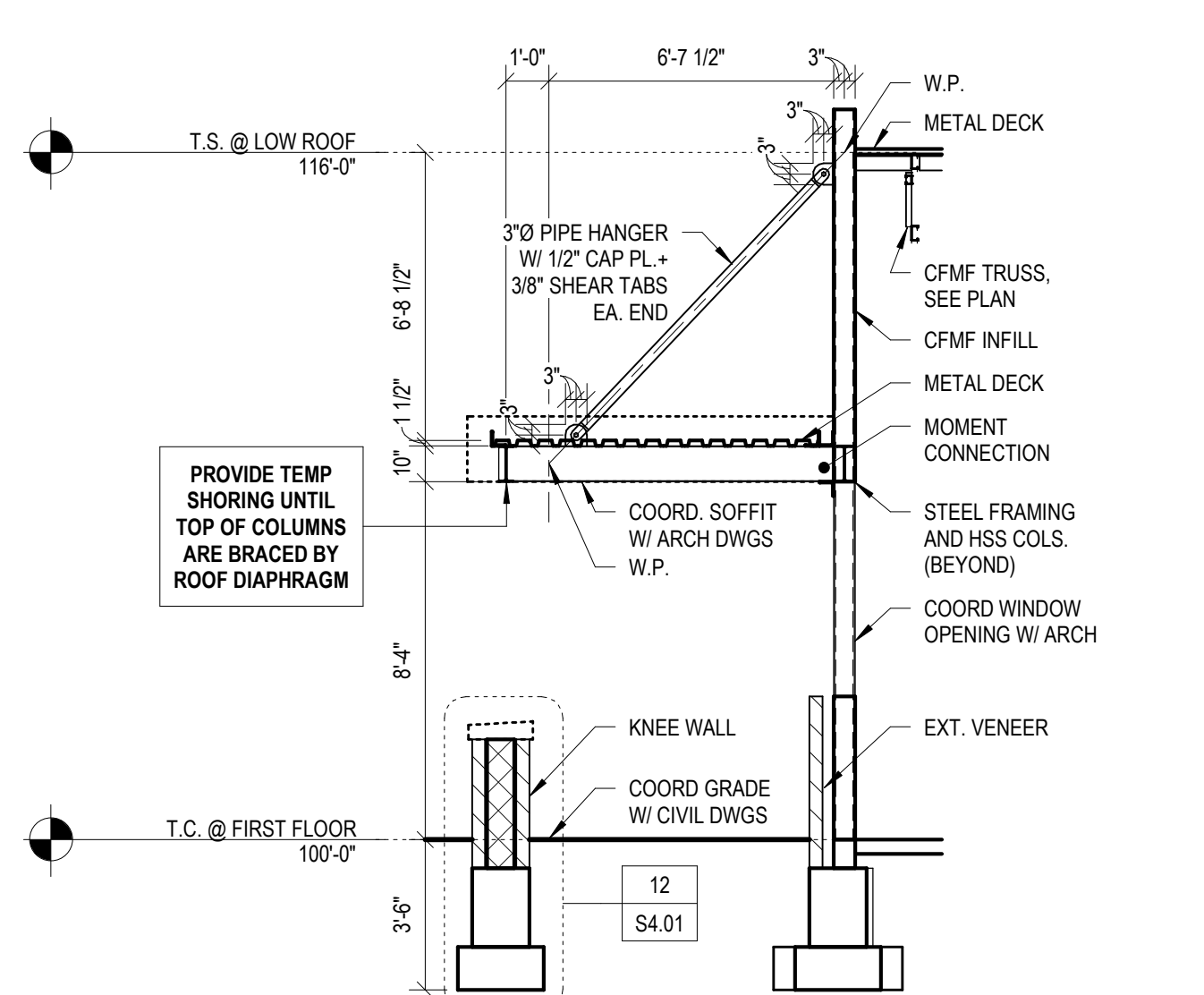
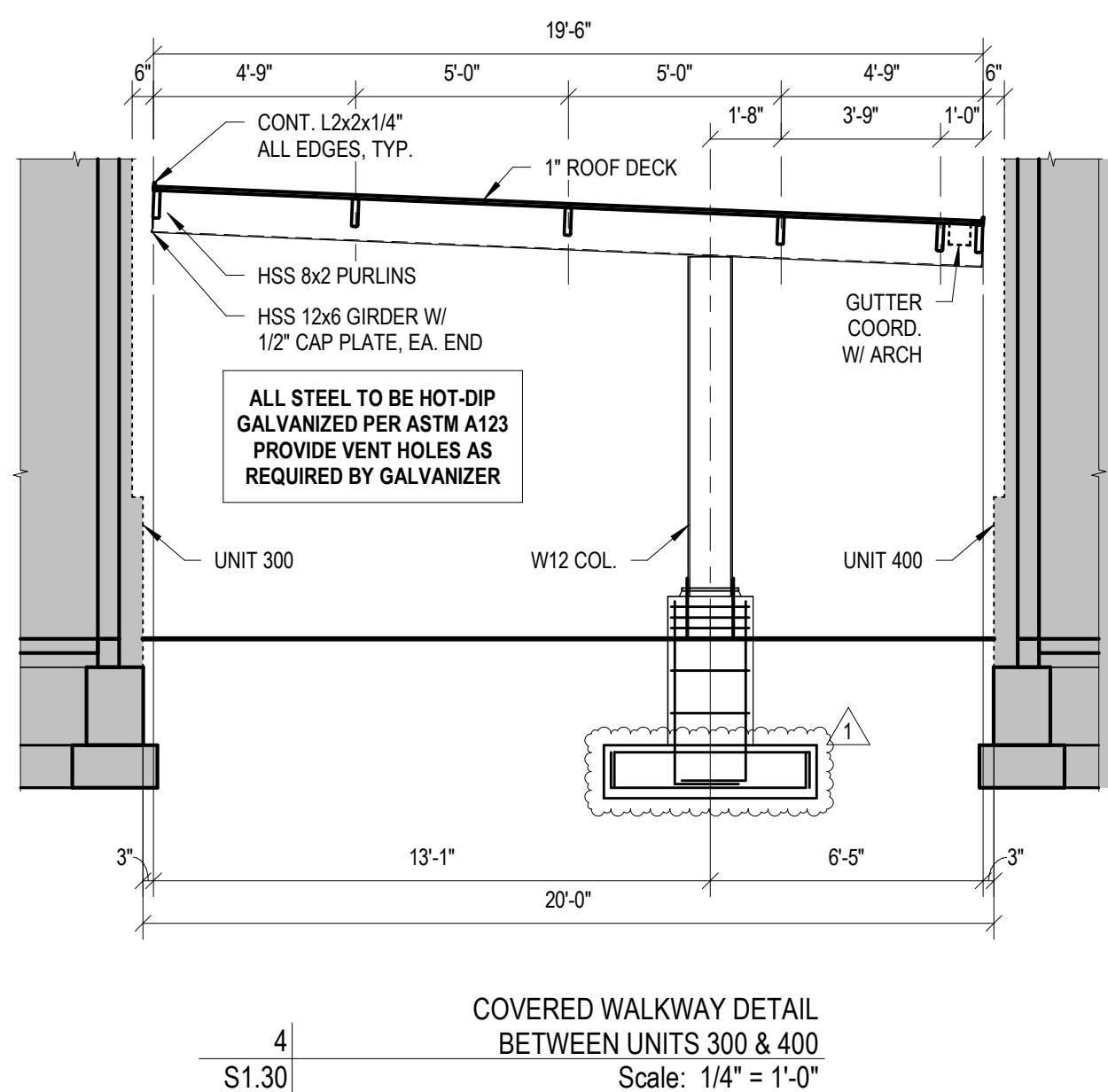
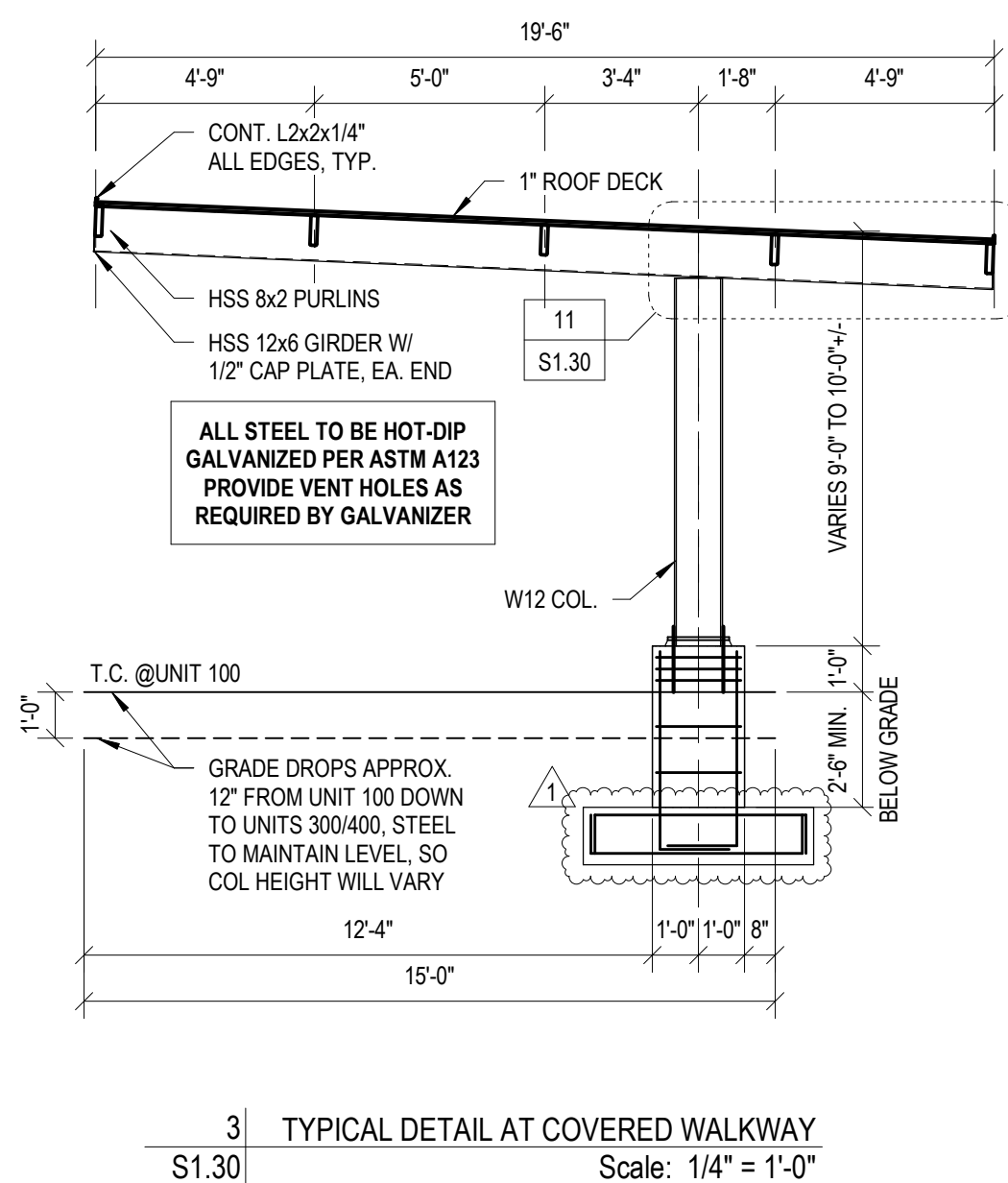
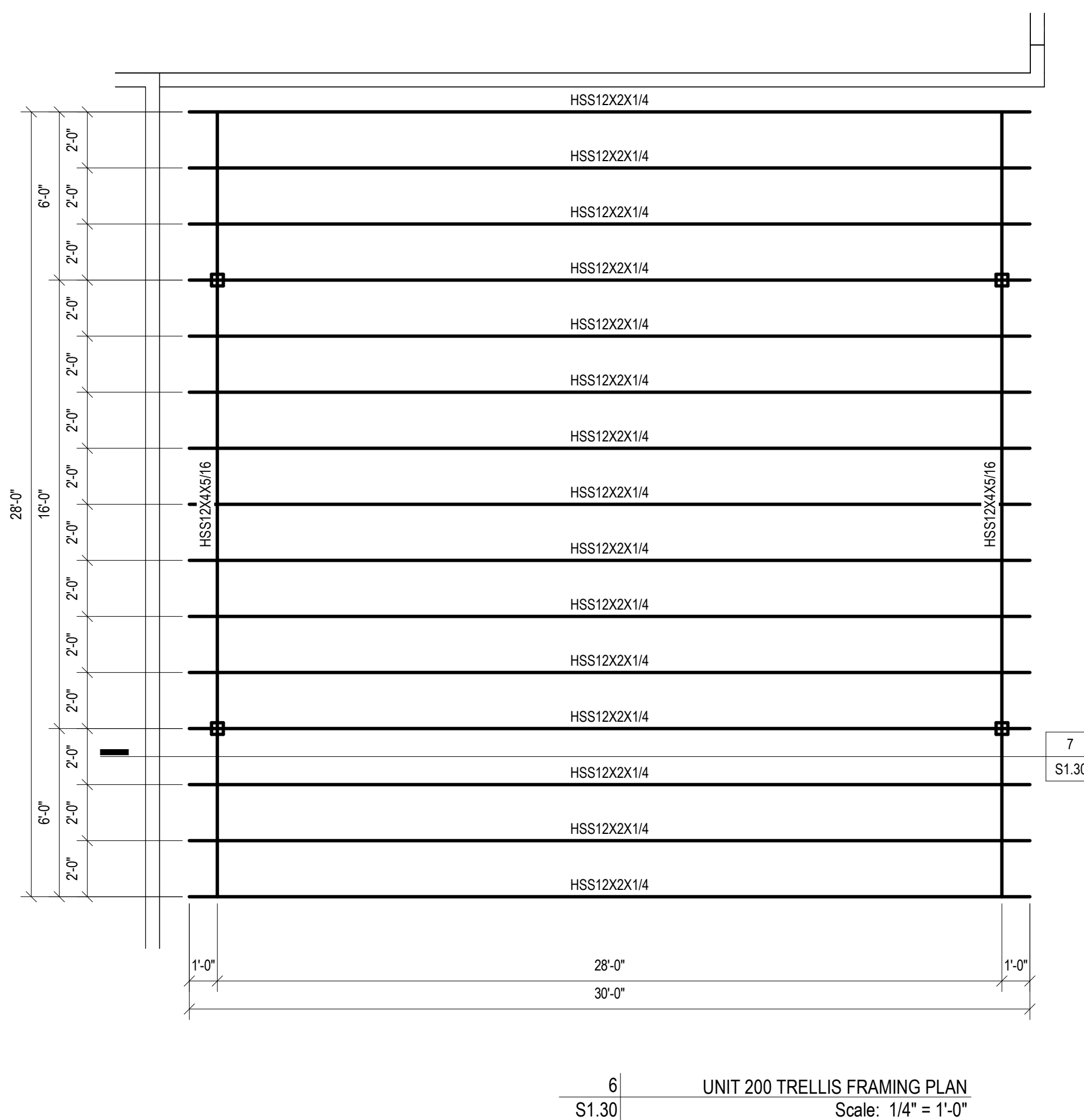
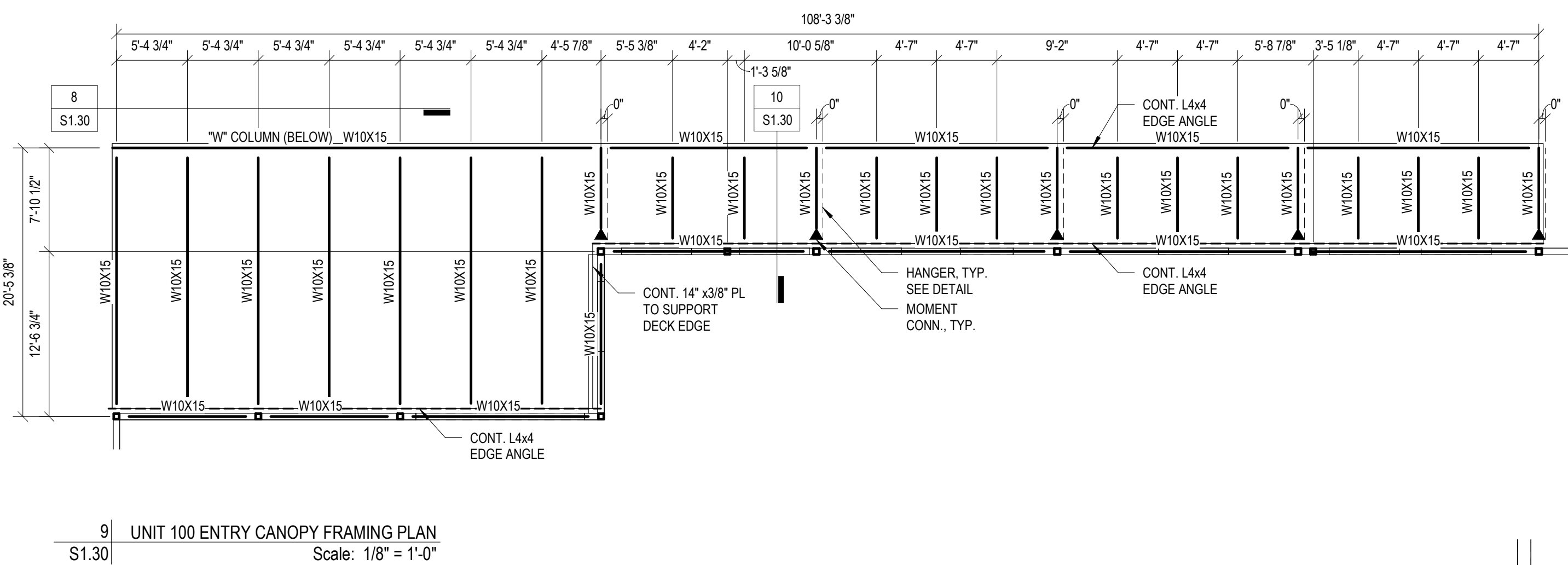
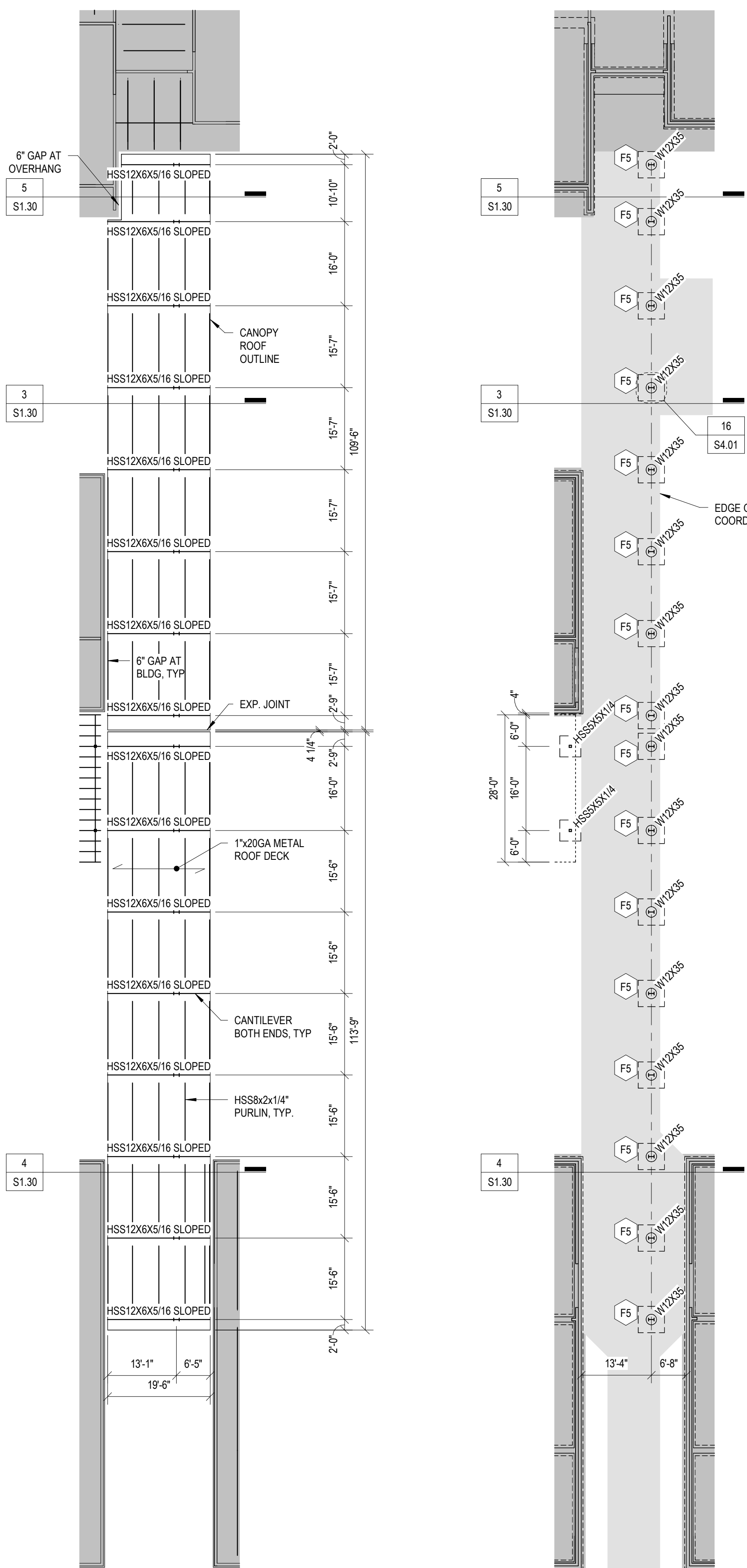
BELOW GROUND

8

EXTERIOR "W" COLUMN ELEVATION

S1.30

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



Willow School
Lansing School District
1012 W. Willow
Lansing, MI 48915

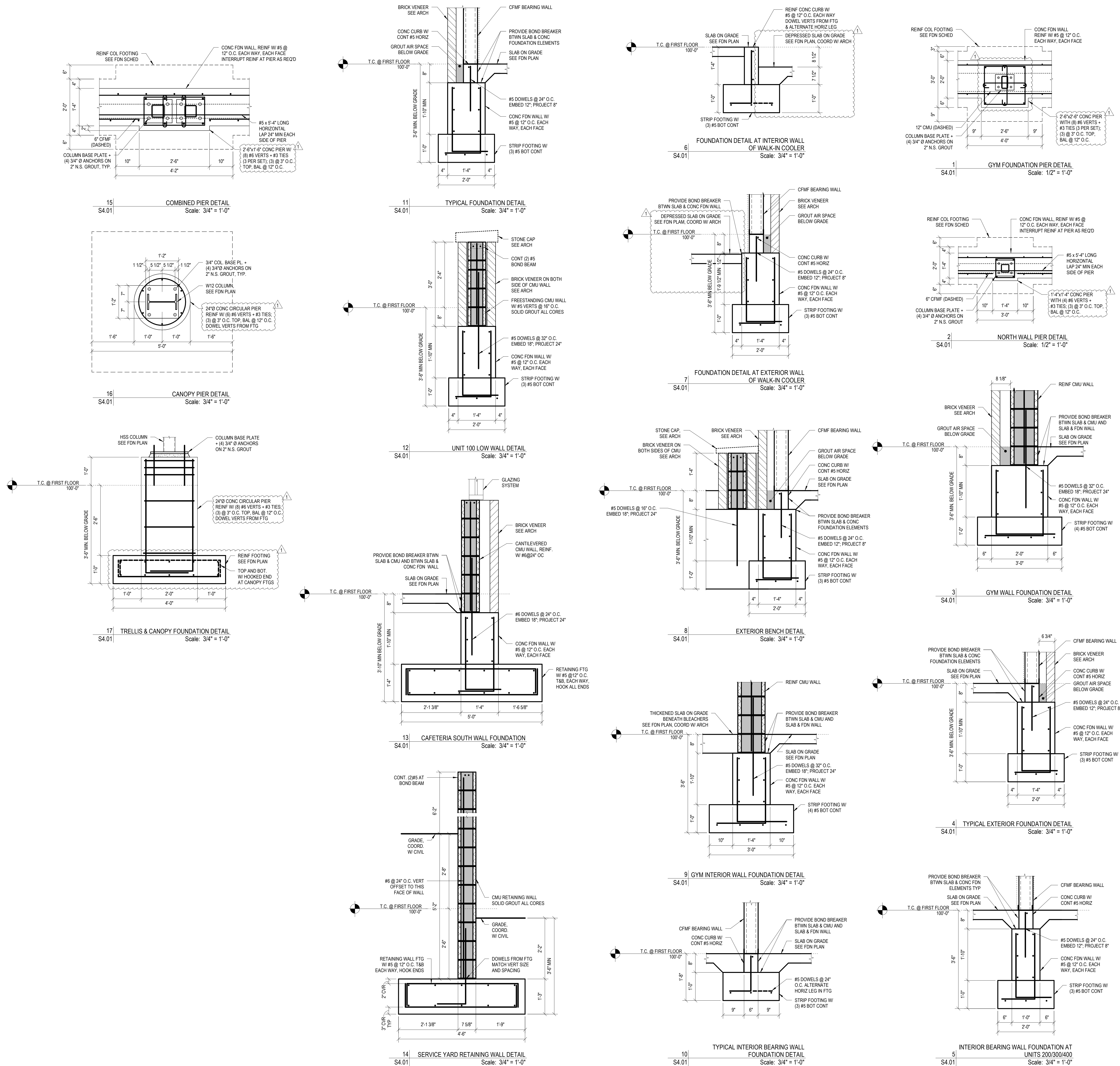


ISSUANCES	DATE
Design Development	08/18/23
Bid and Construction	01/26/24
Bid Addendum 01	03/01/24

RDA NO. 23008
LSD NO. SB-0059
JOB NO. 2616.01A

SHEET TITLE
DETAILS

SHEET NO.
S4.01



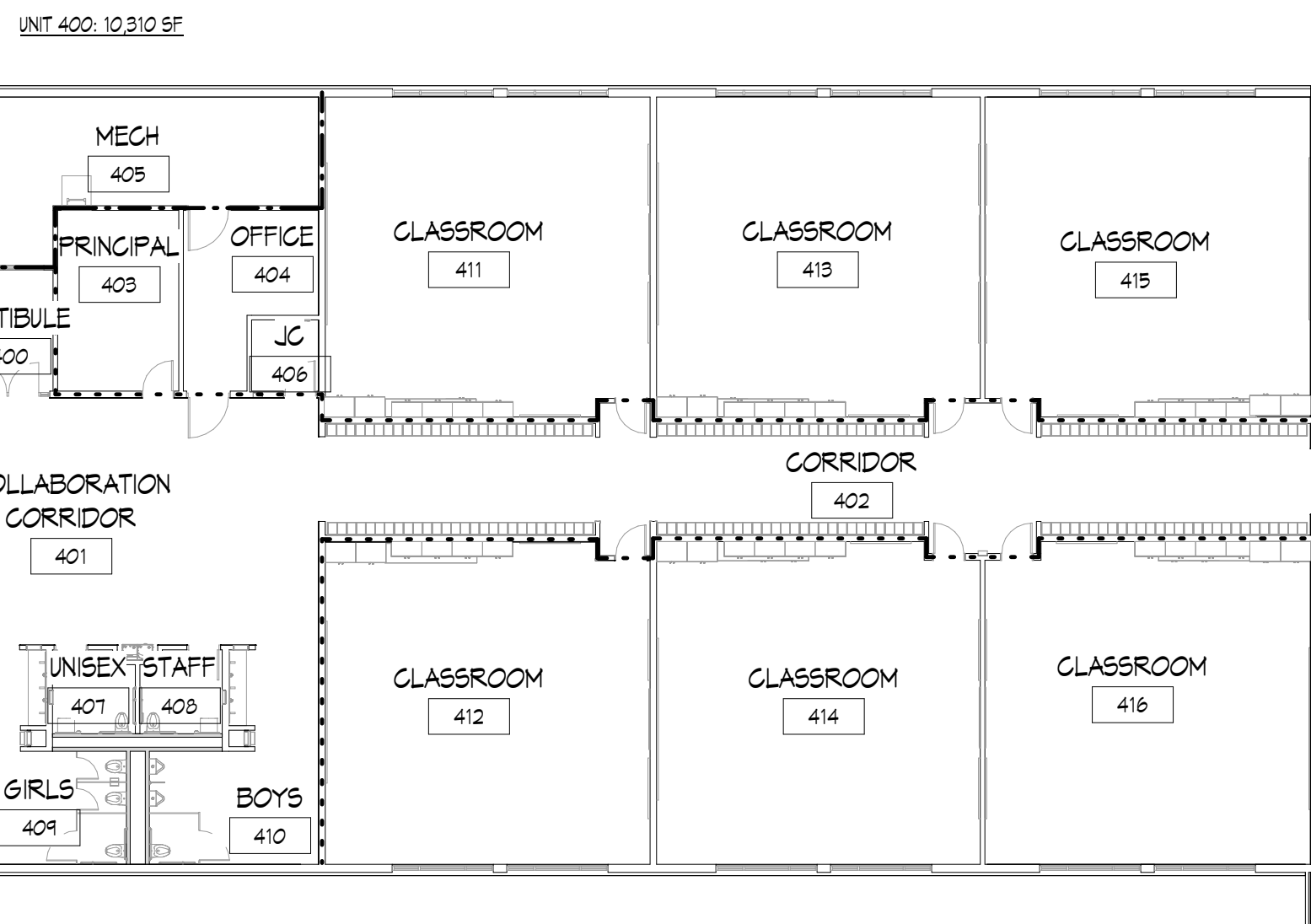
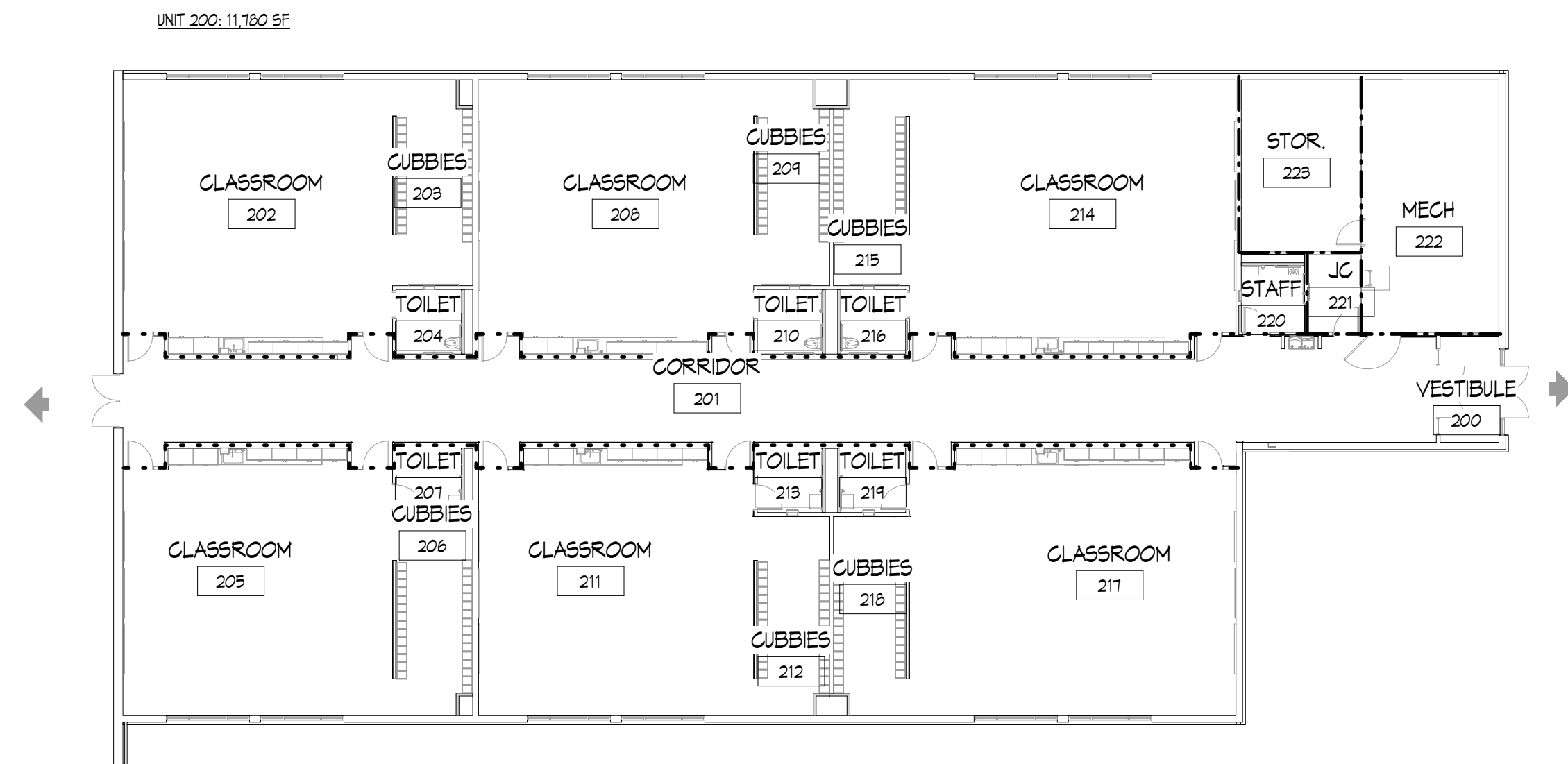


Diagram of a room with a cloud-shaped callout containing notes:

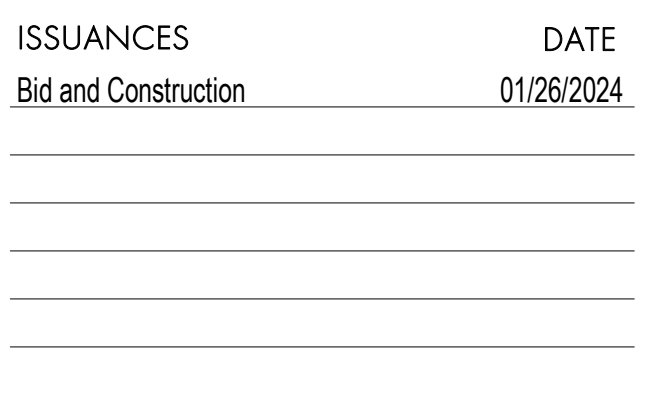
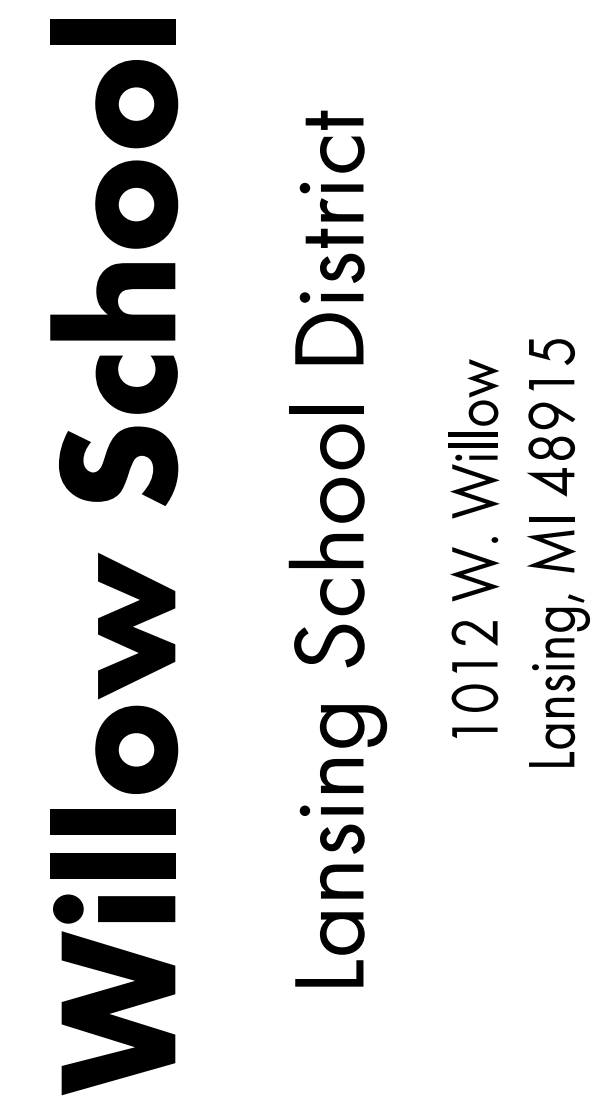
- 1 HOUR FIRE RATED BARRIER. EXTEND TIGHT TO ROOF DECK 48 MIN. OPENING ASSEMBLIES. SEALED PENETRATIONS.
- SMOKE PARTITION, EXTEND TIGHT TO ROOF DECK. OPENING PARTITIONS TO BE SMOKE TIGHT SEALED PENETRATIONS.
- FIRE EXTINGUISHER / FIRE EXTINGUISHER CABINET. SEE SHEETS 1/41.1A THRU 1/41.4 FOR LOCATIONS.

Other labels in the diagram include: NAME, XXX, EXIT, and ROOM NAME & ROOM NUMBER.


- ## GENERAL NOTES
1. CORRIDOR WALLS SHALL EXTEND TIGHT TO UNDERSIDE OF DECK TO RESIST THE PASSAGE OF SMOKE.
 2. SEAL ALL PENETRATIONS AND OPENINGS IN FIRE RATED WALL CONSTRUCTION WITH FIRE RESISTANT RATED SEALANT AND / OR FIRE STOPPING TO MATCH WALL RATING AS INDICATED.

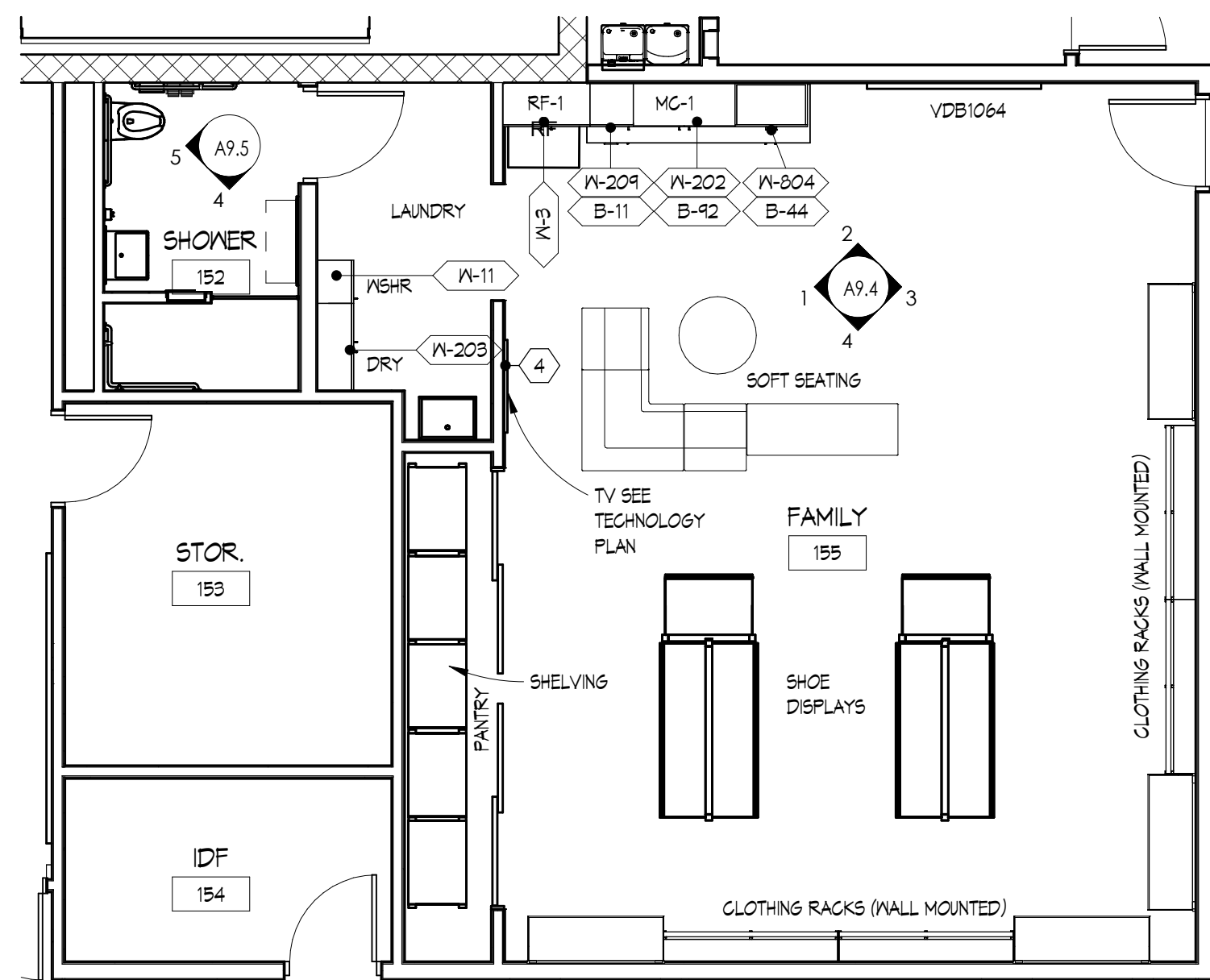
RULES AND CODED:	MICHIGAN BUILDING CODE 2015 2012 NFPA 101 LIFE SAFETY CODE.
BARRIER FREE DESIGN:	MICHIGAN BUILDING CODE 2015 CHAPTER 11
PLUMBING CODE:	MICHIGAN PLUMBING CODE 2018
MECHANICAL CODE:	MICHIGAN MECHANICAL CODE 2018
ELECTRICAL CODE:	MICHIGAN ELECTRICAL CODE 2017
OCCUPANCY:	E (EDUCATIONAL)
CONSTRUCTION TYPE:	II B
NEW CONSTRUCTION:	FULLY SPRINKLERED
MEANS OF EGRESS REQUIREMENTS:	<u>ALLOWED</u>
COMMON PATH (M.B.C. 1008.2.1): (N.F.P.A. 1-2.3.3)	75' - 0"
EXIT TRAVEL DIST. (N.F.P.A. 14.2.6.2): (M.B.C. 1017.1)	250'-0" (W/ FIRE SUPPRESSION) 150'-0" (W/O FIRE SUPPRESSION)
ALLOWABLE HEIGHT / AREA MBC TABLES 504.3, 504.4, 506.2	3 STORIES / 43,500 S.F. PER FLOOR
AREA INCREASE (506.2.3 AND 506.3): 2,662 L.F. FRONTAGE / 30' OPEN 3/122 L.F. TOTAL BUILDING PERIMETER ($(2,662 / (3/122) - .25) \times 30 / 30 = 61$)	
43,500 S.F. = (14,500 S.F. * .61) + 2 STORIES * 104,640 S.F. WITH NO SINGLE STORY = 52,345 S.F.	
TOTAL NEW CONSTRUCTION AREA:	67,215 S.F.
UNIT 100: OCCUPANTS: 1405 AREA: 35,120 SF BASE ALLOWABLE AREA (SPRINKLERED): 50,000 SF *NO FIRE WALL REQUIRED DUE TO SPRINKLERS. CORRIDORS WALLS TO BE SMOKE PARTITIONS	
UNIT 200: OCCUPANTS: 324 AREA: 11,955 SF BASE ALLOWABLE AREA (SPRINKLERED): 50,000 SF *NO FIRE WALL REQUIRED DUE TO SPRINKLERS. CORRIDORS WALLS TO BE SMOKE PARTITIONS	
UNIT 300: OCCUPANTS: 303 AREA: 9,750 SF BASE ALLOWABLE AREA (SPRINKLERED): 50,000 SF *NO FIRE WALL REQUIRED DUE TO SPRINKLERS. CORRIDORS WALLS TO BE SMOKE PARTITIONS	
UNIT 400: OCCUPANTS: 312 AREA: 10,160 SF BASE ALLOWABLE AREA (SPRINKLERED): 50,000 SF *NO FIRE WALL REQUIRED DUE TO SPRINKLERS. CORRIDORS WALLS TO BE SMOKE PARTITIONS	
SEPARATION OF BUILDING AREA:	2 HR.
MAX ALLOWABLE DEAD END CORRIDOR:	20 FEET

Unit 100 (1439 OCG)						
	Occupants	NC/Urinals	Wash	DT	Slop Sink	
Gym F	335.5	3	2	1	O	
Gym M	335.5	3	2	1	O	
Cafe F	485	1	0	1	O	
Cafe M	485	1	0	1	O	
School F	282.5	6	6	3	1	
School M	282.5	6	6	3	1	
Total Female:		12	8	4	1	
Total Male:		10	8	4	1	
Unit 200 (324 OCG)						
	Occupants	NC/Urinals	Wash	DT	Slop Sink	
School F	164.5	3	3	3	1	
School M	164.5	3	3	3	1	
Unit 300 (309 OCG)						
	Occupants	NC/Urinals	Wash	DT	Slop Sink	
School F	154.5	3	3	3	1	
School M	154.5	3	3	3	1	
Unit 400 (312 OCG)						
	Occupants	NC/Urinals	Wash	DT	Slop Sink	
School F	156	3	3	3	1	
School M	156	3	3	3	1	

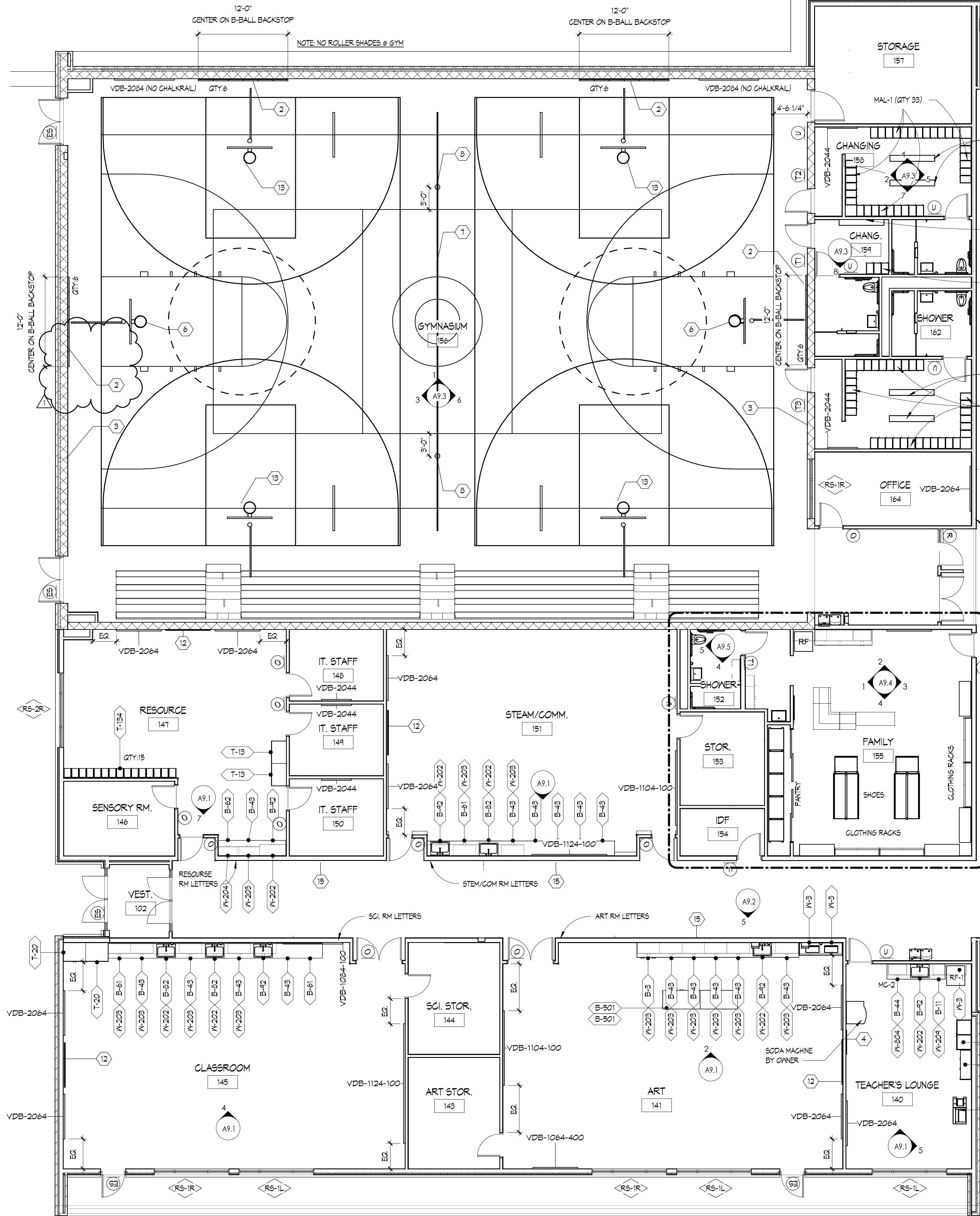


SHEET NO. **A0.4**

 KINGSSCOTT ASSOCIATES INC. KALAMAZOO, MICHIGAN



2 FAMILY RM.-ENLARGED PLAN
3/16" = 1'-0"



1 FIRST FLOOR EQUIPMENT PLAN - UNIT 1100
1/8" = 1'-0"

EQUIPMENT PLAN GENERAL NOTES

1. WALL CABINET TOPS TO BE AT 84" A.F.F. UNLESS NOTED OTHERWISE.
2. FILLER: PROVIDE FACE, TOP, BOTTOM AND/OR COUNTERTOP FILLER AS REQUIRED BY TYPE OF CABINET.
3. ALL VISUAL DISPLAY BOARD INSTALLATION LOCATIONS ARE TO BE FIELD VERIFIED PRIOR TO INSTALLATION.
4. REFER TO SPECIFICATIONS FOR VISUAL DISPLAY BOARD FINISHES AND COLOR DESIGNATIONS.
5. HOLD ALL TALL CABINETS ADJACENT TO BASE CABINETS OUT 1" FROM WALL OR FLUSH WITH THE FRONT EDGE OF THE COUNTERTOP. PROVIDE FILLER AT BACK WALL AS REQUIRED.
6. ALL BASE CABINETS SHALL HAVE COUNTERTOPS WITH BACK AND SIDE SPLASH. REFER TO DIVISION 12 SPECIFICATIONS.
7. ALL COUNTERTOPS SHALL HAVE RADIUS CORNERS AT OUTSIDE CORNERS.
8. REFER TO SPECIFICATION SECTION 122419 FOR DETAILED INFORMATION ON WINDOW ROLLER SHADES.
9. SEE SHEET A1.10 FOR SIGNAGE DETAILS. PROVIDE BACK PANELS AT ALL SIGNAGE MOUNTED ON GLASS.
10. TRIM WALL PROTECTION AROUND POWER/DATA OUTLETS (TYP).
11. SEE SHEET A1.19 FOR VISUAL DISPLAY SCHEDULE.
12. REFER TO TECHNOLOGY DRAWINGS BY OTHERS TO COORDINATE VDB'S. INFORM ARCHITECT OF CONFLICTS.

EQUIPMENT PLAN LEGEND

- X-X = INDICATES CASEWORK. REFER TO SPECIFICATION SECTION 123219 FOR SCHEDULE AND PLASTIC LAMINATE SELECTIONS. ALL CABINETS SHALL SLOPED TOPS AND ALL DOORS SHALL HAVE LOGOS VING.
- B-1 = BASE CABINET
B-2 = WALL CABINET
T-1 = TALL CABINET
FILLER = PROVIDE FACE, TOP, BOTTOM AND / OR COUNTERTOP FILLER AS REQUIRED BY TYPE OF CABINET
- RS-1 = ROLLER SHADE, SPECIFICATION SECTION 123419
- SIGNS (FOR TYPES AND MOUNTING, SEE SHEET A1.28 AND SPEC SECTION 101419, 101423 & 101424)
- VDB-1 = VISUAL DISPLAY BOARD, SPECIFICATION SECTION 101100

APPLIANCE PLAN LEGEND

- SEE SPEC. SECTION 113013
- RF-1 = REFRIGERATOR
URF-1 = UNDERCOUNTER REFRIGERATOR
WHR = WASHER
MG-1 = MICROWAVE
DRY = ELEC. DRYER

EQUIPMENT PLAN NEYNOTES

1. CASEWORK FILLER TYP
2. GYM WALL PADS, 2" X 8" X 2" THICK, MOUNTED AT 4" AFF. REFER TO SPECIFICATION SECTION 116623
3. GYM SCOREBOARD. REFER TO SPECIFICATION SECTION 116623
4. FLAT SCREEN TV, SEE TECHNOLOGY DRAWINGS
5. SHORT THROUGH PROJECTOR BY TECHNOLOGY CONSULTANT
6. SIDE RETRACTABLE BASKETBALL BACKSTOP (GLASS) SEE SPECIFICATION SECTION 116623
7. GYMNASIUM DIVIDER, SEE SPEC SECTION 089913
8. VOLLEYBALL SLEEVE, REFER TO SPECIFICATION SECTION 116623
9. FRAME OUT OPENINGS WITH WOOD TRIM AND PAINT SAME COLOR AS WALL
10. ARCHITECTURAL LETTERS, SEE INTERIOR ELEVATIONS AND SHEET A1.10
11. GLASS IN OPENING WITH FROSTED BOY/GIRL SYMBOL, SEE SHEET A1.10
12. WALL MOUNTED INTERACTIVE TOUCH SCREEN, SEE TECHNOLOGY PLAN
13. FORWARD RETRACTABLE BASKETBALL BACKSTOP (GLASS) SEE SPECIFICATION SECTION 116623
14. TECH GART BY OWNER
15. ACRYLIC WALL MOUNTED ART DISPLAY



Willow School

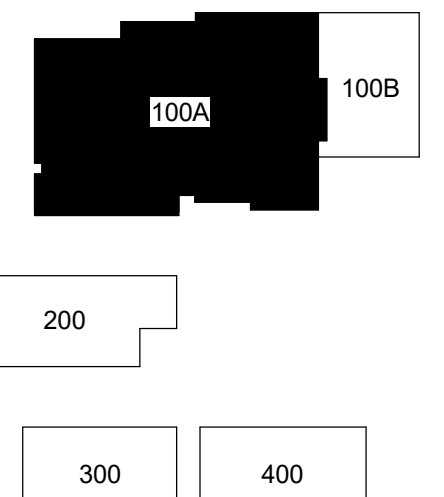
Lansing School District

1012 W. Willow
Lansing, MI 48915



ISSUANCES
Bid and Construction
Addendum 01

DATE
01/28/2024
03/01/2024



KEY PLAN

LSO NO. SB-0059
JOB NO. 2616.01A

SHEET TITLE

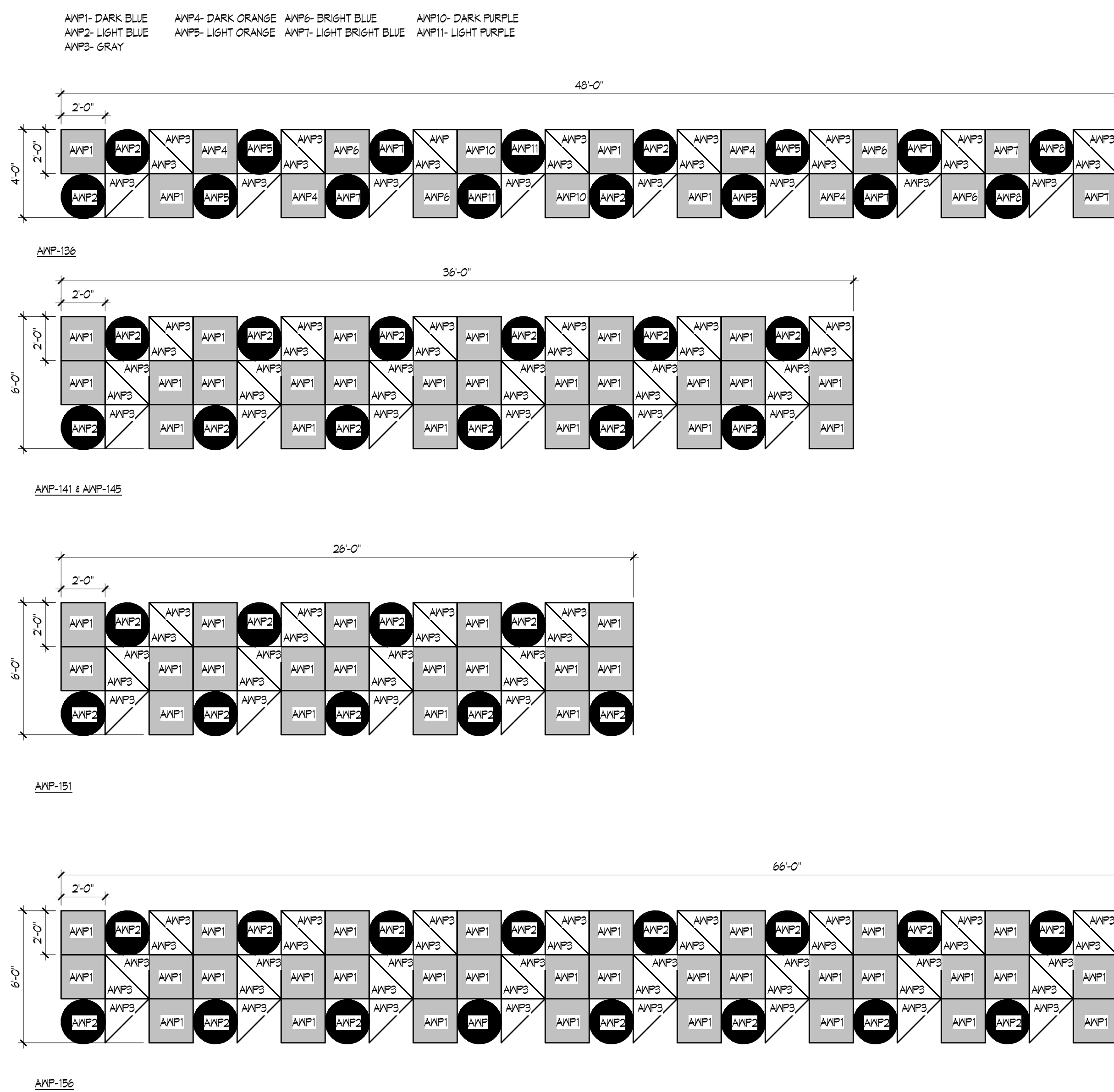
EQUIPMENT PLAN - UNIT 1100

SHEET NO.

A1.5

KINGS SCOTT ASSOCIATES INC. KALAMAZOO, MICHIGAN

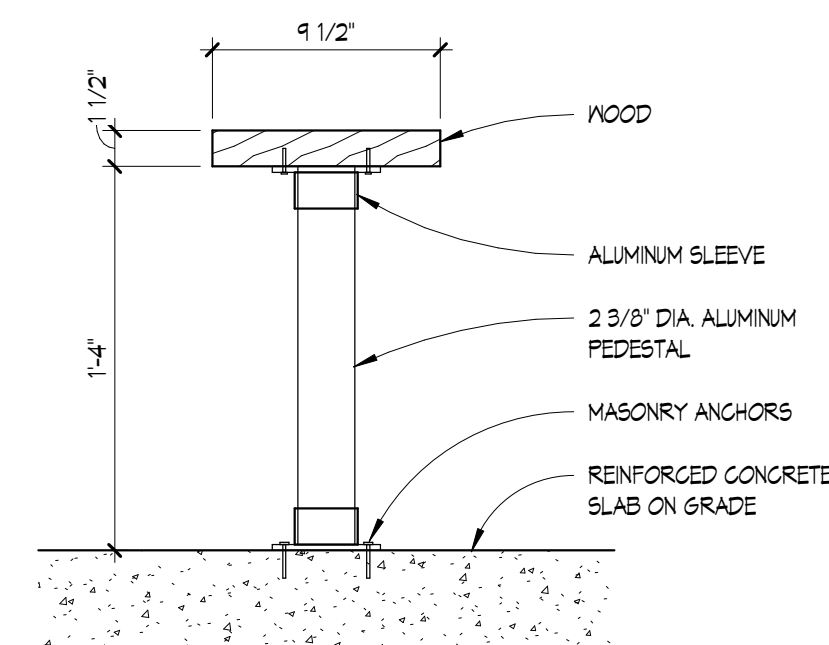
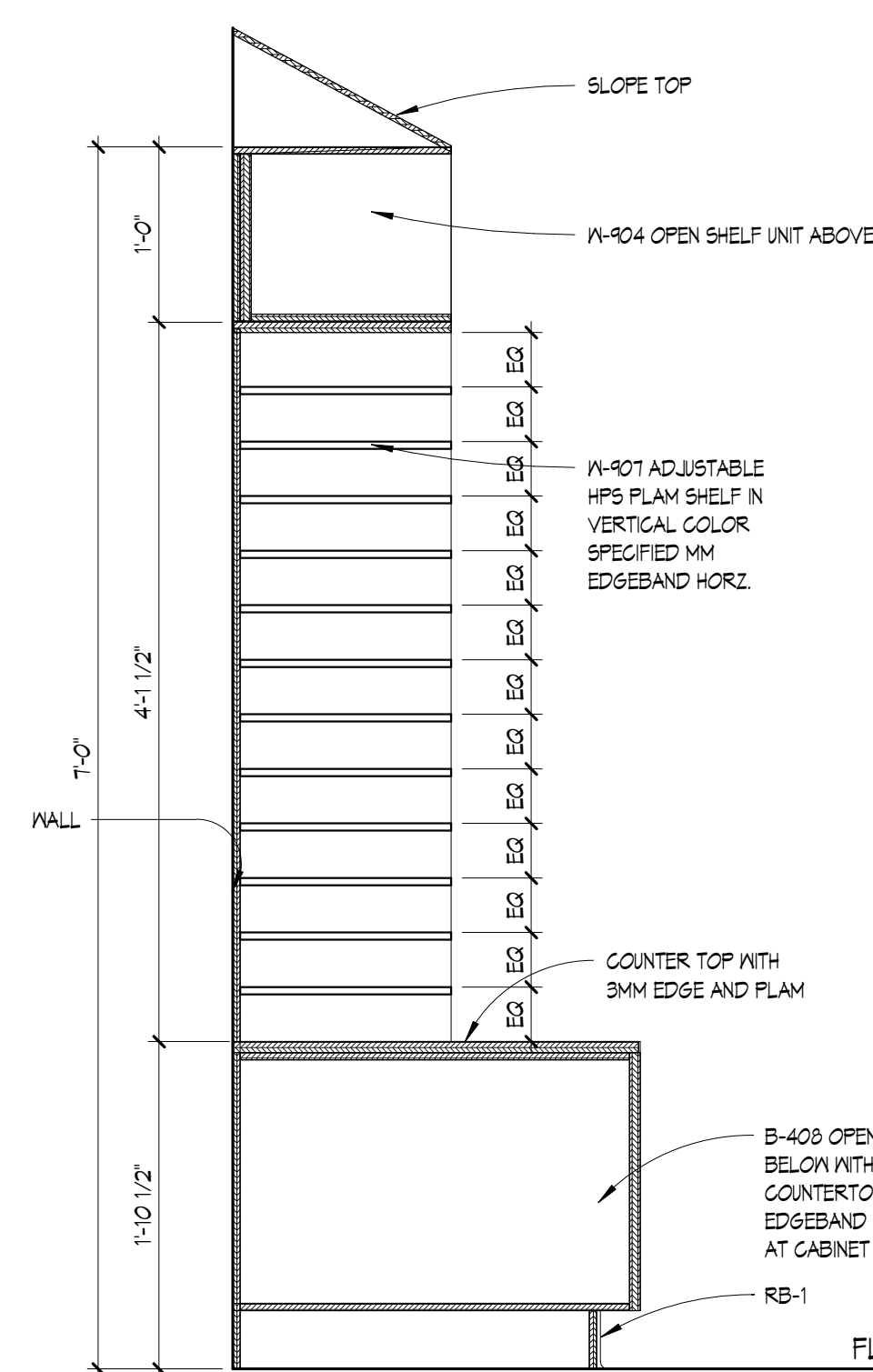
ACOUSTIC WALL PANEL SCHEDULE (AWP-#)



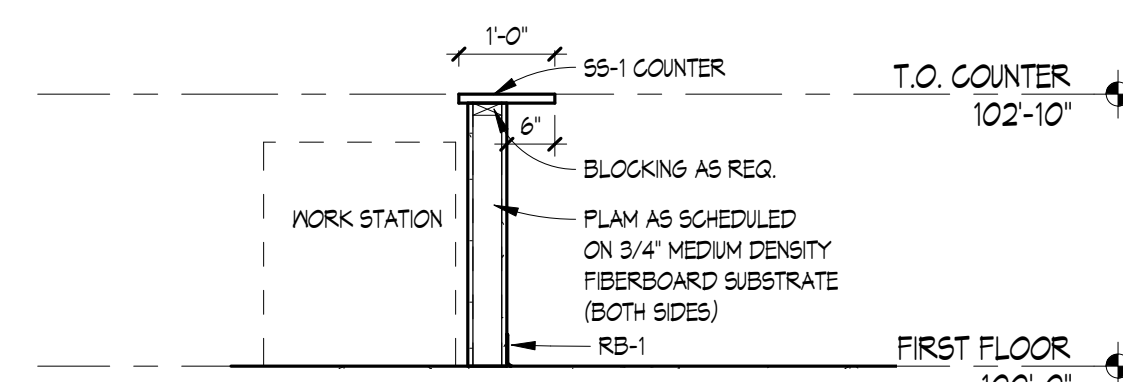
ROLLER SHADES (RS-#)

SECTION 122413

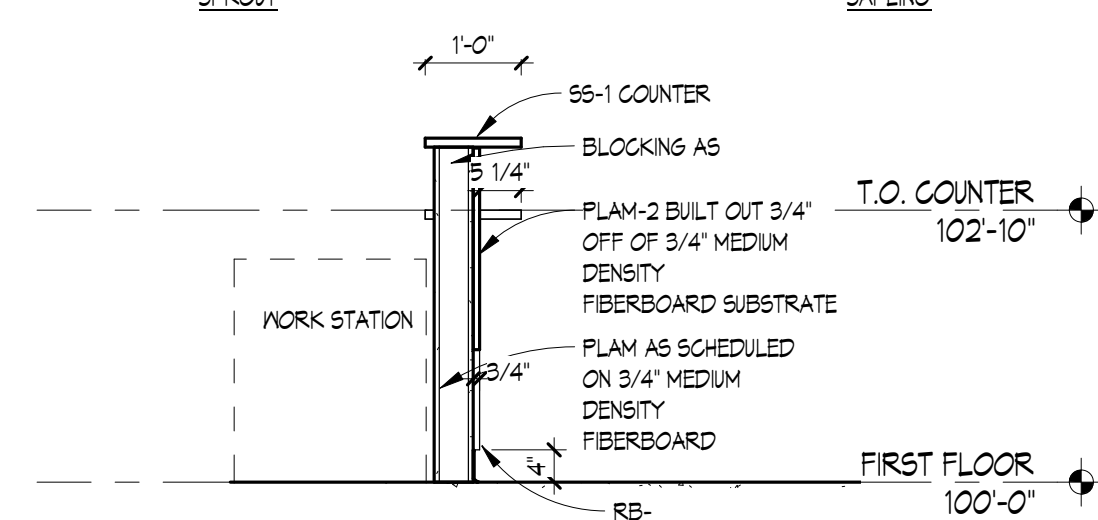
RS-1L	SINGLE ROLLER SHADE	3% LIGHT FILTERING	LEFT SIDE MANUALLY OPERATED
RS-1R	SINGLE ROLLER SHADE	3% LIGHT FILTERING	RIGHT SIDE MANUALLY OPERATED
RS-2R	(CAFETERIA) DUAL ROLLER SHADE	3% LIGHT FILTERING/ BLACK OUT	RIGHT SIDE MOTORIZED



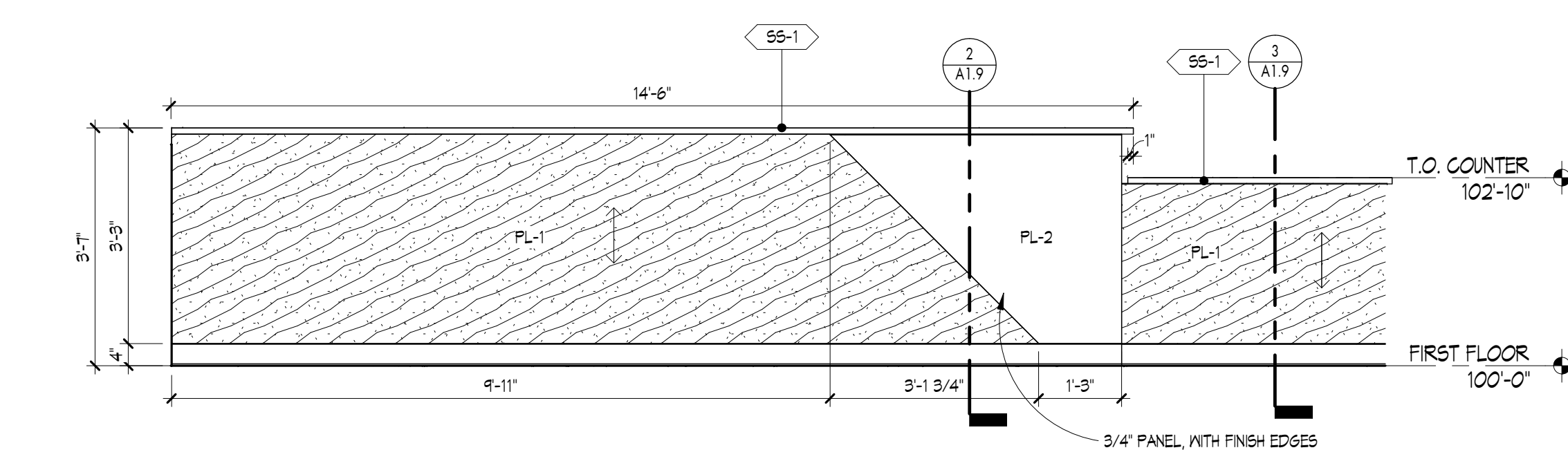
7 LOCKER ROOM BENCH SECTION
1 1/2" = 1'-0"



3 RECEPTION DESK ADA COUNTER
1/2" = 1'-0"



2 RECEPTION DESK TRANSACTION COUNTER
1/2" = 1'-0"



1 FRONT DESK
1/2" = 1'-0"

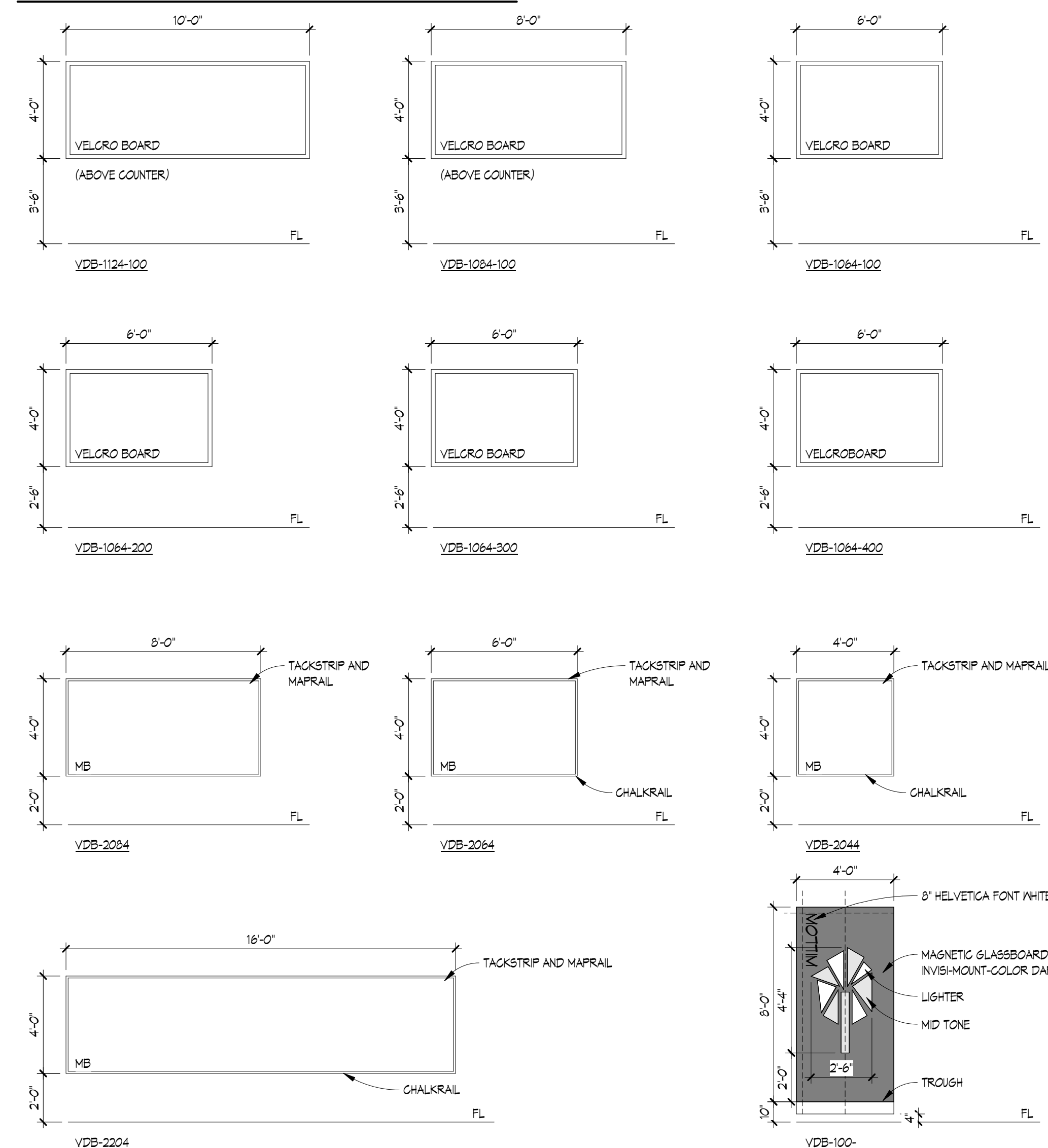
6 MAILBOX CASEWORK DETAIL

5 READING NOOK SHELVEING

4 READING NOOK SECTION
1/2" = 1'-0"

YDB SCHEDULE (YDB-#)

CORRDINATE LOCATIONS WITH TECHNOLOGY DEVICES BEFORE INSTALLATION



Willow School
Lansing School District
1012 W. Willow
Lansing, MI 48915



ISSUANCES	DATE
Bid and Construction	01/26/2024
Addendum 01	03/01/2024

LSD NO. SB-0059
JOB NO. 2616.01A

SHEET TITLE

EQUIPMENT SCHEDULES &

EQUIPMENT, TESTED GELS & DETAILS



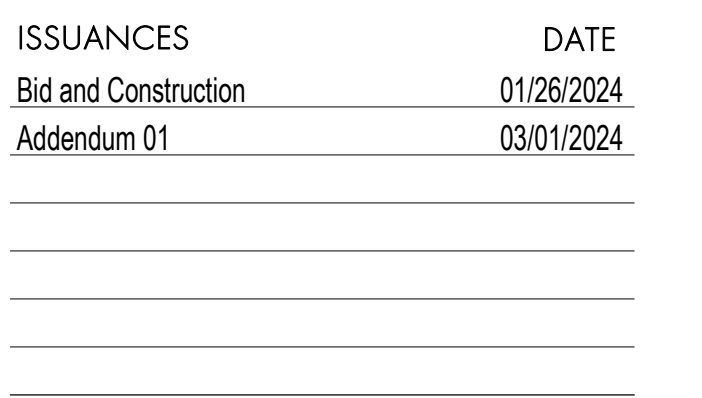
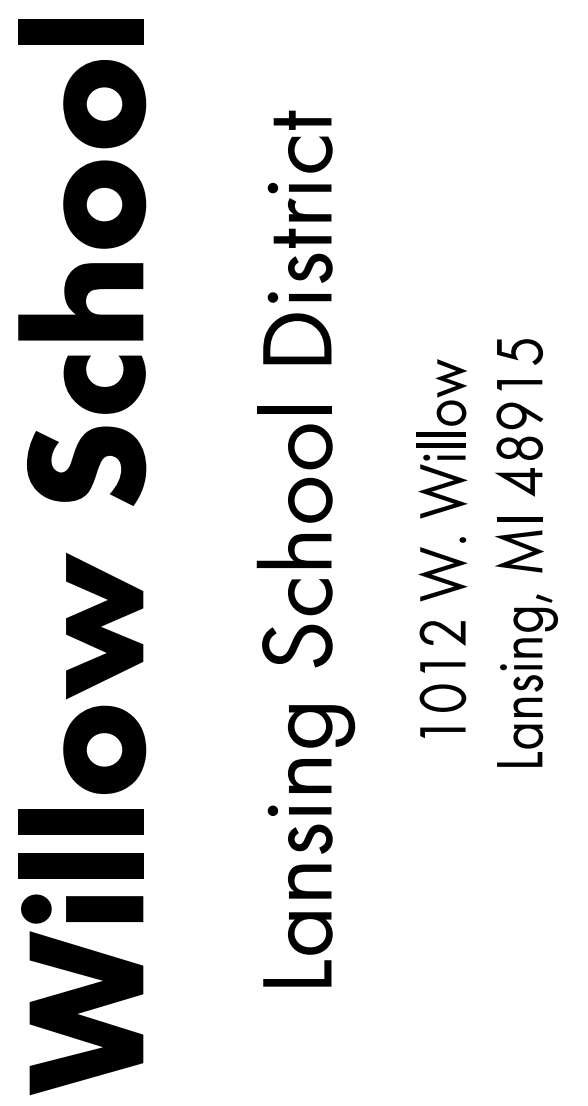
SHEET NO _____

 KINGSCOT

()

A1.9

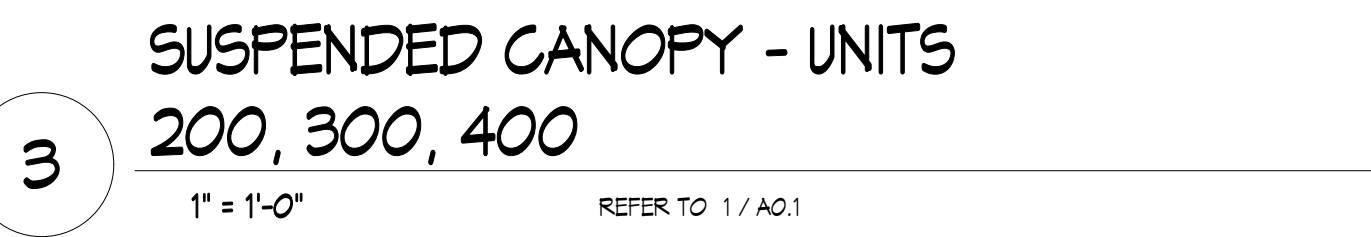
KINGSCOTT ASSOCIATES INC. KALAMAZOO, MICHIGAN

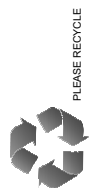


SHEET NO.

A4.3

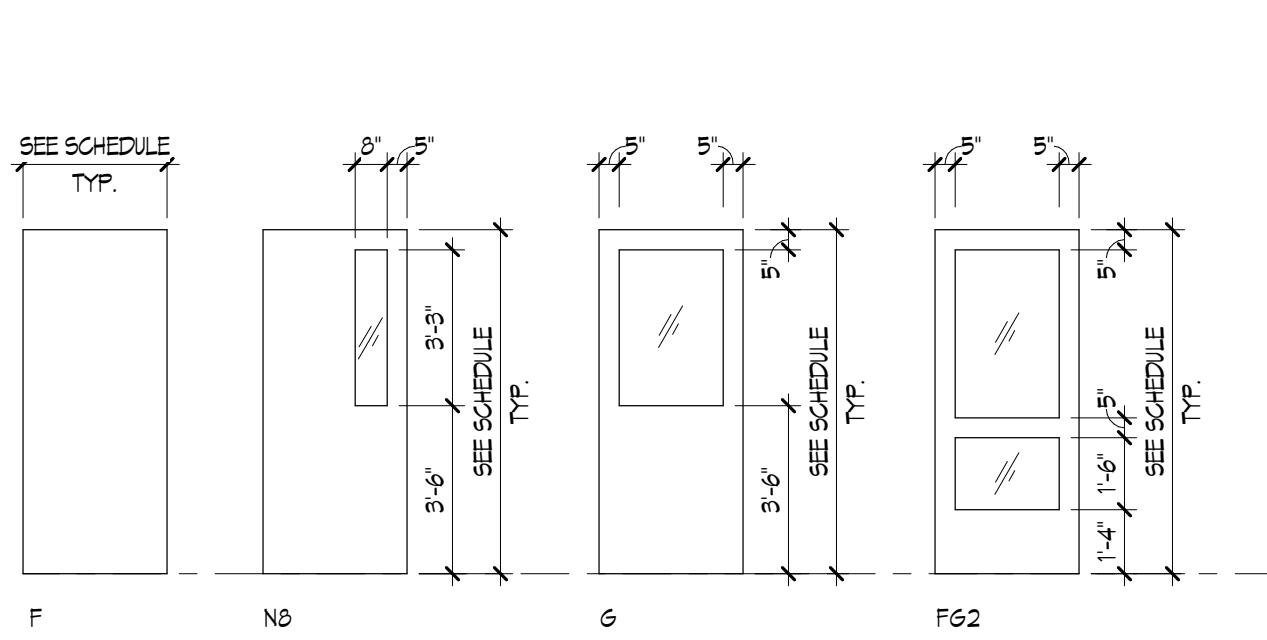
KINGSCOTT ASSOCIATES INC. KALAMAZOO, MICHIGAN





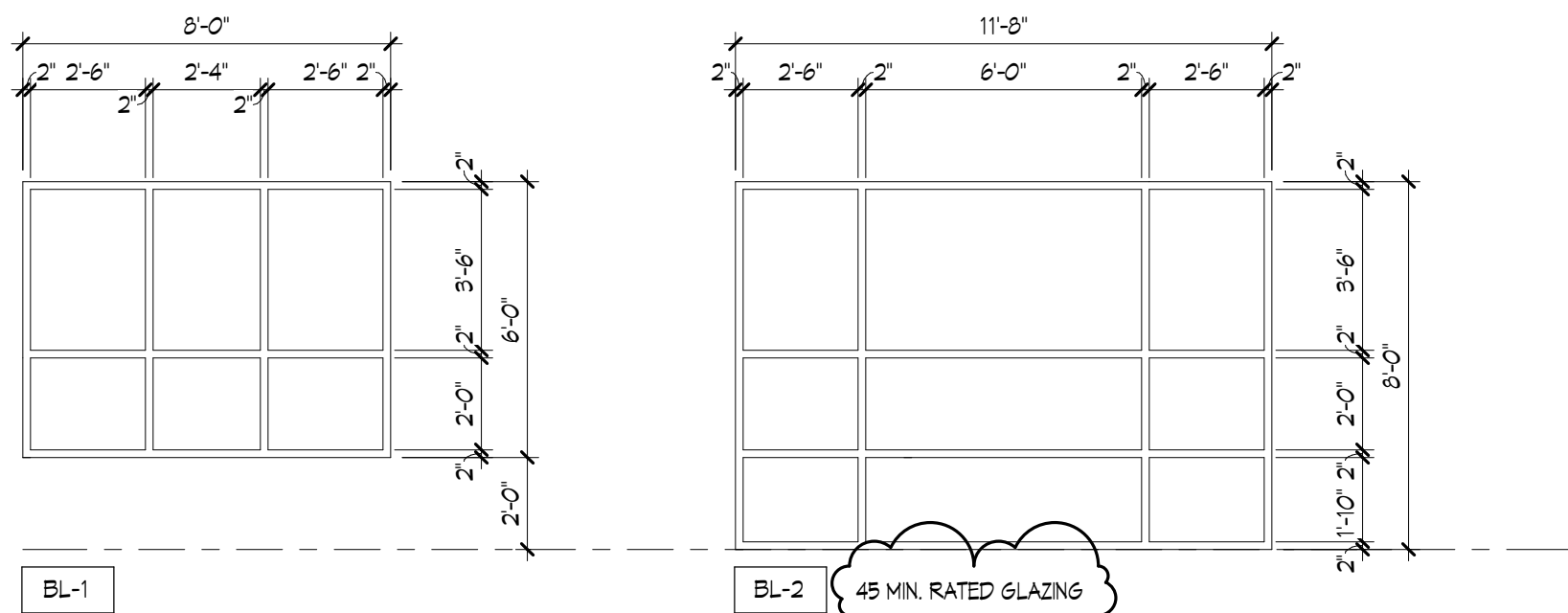
DOOR SCHEDULE																
DOOR NUMBER	DOOR			DOOR MATERIAL	DOOR GLASS	FRAME TYPE	FRAME MATERIAL	FRAME GLASS	FRAME DETAILS				FIRE RATING	HARDWARE SET	REMARKS	
	WIDTH	HEIGHT	DOOR TYPE						HEAD	JAMB	JAMB	SILL				
100A	3'-0"	7'-2"	F62	FRP	1" NSUL	4	ALUM	1" NSUL	5/A6.4	2/A6.4 SM	2/A6.4 SM	1/A6.4 SM		48	CARD READER	
100B	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		52		
100C	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		52		
100D	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		52		
100E	3'-0"	7'-2"	F62	FRP	1" NSUL	4	ALUM	1" NSUL	19/A6.4	19/A6.4 SM	19/A6.4 SM	-		46	CARD READER	
100F	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		46		
100G	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		46		
100H	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		46		
101A	3'-0"	7'-2"	F62	FRP	1" NSUL	4	ALUM	1" NSUL	19/A6.4	19/A6.4 SM	19/A6.4 SM	-		46		
101B	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		46		
101C	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		46		
101D	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		46		
101E	3'-0"	7'-2"	F62	FRP	1" NSUL	4	ALUM	1" NSUL	5/A6.4	2/A6.4 SM	2/A6.4 SM	1/A6.4 SM		52		
101F	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		52		
101G	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		52		
101H	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		51	CARD READER	
102A	3'-0"	7'-2"	F62	FRP	1" NSUL	10	ALUM	1" NSUL	5/A6.4	2/A6.4	2/A6.4	1/A6.4 SM		53	CARD READER	
102B	3'-0"	7'-2"	F62	FRP	1" NSUL	10	ALUM	1" NSUL	-	-	-	-		50		
102C	3'-0"	7'-2"	F62	FRP	1" NSUL	1	ALUM	1" NSUL	19/A6.4	19/A6.4 SM	2/A6.4 SM	-		36		
102D	3'-0"	7'-2"	F62	FRP	1" NSUL	-	ALUM	1" NSUL	-	-	-	-		36		
102E	3'-0"	7'-2"	G	FRP	1" NSUL	2	ALUM	1" NSUL	14/A6.3	13/A6.3	12/A6.3	-		30		
102F	3'-0"	7'-2"	G	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		31	CARD READER	
110	3'-0"	7'-2"	F	FRP	-	1	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4 SM		03		
111	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		04		
112	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		05		
113	3'-0"	7'-2"	F	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		05		
114	3'-0"	7'-2"	G	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		08		
115A	3'-0"	7'-2"	G	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		24	CARD READER	
115B	3'-0"	7'-2"	G	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		26	CARD READER	
116A	3'-0"	7'-2"	G	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		01		
116B	3'-0"	7'-2"	G	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		01		
117	3'-0"	7'-2"	G	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		52	CARD READER	
118	3'-0"	7'-2"	G	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		26	CARD READER	
119	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	16		
120A	6'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	25		
120B	4'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	22		
121A	4'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	34		
121B	4'-0"	8'-0"	F	FRP	-	1	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4 SM		54		
123A	6'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	23		
123B	6'-0"	7'-2"	F	FRP	-	1	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4 SM		51	CARD READER	
124	4'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	22		
125	3'-0"	7'-2"	F	FRP	-	3	HM	1/4" SAF	19/A6.4	13/A6.3	12/A6.3	-		20	CARD READER	
126	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	21		
127	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		05		
128	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		05		
129	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	21		
131	6'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	25		
132	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	17		
133	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	15		
135A	4'-0"	8'-0"	-	STL	-	-	STL	-	20/A6.3	19/A6.3	19/A6.3	-		6	OVERHEAD COLLING DOOR	
135B	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	02		
135C	4'-0"	8'-0"	-	STL	-	-	STL	-	20/A6.3	19/A6.3	19/A6.3	-		61	OVERHEAD COLLING DOOR	
135D	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		10		
135E	4'-0"	8'-0"	-	STL	-	-	STL	-	20/A6.3	19/A6.3	19/A6.3	-		61	OVERHEAD COLLING DOOR	
136A	6'-0"	7'-2"	F62	FRP	1/4" SAF	1A	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	45	KEYED REMOVABLE MULLION; CARD READER	
136B	5'-0"	4'-0"	-	STL	-	-	STL	-						61	COUNTER COLLING DOOR	
136C	6'-0"	7'-2"	F	FRP	-	1A	ALUM	-	19/A6.4	12/A6.4	12/A6.4	1/A6.4		55	KEYED REMOVABLE MULLION; CARD READER	
136D	3'-0"	7'-2"	F	FRP	-	1A	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4		54	FIXED MULLION; CARD READER	
136E	3'-0"	7'-2"	F	FRP	-	1A	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4		50	FIXED MULLION	
136F	3'-0"	7'-2"	F	FRP	-	1A	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4		54	FIXED MULLION; CARD READER	
136G	3'-0"	7'-2"	F	FRP	-	1A	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4		50	FIXED MULLION	
137	6'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	14		
138A	3'-0"	7'-2"	F	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	21	CARD READER	
138B	3'-0"	7'-2"	F	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	20		
139A	6'-0"	7'-2"	N8	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		43	CARD READER	
139B	6'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		44	CARD READER	
139C	3'-0"	7'-2"	F	FRP	-	1A	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4		58	FIXED MULLION	
139D	3'-0"	7'-2"	F	FRP	-	1A	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4		58	FIXED MULLION	
140	3'-0"	7'-2"	F	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		20	CARD READER	
141A	6'-0"	7'-2"	N8	FRP	1/4" SAF	1A	HM	-	14/A6.3	13/A6.3	13/A6.3	-		42	KEYED REMOVABLE MULLION; CARD READER	
141B	3'-0"	7'-2"	F	FRP	-	1	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4		54		
143	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	14		
144	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	14		
145A	6'-0"	7'-2"	N8	FRP	1/4" SAF	1A	HM	-	14/A6.3	13/A6.3	13/A6.3	-		42	KEYED REMOVABLE MULLION; CARD READER	
145B	3'-0"	7'-2"	F	FRP	-	1	ALUM	-	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4		54		
146	3'-0"	7'-2"	N8	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		01		
147	3'-0"	7'-2"	N8	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		20	CARD READER	
148	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		08		
149	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		08		
150	3'-0"	7'-2"	F	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		08		
151A	3'-0"	7'-2"	N8	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		40	CARD READER	
151B	3'-0"	7'-2"	N8	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		37		
152	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		06		
153	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	12		
154	3'-0"	7'-2"	F	FRP	-	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-	45 MN.	33		
155A	3'-0"	7'-2"	F	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		26	CARD READER	
155B	15'-0"	1'-0"	-	FRP	-									62	SLIDING WALL, 4 PANELS	
156A	3'-0"	7'-2"	F62	FRP	1/4" SAF	1	HM	-	19/A6.4	13/A6.3	12/A6.3	-		41	SALVANIZED FRAME; CARD READER	
156B	6'-0"	7'-2"	F62	FRP	1/4" SAF	1	HM	-	14/A6.3	13/A6.3	13/A6.3	-		39		
156C	6'-0"	7'-2"	F	FRP	-	1	ALUM	-	4/A6.4	3/A6.4	3/A6.4	1/A6.4		56	CARD READER	
156E	6'-0"	7'-2"	F	FRP	-	1	ALUM	-	4/A6.4	3/A6.4	3/A6.4	1/A6.4		60		
157	4'-0"	7'-2"	F	FRP	-	1	HM	-	4/A6.3	3/A6.3	3/A6.3	-	45 MN.	13		

DOOR SCHEDULE															
DOOR NUMBER	DOOR				FRAME								FIRE RATING	HARDWARE SET	REMARKS
	WIDTH	HEIGHT	DOOR TYPE	DOOR MATERIAL	DOOR GLASS	FRAME TYPE	FRAME MATERIAL	FRAME GLASS	DETAILS						
									HEAD	JAMB	JAMB	SILL			
188	3'-0"	7'-2"	F	VD	--	1	HM	--	4/A6.3	3/A6.3	3/A6.3	--	01		
189	3'-0"	7'-2"	F	VD	--	1	HM	--	4/A6.3	3/A6.3	3/A6.3	--	11		
190	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	06		
191	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	06		
192	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	06		
193	3'-0"	7'-2"	F	VD	--	1	HM	--	4/A6.3	3/A6.3	3/A6.3	--	01		
194	3'-0"	7'-2"	G	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	11		
195	3'-0"	7'-2"	F	FRP	--	1	ALUM	--	5/A6.4 SM	2/A6.4 SM	2/A6.4 SM	1/A6.4 SM	34		CARD READER
196	3'-0"	7'-2"	F	FRP	--	1	ALUM	--	14/A6.4	13/A6.4	13/A6.4	--	35		
197B	6'-0"	7'-2"	F	FRP	--	1	ALUM	--	14/A6.4	13/A6.4	13/A6.4	--	34		
200A	3'-0"	7'-2"	F62	FRP	1" INSUL	11	ALUM	1" INSUL	5/A6.4	2/A6.4	2/A6.4	1/A6.4	50		CARD READER
200B	3'-0"	7'-2"	F62	FRP	1" INSUL	--	ALUM	1" INSUL	--	--	--	--	52		
200C	3'-0"	7'-2"	F62	FRP	1" INSUL	6	ALUM	1" INSUL	19/A6.4	13/A6.4	13/A6.4	--	41		CARD READER
200D	3'-0"	7'-2"	F62	FRP	1" INSUL	--	ALUM	1" INSUL	--	--	--	--	49		
200E	3'-0"	7'-2"	F62	FRP	1" INSUL	6	ALUM	1" INSUL	15/A6.4	12/A6.4	12/A6.4	1/A6.4	50		
201B	3'-0"	7'-2"	F62	FRP	1" INSUL	--	ALUM	1" INSUL	--	--	--	--	53		CARD READER
202A	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	06		CARD READER
202B	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	04		
204	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	31		
205A	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	40		CARD READER
205B	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	40		
207	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	04		
208A	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	40		CARD READER
208B	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	31		
210	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	40		
211A	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	31		CARD READER
211B	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	04		
215	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	04		
216A	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	31		
216B	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	40		CARD READER
216	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	31		
217A	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	40		
217B	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	40		CARD READER
219	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	04		
220	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	06		
221	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	45 MIN.	21	
222	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	45 MIN.	24	
223	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	45 MIN.	21	
300A	3'-0"	7'-2"	F62	FRP	1" INSUL	10	ALUM	1" INSUL	5/A6.4	2/A6.4	2/A6.4	1/A6.4	50		CARD READER
300B	3'-0"	7'-2"	F62	FRP	1" INSUL	--	ALUM	1" INSUL	--	--	--	--	52		
300C	3'-0"	7'-2"	F62	FRP	1" INSUL	7	ALUM	1" INSUL	19/A6.4	13/A6.4	13/A6.4	--	41		CARD READER
300D	3'-0"	7'-2"	F62	FRP	1" INSUL	--	ALUM	1" INSUL	--	--	--	--	49		
302A	3'-0"	7'-2"	F62	FRP	1" INSUL	6	ALUM	1" INSUL	15/A6.4	12/A6.4	12/A6.4	1/A6.4	50		
302B	3'-0"	7'-2"	F62	FRP	1" INSUL	--	ALUM	1" INSUL	--	--	--	--	53		CARD READER
303	3'-0"	7'-2"	N8	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
304	3'-0"	7'-2"	N8	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
305	3'-0"	7'-2"	N8	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
306	3'-0"	7'-2"	N8	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
307	3'-0"	7'-2"	N8	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
308	3'-0"	7'-2"	N8	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
309	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	45 MIN.	21	
310	4'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	45 MIN.	22	
311	4'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	45 MIN.	22	
312	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	06		
313	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	06		
400A	3'-0"	7'-2"	F62	FRP	1" INSUL	10	ALUM	1" INSUL	5/A6.4	2/A6.4	2/A6.4	1/A6.4	50		CARD READER
400B	3'-0"	7'-2"	F62	FRP	1" INSUL	--	ALUM	1" INSUL	--	--	--	--	52		
400C	3'-0"	7'-2"	F62	FRP	1" INSUL	7	ALUM	1" INSUL	19/A6.4	13/A6.4	13/A6.4	--	40		
400D	3'-0"	7'-2"	F62	FRP	1" INSUL	--	ALUM	1" INSUL	--	--	--	--	41		CARD READER
402A	3'-0"	7'-2"	F62	FRP	1" INSUL	6	ALUM	1" INSUL	15/A6.4	12/A6.4	12/A6.4	1/A6.4	53		CARD READER
402B	3'-0"	7'-2"	F62	FRP	1" INSUL	--	ALUM	1" INSUL	--	--	--	--	50		
403	3'-0"	7'-2"	G	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	06		
404	4'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	45 MIN.	19	
405	4'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	45 MIN.	22	
406	4'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	45 MIN.	21	
407	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	06		
408	3'-0"	7'-2"	F	VD	--	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	06		
411	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
412	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
413	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
414	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
415	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER
416	3'-0"	7'-2"	N8	VD	1/4" SAF	1	HM	--	14/A6.3	13/A6.3	13/A6.3	--	20		CARD READER



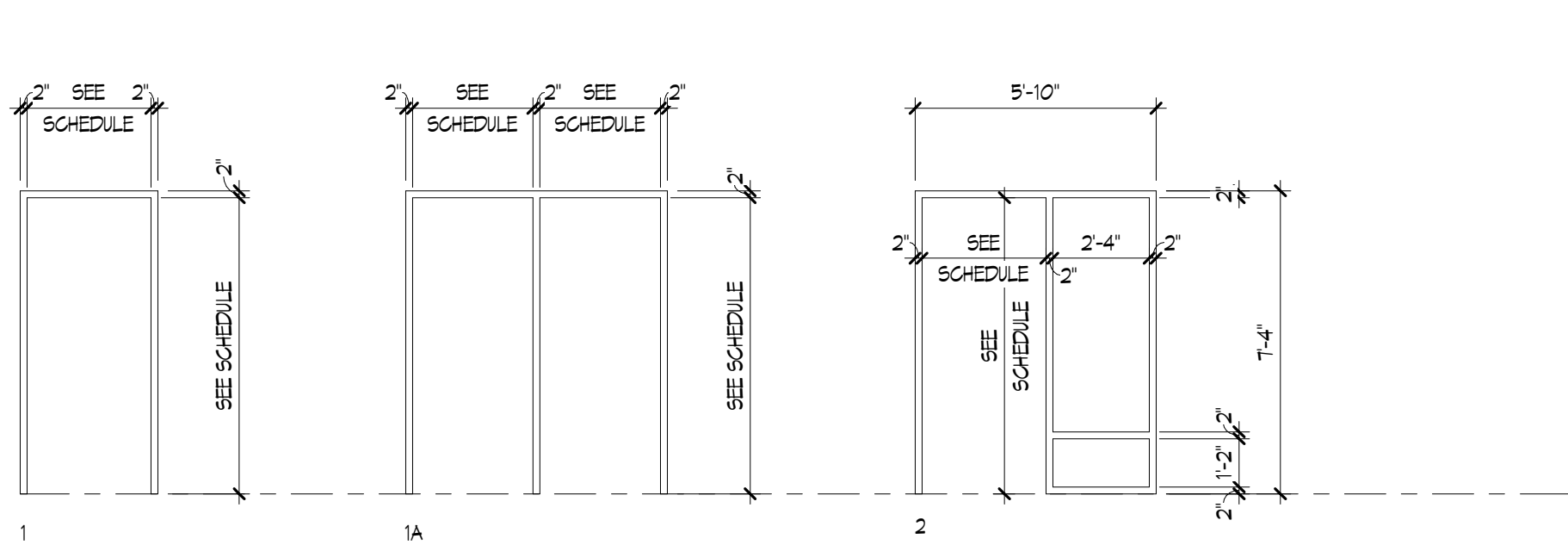
DOOR TYPES

FIELD VERIFY OPENING SIZE PRIOR TO MANUFACTURING



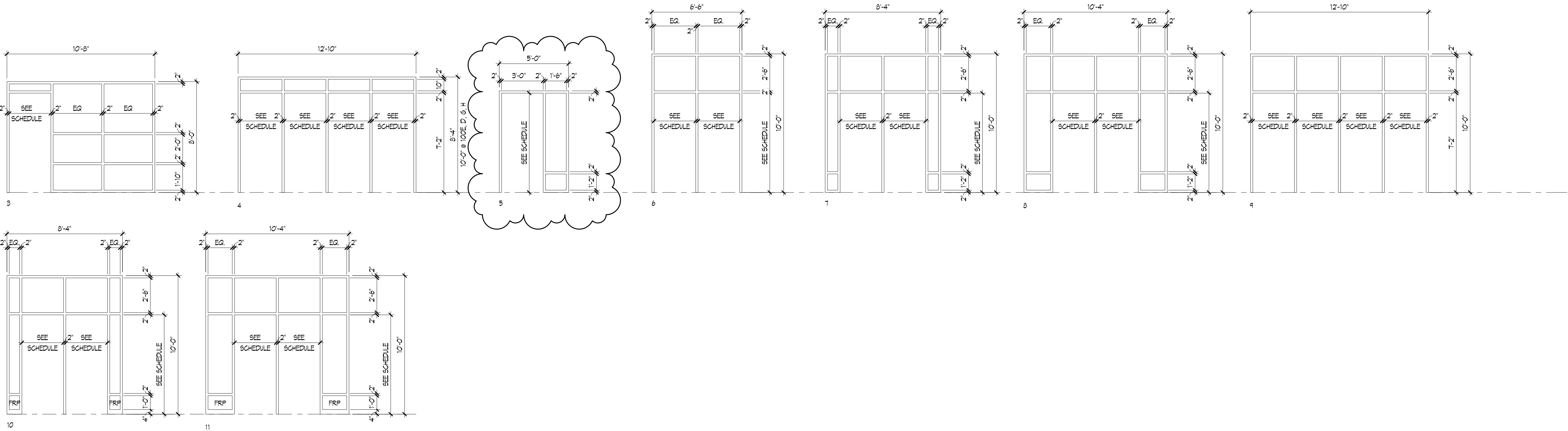
BORROWED LITE FRAMES

FIELD VERIFY OPENING SIZE PRIOR TO MANUFACTURING



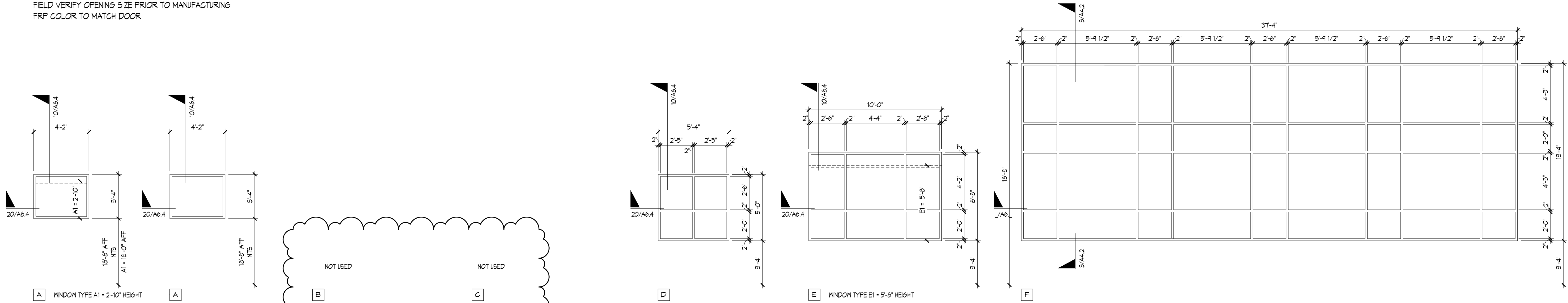
FRAME TYPES

FIELD VERIFY OPENING SIZE PRIOR TO MANUFACTURING



FRAME TYPES

FIELD VERIFY OPENING SIZE PRIOR TO MANUFACTURING
FRP COLOR TO MATCH DOOR

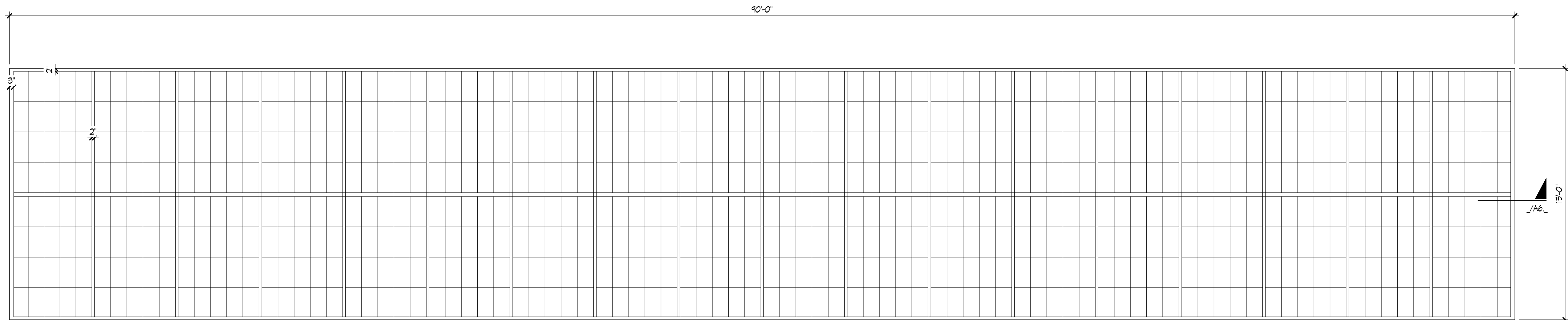


STOREFRONT

FIELD VERIFY OPENING SIZE PRIOR TO MANUFACTURING

CURTAINWALL

FIELD VERIFY OPENING SIZE PRIOR TO MANUFACTURING



TRANSLUCENT PANEL

FIELD VERIFY OPENING SIZE PRIOR TO MANUFACTURING



Willow School

Lansing School District

1012 W. Willow
Lansing, MI 48915



ISSUANCES DATE
Bid and Construction 01/28/2024
Addendum 01 03/01/2024

LSO NO. SB-0059
JOB NO. 2616.01A
SHEET TITLE
OPENING ELEVATIONS

SHEET NO.
A6.2
KINGS SCOTT ASSOCIATES INC. KALAMAZOO, MICHIGAN



COLOR LAYOUT PLAN GENERAL NOTES

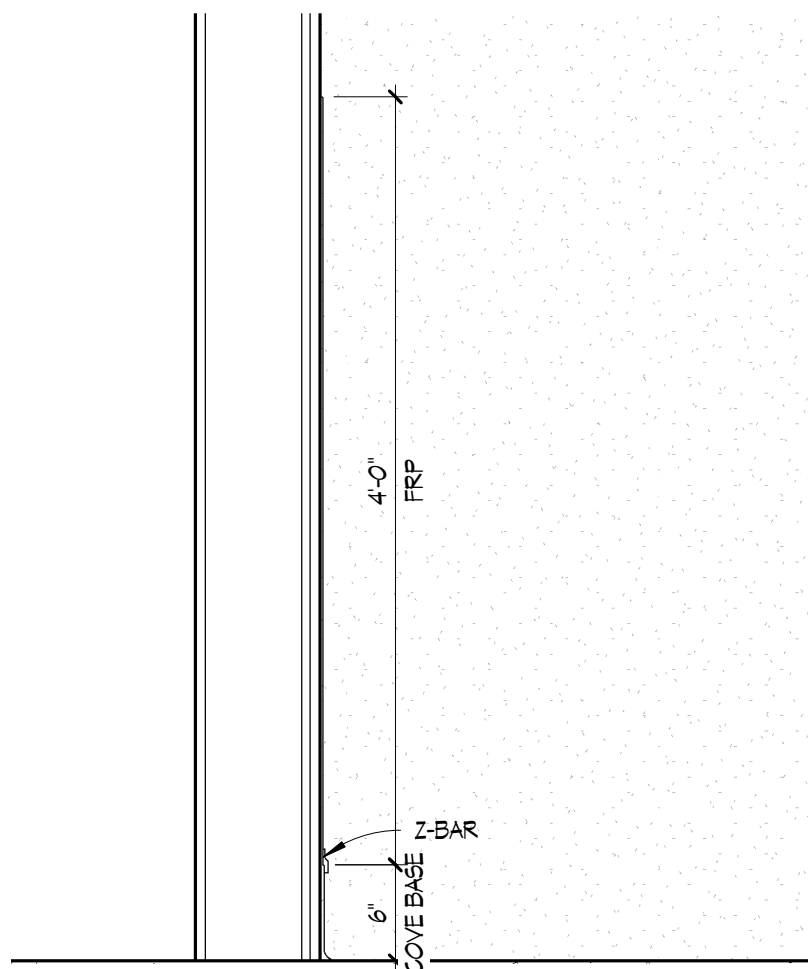
- SEE REFLECTED CEILING PLANS FOR ACOUSTICAL CEILING TYPES.
- UNLESS NOTED OTHERWISE, PAINT NEW BULKHEADS, GYP CEILINGS, AND EXPOSED CEILINGS IN COLORS INDICATED ON THE REFLECTED CEILING PLANS AND COLOR LAYOUT PLANS.
- AT EXPOSED SEALED CONCRETE, PROVIDE HEAVY DUTY SEMI-RIGID EPOXY JOINT FILLER. CONTROL JOINTS AT POLISHED CONCRETE 10' X 10' OR AS NOTED ON COLOR PLANS.
- FLOORING TRANSITIONS TO OCCUR IN LINE WITH THE CENTERLINE OF THE DOOR LEAF. PROVIDE A CLEAN TRANSITION BETWEEN POLISHED AND SEALED CONCRETE FLOORS.
- PAINT EXPOSED DOMESTIC WATER PIPING P-1 U.N.O.
- PAINT EXPOSED FIRE SUPPRESSION LINE PIPING P-5 U.N.O.
- PAINT EXPOSED GEOTHERMAL LINE PIPING P-3 U.N.O.
- PAINT EXPOSED ELECTRICAL CONDUIT P-4 U.N.O.
- AT EXPOSED CEILING, PAINT STRUCTURAL ELEMENTS TO MATCH COLOR INDICATED.
- VERIFY LETTERING FONT AND SIZES WITH OWNER IN FIELD.
- ALL WINDOW SILLS TO RECEIVE WHITE SOLID SURFACE U.N.O.
- PAINT ALL HM FRAMES AND DOORS P-3 U.N.O.
- ALL RESINOUS EPOXY FLOORS TO HAVE INTERREL RESINOUS EPOXY BASE U.N.O.

COLOR LAYOUT PLAN LEGEND

- △ PANT, SEE SPECIFICATION SECTIONS 09123 & 091600
△ E MATCH EXISTING ADJ. COLOR
△ B CERAMIC FLOOR TILE, SEE SPECIFICATION SECTION 093019
△ # CERAMIC TILE WALL, SEE SPECIFICATION SECTION 093019
△ # RESILIENT ATHLETIC FLOORING, SEE SPECIFICATION SECTION 093546
△ # INTEGRAL PIGMENTED CONCRETE FLOORING, SEE SPECIFICATION SECTION 093543
△ # LUXURY VINYL TILE, SEE SPECIFICATION SECTION 096519
C.T. CARPET TILE, SEE SPECIFICATION SECTION 096600
MT BARRIER FREE METAL TRANSITION EQUAL TO SCHLUTER RENO-RAMP
P.C. POLISHED CONCRETE FLOOR, (SALT & PEPPER)
RB-# RUBBER BASE, SEE SPECIFICATION SECTION 096519
REF-# RESINOUS EPOXY FLOORING
RT RESILIENT TRANSITION, SEE SPECIFICATION SECTION 096519
S.G. SEALED CONCRETE FLOOR
ST.C. STAINED CONCRETE FLOOR
S CONTROL JOINT
P PRODUCT EXTENTS WITH MATERIAL INDICATED
W WORK POINT
X FLOORING TRANSITION
← MATERIAL INSTALL DIRECTION
A/B CHANGE OF MATERIAL

COLOR LAYOUT PLAN KEYNOTES

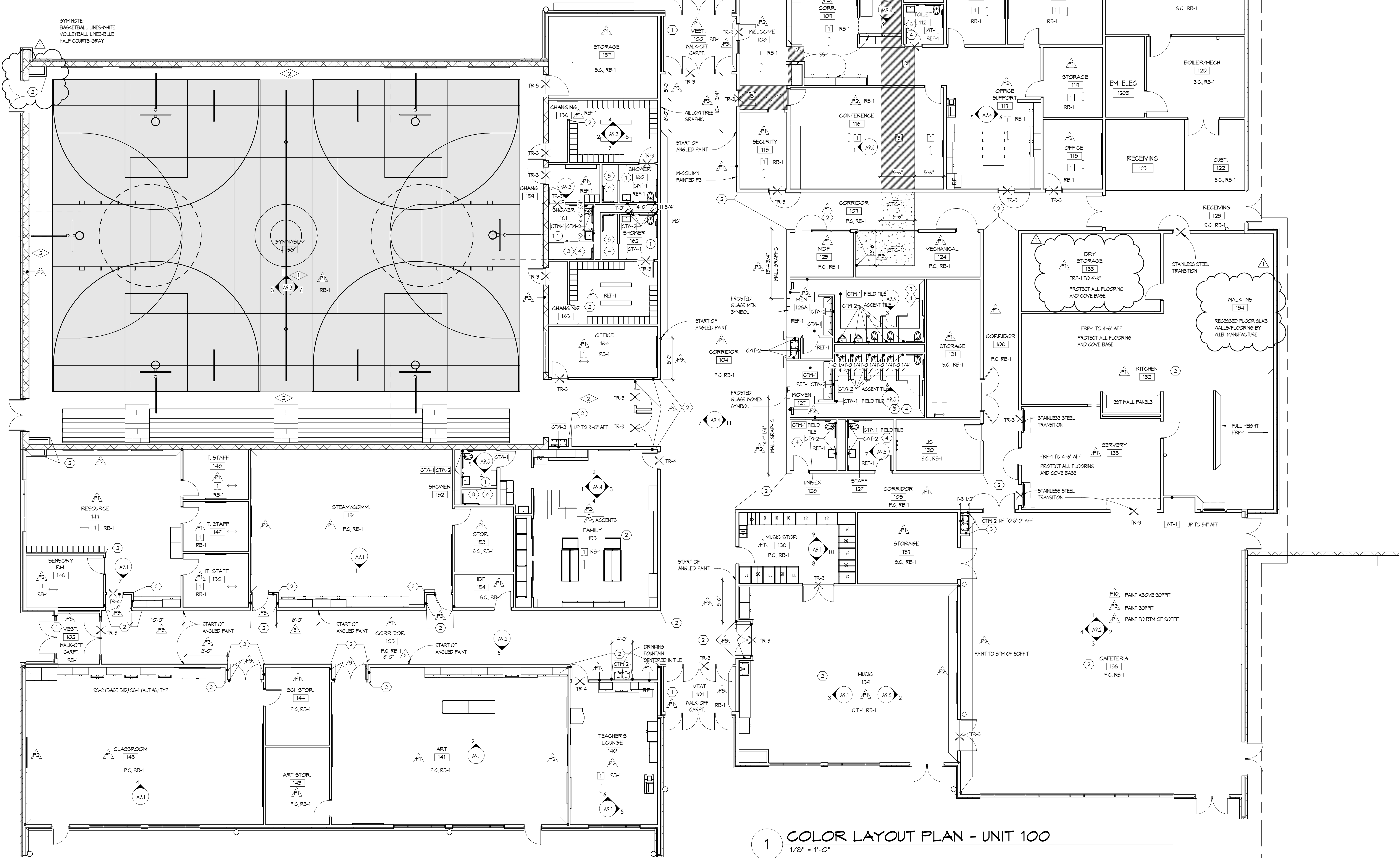
- WALKOFF CPT WITH RB-1
- ALUMINUM CORNER GUARD, 3'-0" H - MOUNT 4" A.F.F.
- METAL TRIM AT EXPOSED CORNERS OF WALL TILE
- FULL HEIGHT WALL TILE
- PROVIDE CLEAN FLOORING TRANSITION BETWEEN EPOXY FLOOR AND POLISHED CONCRETE



2 KITCHEN BASE DETAIL

1" = 1'-0"

GYM NOTE:
BASKETBALL LINES-WHITE
VOLLEYBALL LINES-BLUE
HALF COURTS-GRAY



1 COLOR LAYOUT PLAN - UNIT 100

1/8" = 1'-0"

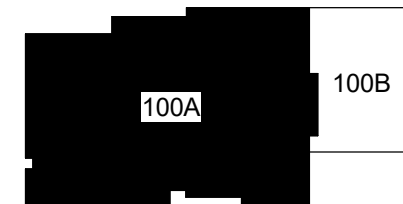
Willow School

Lansing School District

1012 W. Willow
Lansing, MI 48915



ISSUANCES DATE
Bid and Construction 01/28/2024
Addendum 01 03/01/2024



200

300

400

KEY PLAN

LSJ NO. SB-0059
JOB NO. 2616.01A

SHEET TITLE

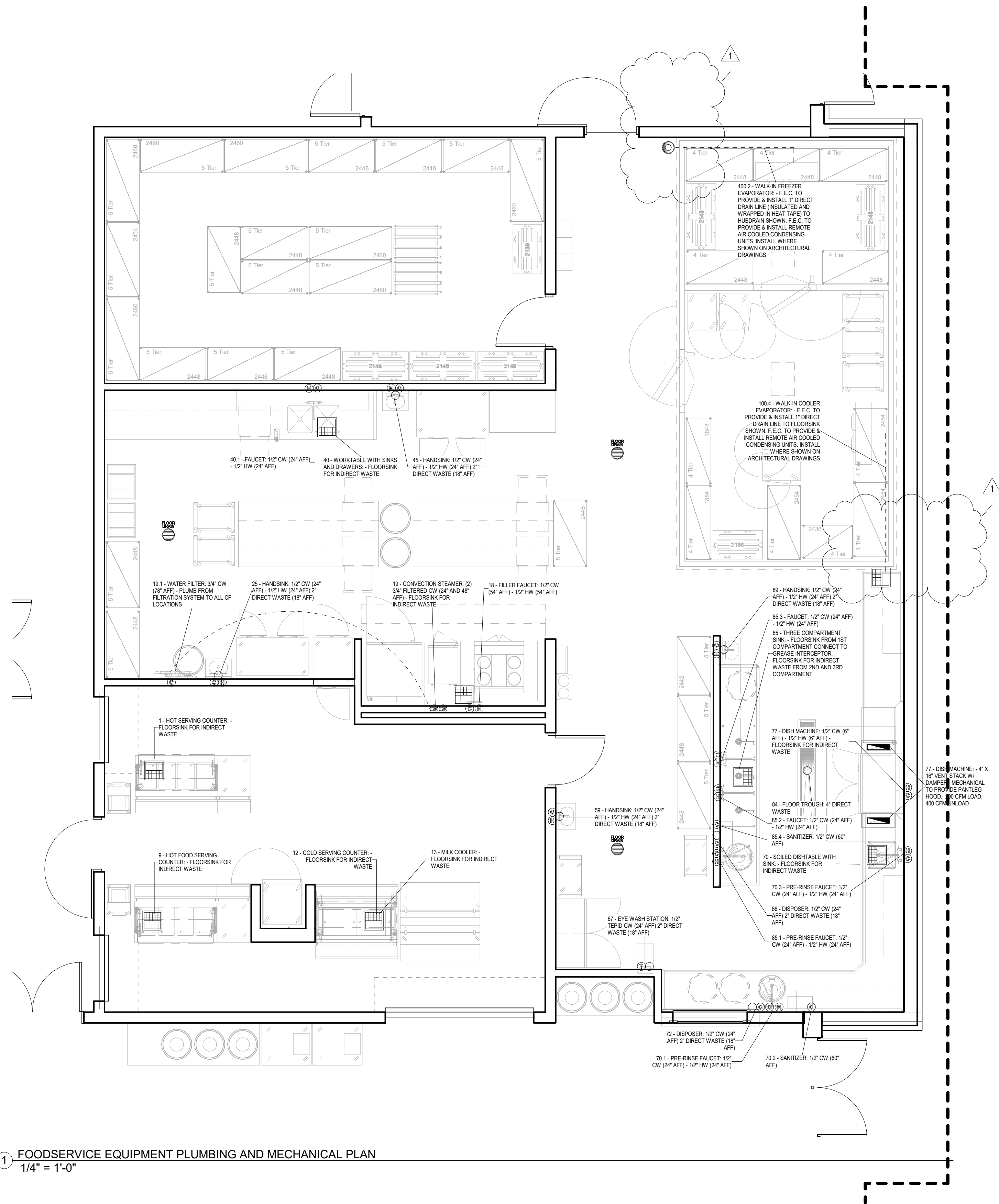
COLOR LAYOUT PLAN - UNIT 100

SHEET NO.

A8.1

© KINGS SCOTT ASSOCIATES INC.

KALAMAZOO, MICHIGAN



1 FOODSERVICE EQUIPMENT PLUMBING AND MECHANICAL PLAN
1/4" = 1'-0"

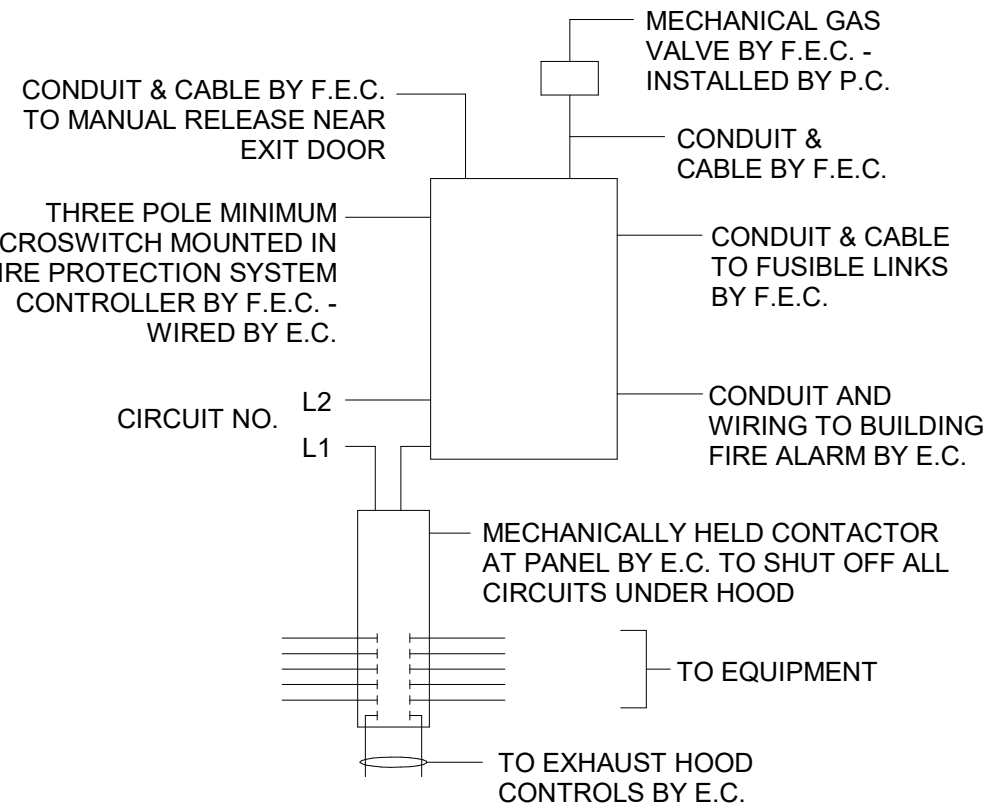
PLUMBING AND MECHANICAL SCHEDULE										PLUMBING NOTES	MECHANICAL NOTES
ITEM #	EQUIPMENT	GAS SIZE	MBTU	GAS AFF	CW SIZE	CW AFF	HW SIZE	HW AFF	DRAIN SIZE		
1	HOT SERVING COUNTER									FLOORSINK FOR INDIRECT WASTE	
9	HOT FOOD SERVING COUNTER									FLOORSINK FOR INDIRECT WASTE	
12	COLD SERVING COUNTER									FLOORSINK FOR INDIRECT WASTE	
13	MILK COOLER									FLOORSINK FOR INDIRECT WASTE	
18	FILLER FAUCET				1/2"	54"	1/2"	54"			
19	CONVECTION STEAMER				(2) 3/4"	24" AND 48"				FLOORSINK FOR INDIRECT WASTE	
19.1	WATER FILTER				3/4"	78"				PLUMB FROM FILTRATION SYSTEM TO ALL OF LOCATIONS	
25	HANDSINK				1/2"	24"	1/2"	24"	2" DIRECT	18"	
40	WORKTABLE WITH SINKS AND DRAWERS									FLOORSINK FOR INDIRECT WASTE	
40.1	FAUCET				1/2"	24"	1/2"	24"			
45	HANDSINK				1/2"	24"	1/2"	24"	2" DIRECT	18"	
59	HANDSINK				1/2"	24"	1/2"	24"	2" DIRECT	18"	
67	EYE WASH STATION				1/2"	24"	1/2"	24"	2" DIRECT	18"	
70	SOILED DISHTABLE WITH SINK				1/2"	24"				FLOORSINK FOR INDIRECT WASTE	
70.1	PRE-RINSE FAUCET				1/2"	24"	1/2"	24"			
70.2	SANITIZER				1/2"	60"					
70.3	PRE-RINSE FAUCET				1/2"	24"	1/2"	24"			
72	DISPOSER				1/2"	24"			2" DIRECT	18"	
77	DISH MACHINE				1/2"	6"	1/2"	6"			
84	FLOOR TROUGH								4" DIRECT		
85	THREE COMPARTMENT SINK								2" WASTE	18"	FLOORSINK FROM 1ST COMPARTMENT CONNECT TO GREASE INTERCEPTOR. FLOORSINK FOR INDIRECT WASTE FROM 2ND AND 3RD COMPARTMENT
85.1	PRE-RINSE FAUCET				1/2"	24"	1/2"	24"			
85.2	FAUCET				1/2"	24"	1/2"	24"			
85.3	FAUCET				1/2"	24"	1/2"	24"			
85.4	SANITIZER				1/2"	60"					
86	DISPOSER				1/2"	24"			2" DIRECT	18"	
89	HANDSINK				1/2"	24"	1/2"	24"	2" DIRECT	18"	
100.2	WALK-IN FREEZER EVAPORATOR										F.E.C. TO PROVIDE & INSTALL 1" DIRECT DRAIN LINE (INSULATED AND WRAPPED IN HEAT TAPE) TO HUBDRAIN SHOWN. F.E.C. TO PROVIDE & INSTALL REMOTE AIR COOLED CONDENSING UNITS. INSTALL WHERE SHOWN ON ARCHITECTURAL DRAWINGS
100.4	WALK-IN COOLER EVAPORATOR										F.E.C. TO PROVIDE & INSTALL 1" DIRECT DRAIN LINE TO FLOORSINK SHOWN. F.E.C. TO PROVIDE & INSTALL REMOTE AIR COOLED CONDENSING UNITS. INSTALL WHERE SHOWN ON ARCHITECTURAL DRAWINGS

- MECHANICAL AND PLUMBING F.E.C. NOTES
- THIS DRAWING AND THE DATA CONTAINED HEREIN ARE PROVIDED FOR BIDDING PURPOSES ONLY AND ARE NOT INTENDED AS ROUGH-IN DRAWINGS TO BE USED ON THE PROJECT SITE. THE FOODSERVICE EQUIPMENT CONTRACTOR SHALL PROVIDE FINAL DIMENSIONED ROUGH-IN DRAWINGS AND EQUIPMENT DATA FOR CONSTRUCTION PURPOSES.
 - REFER TO THE DIVISION 11 40 00 GENERAL AND ITEM SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.
 - THE F.E.C. SHALL VERIFY UTILITY REQUIREMENTS OF VENDOR PROVIDED EQUIPMENT, OWNER'S EXISTING EQUIPMENT SCHEDULED FOR RE-USE, AND EQUIPMENT INTENDED FOR FUTURE PURCHASE.
 - ALL GAS EQUIPMENT LOCATED BENEATH VENTILATION HOODS SHALL BE AUTOMATICALLY SHUT OFF WHEN THE FIRE PROTECTION SYSTEM IS ACTIVATED. THE F.E.C. SHALL PROVIDE THE AUTOMATICALLY ACTIVATED GAS SHUT-OFF VALVE(S) FOR INSTALLATION BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR TO COORDINATE INSTALLATION WITH FIRE PROTECTION SYSTEM MANUFACTURER. M.C. TO PROVIDE SEPARATE MANUAL GAS SHUT-OFF VALVE FOR EACH CONNECTION TO GAS-FIRED EQUIPMENT.
 - THE F.E.C. SHALL LOCATE AND INSTALL THE FOODSERVICE VENTILATION CANOPIES ONLY.
 - ALL REFRIGERATION AND PLUMBING WORK RELATED TO THE WALK-IN REFRIGERATOR AND/OR FREEZER SHALL BE BY THE F.E.C. ALL PENETRATIONS FOR REFRIGERATION LINES SHALL BE THROUGH THE WALLS OF THE WALK-IN. THERE WILL BE NO PENETRATIONS THROUGH THE CEILING PANELS OF THE WALK-IN REFRIGERATOR/FREEZER FOR REFRIGERATION LINES. ALL PENETRATIONS FOR CONDUIT AND REFRIGERATION LINES SHALL BE SEALED WITH FOAM TO INSURE THAT THERE IS NO AIR INFILTRATION.
 - THE F.E.C. SHALL LOCATE AND INSTALL AIR-COOLED WALK-IN COMPRESSORS WHERE SHOWN ON DRAWINGS.
 - OPEN NOTE
 - ALL REQUIRED ROOF OPENINGS, STRUCTURAL SUPPORT, FLASHING, ETC., TO BE PERFORMED BY TRADES OTHER THAN THE FOODSERVICE EQUIPMENT CONTRACTOR.

- MECHANICAL AND PLUMBING TRADES NOTES
- ROUGH IN UTILITY LINES THROUGH WALLS, FLOORS AND CEILINGS. MAKE ALL FINAL UTILITY CONNECTIONS BETWEEN THE ROUGH-IN POINT AND THE FOODSERVICE EQUIPMENT.
 - ALL WORK MUST MEET ALL APPLICABLE STATE AND LOCAL CODES AND SITE CONDITIONS.
 - ALL EXPOSED PLUMBING FOR DRAINS SHALL BE RUN CLOSE TO THE COUNTERTOP SURFACE, GRADUALLY SLOPING TOWARDS DRAIN LOCATION. PLUMBING SHALL NOT GO BELOW 6" A.F.F. UNLESS OVER DRAIN.
 - TO MINIMIZE CLEANING AND CORROSION PROBLEMS, ALL EXPOSED PIPING (ABOVE COUNTER HEIGHT OR IN A DIRECT LINE OF SIGHT) SHALL BE STAINLESS STEEL OR CHROME PLATED. INSTALL STAINLESS STEEL OR CHROME PLATED BRASS ESCUTCHEONS OR FLANGES FOR UTILITY LINES WHICH EXTEND THROUGH WALLS AND EQUIPMENT. ALL EXPOSED STEAM SUPPLY AND RETURN LINES SHALL BE INSULATED WITH A SEAMLESS, WHITE, HEAT TOLERANT VINYL COVERS WITH ACCESS TO VALVES.
 - PROVIDE TRAPS, CONNECTING PIPE, SHUT-OFF VALVES, STOPS, FLOOR DRAINS, FLOOR SINKS, DRAIN MANIFOLDS, VACUUM BREAKERS THAT ARE NOT SPECIFIC TO EQUIPMENT, GREASE TRAPS AND ALL OTHER HARDWARE, PARTS AND SUPPLIES NECESSARY FOR THE PERFORMANCE OF WORK UNDER THIS CONTRACT, UNLESS SUPPLIED BY THE F.E.C. OR SPECIFIED OTHERWISE IN THESE DOCUMENTS.
 - PROPERLY INSTALL ALL DRAIN ASSEMBLIES, SHUT-OFF VALVES, AND INTERCONNECTING PIPING FOR THE FOODSERVICE EQUIPMENT INCLUDING, BUT NOT LIMITED TO: FAUCETS, SINK DRAINS, SINK WASTE VALVES, OVERFLOW CONNECTIONS, DISPOSER PIPING, TROUGH/VEYORS, HOT FOOD WELLS, FLOOR TROUGHS AND OTHER EQUIPMENT ASSOCIATED WITH THIS PROJECT. ALL DRAIN ASSEMBLIES MUST BE INSTALLED PER ALL LOCAL HEALTH DEPARTMENT PREVAILING CODES AND BE COMMERCIAL GRADE.
 - PROVIDE ANY REQUIRED VACUUM BREAKERS NOT ALREADY SUPPLIED BY THE F.E.C. INSTALL ALL VACUUM BREAKERS. VACUUM BREAKERS, APPROVED BY THE LOCAL HEALTH DEPARTMENT, MUST BE PROVIDED ON ALL DISPOSERS, HOSE REELS, MOPSINKS, PRESSURE WASHERS, STEAMERS AND ON ALL BEVERAGE EQUIPMENT REQUIRING A WATER CONNECTION. ALL ATMOSPHERIC VACUUM BREAKERS MUST BE LOCATED DOWNSTREAM OF SHUT-OFF VALVES IN ACCORDANCE WITH HEALTH DEPARTMENT CODES.
 - F.E.C. TO PROVIDE UTILITY AND PREPARATION SINKS WITH TWIST HANDLE 2" WASTE OUTLETS WITH OVERFLOW ASSEMBLIES. F.E.C. TO PROVIDE LOOSE FOR INSTALLATION.
 - OPEN NOTE
 - OPEN NOTE
 - OPEN NOTE
 - ROUGH-IN LINES FOR WATER TREATMENT SYSTEMS TO BE IN WALL. RUN TREATED WATER PIPE TO COOKING AND BEVERAGE EQUIPMENT IN WALL. DO NOT RUN PIPE EXPOSED ON WALL.

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A.F.F.	ABOVE FINISHED FLOOR		FULL-GRATE FLOORSINK (12" SQUARE)
D.F.A.	DOWN FROM ABOVE		1/2 GRATE FLOORSINK (12" SQUARE)
F.E.C.	FOODSERVICE EQUIPMENT CONTRACTOR		HOT WATER
G.C.	GENERAL CONTRACTOR		COLD WATER
M.C.	MECHANICAL CONTRACTOR		FILTERED HOT WATER
Q.D.G.H.	QUICK DISCONNECT GAS HOSE		FILTERED COLD WATER
	FUNNEL-TYPE FLOOR DRAIN (SANITARY)		STEAM SUPPLY
	DIRECT CONNECT DRAIN		CONDENSATE RETURN
	FLOOR DRAIN (MINIMAL FLOOR SLOPE TO DRAIN)		TEPID WATER
	ROUND FLOORSINK (12" DIAMETER MIN.)		FLEXIBLE QUICK RELEASE GAS SUPPLY

PLUMBING / MECHANICAL SYMBOL LEGEND
1/4" = 1'-0"



TYPICAL FIRE PROTECTION SYSTEM CONTROL DIAGRAM
SEE F.E.C. SHOP DRAWINGS FOR EXACT REQUIREMENTS

UPON ACTIVATION OF THE FIRE PROTECTION SYSTEM, SHUT DOWN THE SUPPLY FAN. EXHAUST FAN SHALL CONTINUE TO RUN OR SHALL BE SHUT DOWN AS DIRECTED BY THE FIRE MARSHALL AND THE HEALTH DEPARTMENT. VERIFY WITH LOCAL INSPECTORS. F.E.C. TO PROVIDE CONTROLS AND WIRING AS REQUIRED.

2 TYP. FIRE PROTECTION SYSTEM CONTROL DIAGRAM
NOT TO SCALE

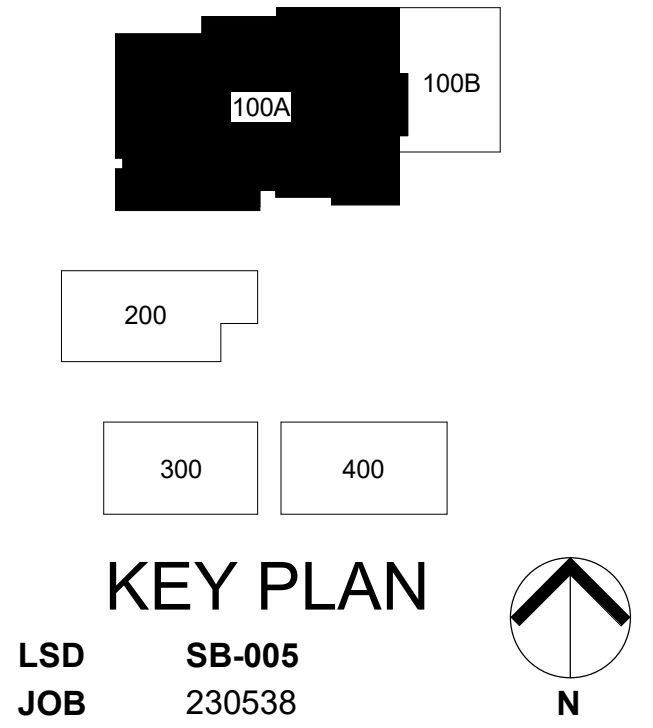


Willow School
Lansing School District
1012 W. Willow
Lansing, MI 48915



ISSUANCE
CD COORDINATION
ADDENDUM 01

DAT
11.09.2023
03/01/2024

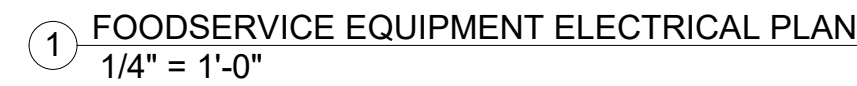


KEY PLAN
LSD SB-005
JOB 230538

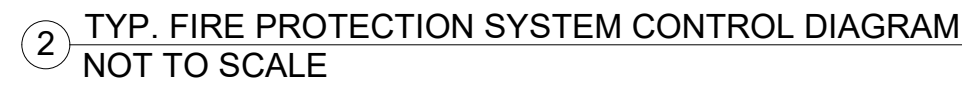
SHEET
TYPE
FOODSERVICE PLUMBING /
MECHANICAL PLAN

SHEET
NO.
FS2.1

KINGSCOTT ASSOCIATES INC. KALAMAZOO













NOTE:
SPARE DCO'S ARE NOT LISTED IN THE FOODSERVICE ELECTRICAL SCHEDULE. THE ELECTRICAL CONTRACTOR IS TO REFERENCE ALL ELECTRICAL FLOOR PLANS FOR SPARE DCO QUANTITIES AND GENERAL LOCATIONS



ELECTRICAL TRADE NOTES	
A.	ROUGH IN ELECTRICAL SERVICE THROUGH WALLS, FLOORS AND CEILINGS. MAKE ALL FINAL UTILITY CONNECTIONS BETWEEN THE ROUGH-IN POINT AND THE FOODSERVICE EQUIPMENT.
B.	ALL WORK MUST MEET ALL APPLICABLE STATE AND LOCAL CODES AND SITE CONDITIONS.
C.	FURNISH AND INSTALL ALL ELECTRICAL OUTLETS IN WALLS, FLOOR AND CEILING, AND IN OR ON FOODSERVICE EQUIPMENT WHERE NOTED ON DRAWINGS. ALL 120V DUPLEX RECEPTACLES SHALL BE MINIMUM 20 AMP CIRCUIT UNLESS NOTED OTHERWISE.
D.	FURNISH AND INSTALL ALL SAFETY CUT-OUTS, LINE DISCONNECT DEVICES SHUNT-Trip BREAKERS, POWER PANELS, POWER CORDS, GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES, OUTLETS, CONDUIT, WIRE AND OTHER ELECTRICAL CONTROLS, AND ALL OTHER HARDWARE, PARTS AND SUPPLIES NECESSARY FOR THE PERFORMANCE OF WORK UNDER THIS CONTRACT, UNLESS SUPPLIED BY THE F.E.C. OR SPECIFIED OTHERWISE IN THESE DOCUMENTS.
E.	FURNISH AND INSTALL ALL CONDUIT AND WIRING BETWEEN REMOTE CONTROL PANELS AND THE FOODSERVICE EQUIPMENT.
F.	ALL CONDUIT SHALL BE RUN IN WALL AT 6" A.F.F. MINIMUM OR AS INDICATED. ALL EXPOSED CONDUIT SHALL BE RUN TIGHT TO THE WALL. DO NOT ATTACH CONDUIT TO ANY LEGGS OR SHELVING BRACING. ALL EXPOSED CONDUIT SHALL BE RIGID. FLEXIBLE METAL CONDUIT MAY ONLY BE SECURED TO THE BOTTOM OF THE TABLES OR OTHER STEEL SURFACES. ALL FLEXIBLE CONDUIT SHALL BE "SEALTITE" OR EQUAL. ALL COVER PLATES SHALL BE STAINLESS STEEL.
G.	PROVIDE FINAL CONNECTIONS TO PRE-WIRED COUNTERS. ALL WIRING, CONDUIT, RECEPTACLES, JUNCTION BOXES AND G.F.C.I.s PROVIDED AS PART OF COUNTER BY F.E.C.
H.	120V 20A DEDICATED CIRCUIT PER P.O.S. SYSTEM. PROVIDE SPARE J-BOX AND CONDUIT FROM P.O.S. SYSTEM TO FOODSERVICE OFFICE, FOR COMPUTER TERMINAL. OTHER TRADES TO PROVIDE PHONE JACK FOR DATA LINK.
I.	PROVIDE AND INTERWIRE SHUNT-Trip BREAKER TO AUTOMATICALLY SHUT DOWN ELECTRIC EQUIPMENT AND RECEPTACLES UNDER HOODS WHEN FIRE PROTECTION SYSTEM IS ACTIVATED. INTERCONNECT FIRE PROTECTION SYSTEM WITH BUILDING ALARM SYSTEM.
J.	ROUGH IN, CONNECT AND INTERCONNECT ROOFTOP EQUIPMENT FOR FOODSERVICE VENTILATION SYSTEMS. CONNECT 120V VOLTAGE CONTROL WIRING FROM ROOFTOP VENTILATION PACKAGE TO CONTROL PANEL. SEE MANUFACTURERS SHOP DRAWINGS FOR JUNCTION BOX AND CONTROL PANEL LOCATIONS. SEE HVAC PLANS FOR ROOFTOP EQUIPMENT UTILITY REQUIREMENTS.
K.	120V 1PH .5KW FOR HOOD LIGHTS. CONNECT TO JUNCTION BOX ON TOP OF EXHAUST HOOD. SEE MANUFACTURERS SHOP DRAWINGS FOR JUNCTION BOX LOCATIONS.
L.	PROVIDE CONDUIT WIRING BETWEEN HOOD, MASTER CONTROL PANEL AND INTERMEDIATE/LOCAL HOOD CONTROLS. MASTER CONTROL PANEL AND INTERMEDIATE/LOCAL HOOD CONTROLS SHOWN ON HVAC DRAWINGS.
M.	OPEN NOTE
N.	FURNISH AND INSTALL ALL INTERCONNECTING WIRING FOR WALK-IN REFRIGERATOR AND/OR FREEZER LIGHTS, DOOR HEATERS, COMPRESSORS, EVAPORATORS, ALARM SYSTEMS, HEATED PRESSURE RELIEF VENTS, WINDOW HEATERS, TIME CLOCKS, INTERLOCKS, ETC. UNITS ARE NOT PRE-WIRED. WIRE PER MANUFACTURER'S DRAWINGS.
CONDUIT FOR WALK-IN LIGHTING SHALL BE RUN OVER TOP OF BOXES. INTERIOR CONDUIT RUNS ARE NOT ACCEPTABLE. ALL PENETRATIONS FOR CONDUIT AND REFRIGERATION LINES SHALL BE SEALED WITH FOAM TO INSURE THAT THERE IS NO AIR INFILTRATION.	

A.	ROUGH IN ELECTRICAL SERVICE THROUGH WALLS, FLOORS AND CEILINGS. MAKE ALL FINAL UTILITY CONNECTIONS BETWEEN THE ROUGH-IN POINT AND THE FOODSERVICE EQUIPMENT.
B.	ALL WORK MUST MEET ALL APPLICABLE STATE AND LOCAL CODES AND SITE CONDITIONS.
C.	FURNISH AND INSTALL ALL ELECTRICAL OUTLETS IN WALLS, FLOOR AND CEILING, AND IN OR ON FOODSERVICE EQUIPMENT WHERE NOTED ON DRAWINGS. ALL 120V DUPLEX RECEPTACES SHALL BE MINIMUM 20 AMP CIRCUIT UNLESS NOTED OTHERWISE.
D.	FURNISH AND INSTALL ALL SAFETY CUT-OUTS, LINE DISCONNECT DEVICES, SHUNT-TRIP BREAKERS, POWER PANELS, POWER CORDS, GROUND FAULT CIRCUIT INTERRUPTER RECEPTACES, OUTLETS, CONDUIT, WIRE AND OTHER ELECTRICAL CONTROLS, AND ALL OTHER HARDWARE, PARTS AND SUPPLIES NECESSARY FOR THE PERFORMANCE OF WORK UNDER THIS CONTRACT, UNLESS SUPPLIED BY THE F.E.C. OR SPECIFIED OTHERWISE IN THESE DOCUMENTS.
E.	FURNISH AND INSTALL ALL CONDUIT AND WIRING BETWEEN REMOTE CONTROL PANELS AND THE FOODSERVICE EQUIPMENT.
F.	ALL CONDUIT SHALL BE RUN IN WALL AT 6" A.F.F. MINIMUM OR AS INDICATED. ALL EXPOSED CONDUIT SHALL BE RUN TIGHT TO THE WALL. DO NOT ATTACH CONDUIT TO ANY LEGS OR SHELVEING BRACING. ALL EXPOSED CONDUIT SHALL BE RIGID, FLEXIBLE METAL CONDUIT MAY ONLY BE SECURED TO THE BOTTOM OF THE TABLES OR OTHER STEEL SURFACES. ALL FLEXIBLE CONDUIT SHALL BE "SEALTITE" OR EQUAL. ALL COVER PLATES SHALL BE STAINLESS STEEL.
G.	PROVIDE FINAL CONNECTIONS TO PRE-WIRED COUNTERS. ALL WIRING, CONDUIT, RECEPTACES, JUNCTION BOXES AND G.F.C.I.s PROVIDED AS PART OF COUNTER BY F.E.C.
H.	120V 20A DEDICATED CIRCUIT PER P.O.S. SYSTEM. PROVIDE SPARE J-BOX AND CONDUIT FROM P.O.S. SYSTEM TO FOODSERVICE OFFICE, FOR COMPUTER TERMINAL. OTHER TRADES TO PROVIDE PHONE JACK FOR DATA LINK.
I.	PROVIDE AND INTERWIRE SHUNT-TRIP BREAKER TO AUTOMATICALLY SHUT DOWN ELECTRIC EQUIPMENT AND RECEPTABLES UNDER HOODS WHEN FIRE PROTECTION SYSTEM IS ACTIVATED. INTERCONNECT FIRE PROTECTION SYSTEM WITH BUILDING ALARM SYSTEM.
J.	ROUGH IN, CONNECT AND INTERCONNECT ROOFTOP EQUIPMENT FOR FOODSERVICE VENTILATION SYSTEMS. INTERCONNECT LOW VOLTAGE CONTROL WIRING FROM ROOFTOP VENTILATION PACKAGE TO CONTROL PANEL. SEE MANUFACTURERS SHOP DRAWINGS FOR JUNCTION BOX AND CONTROL PANEL LOCATIONS. SEE HVAC PLANS FOR ROOFTOP EQUIPMENT UTILITY REQUIREMENTS.
K.	120V 1PH, 5KW FOR HOOD LIGHTS. CONNECT TO JUNCTION BOX ON TOP OF EXHAUST HOOD. SEE MANUFACTURERS SHOP DRAWINGS FOR JUNCTION BOX LOCATIONS.
L.	PROVIDE CONTROL WIRING BETWEEN HOOD, MASTER CONTROL PANEL AND INTERMEDIATE/LOCAL HOOD CONTROLS. MASTER CONTROL PANEL AND INTERMEDIATE/LOCAL HOOD CONTROLS SHOWN ON HVAC DRAWINGS.
M.	OPEN NOTE
N.	FURNISH AND INSTALL ALL INTERCONNECTING WIRING FOR WALK-IN REFRIGERATOR AND/OR FREEZER JUNCTIONS, DOOR HEATERS, COMPRESSORS, EVAPORATORS, ALARM SYSTEMS, HEATED PRESSURE RELIEF VENTS, WINDOW HEATERS, TIME CLOCKS, INTERLOCKS, ETC. UNITS ARE NOT PRE-WIRED. WIRE PER MANUFACTURER'S DRAWINGS.

CONDUIT FOR WALK-IN LIGHTING SHALL BE RUN OVER TOP OF BOXES. INTERIOR CONDUIT RUNS ARE NOT ACCEPTABLE. ALL PENETRATIONS FOR CONDUIT AND REFRIGERATION LINES SHALL BE SEALED WITH FOAM TO INSURE THAT THERE IS NO AIR INFILTRATION.

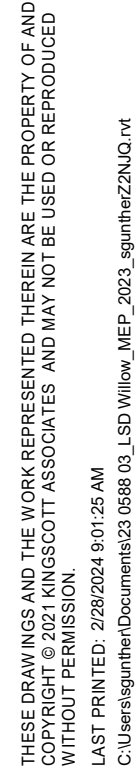
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A.F.F.	ABOVE FINISHED FLOOR		SINGLE POWER RECESSED RECEPTACLE TO MATCH EQUIPMENT
D.C.O.	DUPLEX CONVEIENCE OUTLET		GROUND FAULT DUPLEX RECEPTACLE
D.F.A.	DOWN FROM ABOVE		120V SINGLE RECEPTACLE
E.C.	ELECTRICAL CONTRACTOR		FLUSH MOUNTED JUNCTION BOX IN CEILING
F.E.C.	FOODSERVICE EQUIPMENT CONTRACTOR		FLUSH MOUNTED JUNCTION BOX IN FLOOR
G.C.	GENERAL CONTRACTOR		FLUSH MOUNTED JUNCTION BOX IN WALL
	ELECTRICAL CONNECTION BUILT IN EQUIPMENT		FLUSH FLOOR RECEPTACLE WITH HINGED BRASS COVER
	48\" data-bbox="15 675 35 705"/>		ROUTED CONNECTION



Willow School
Lansing School District
1012 W. Willow
Lansing, MI 48915







ROOFTOP AIR HANDLING UNIT SCHEDULE - (GEOTHERMAL)

RTU ID	TOTAL SUPPLY (CFM)	MINIMUM OA (CFM)	SUPPLY FAN										EXHAUST FAN										GEOTHERMAL HEAT PUMP COOLING										GEOTHERMAL HEAT PUMP HEATING										ELECTRICAL					STARTER/DISCONNECT					CURB HEIGHT (IN)	UNIT WEIGHT (LBS)	MANUFACTURER / MODEL NO.	REMARKS
			ESP IN (NWG)	FAN TYPE	DRIVE TYPE	BHP ¹	HP	ESP IN (NWG)	FAN TYPE	DRIVE TYPE	BHP ¹	HP	ERV ID	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	AIR					23.5% PROPYLENE GLYCOL					CONTROL VALVE CONFIG.	MIN. TOTAL CAPACITY	AIR					23.5% PROPYLENE GLYCOL					CONTROL VALVE CONFIG.	FILTER TYPE	MOCP	MICA FLA	VOLTS	PHASE	TYPE	FURN. BY	INST. BY										
																EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	NW WPD (AWG)	GPM FLOW	EWIT (°F)	LWT (°F)	MAX WPD (FT HD)	EDB (°F)			EWB (°F)	LDB (°F)	LWB (°F)	NW WPD (AWG)	GPM FLOW	EWIT (°F)	LWT (°F)	MAX WPD (FT HD)																					
RTU-D05-11000	11000	3850	1.25	BACKWARD CURVED	DIRECT	6.19	10	0.25	BACKWARD CURVED	DIRECT	0.6	1.0	ERV-TUAS-166	429	434	76.1	64.7	52.4	51.9	0.50	72	90	100	15.00	2-WAY	SW363	-0.5	115	0.50	72	32	24.1	15.00	2-WAY	MERV13	110	90	84	480	3	NON-FUSED	MFR	MFR	MFR	14"	3800	AAON/RNA-025									
RTU-D05-16000	7100	7100	2.00	BACKWARD CURVED	DIRECT	6.29	10	0.75	BACKWARD CURVED	DIRECT	0.8	7.5	ERV-D0AS-100	429	302	79.04	68.03	54.14	53.56	0.50	75	90	100.4	20.00	2-WAY	SW364	.55	88	0.50	75	32	26.1	20.00	2-WAY	MERV13	150	145	140	480	3	NON-FUSED	MFR	MFR	MFR	14"	3800	AAON/RNA-025									

NOTES:

1. DUCT SMOKE DETECTORS ~~ON ALL TEMPERATURE CONTROLS~~ OVER 1800 CFM. DETECTORS SHALL BE BY DIVISION 28. TCG SHALL WIRE FROM DETECTOR TO UNIT SHUTOFF.
2. TEMPERATURE CONTROLS ~~ON ALL TEMPERATURE CONTROLS~~ CONTRACTOR. REFER TO CONTRACTS DIAGRAM AND SCO. CONTROLLER SHALL BE CAPABLE OF FULLY INTEGRATING INTO THE BMS.
3. ALL FANS SELECTED FOR RTU WIRE TO THE UNIT SHUTOFF. REFER TO THE BMS STANDARD 10-1213. SECTION 5.5.1.2. WHEN INDUCTION MOTORS ARE USED THEN THE REQUIREMENT IS TO USE THE NEXT AVAILABLE NEMA NAME PLATE HORSEPOWER MOTOR, AND WHEN ECMs ARE USED THE REQUIREMENT IS TO USE THE NEXT AVAILABLE ECM NAMEPLATE HORSEPOWER MOTOR. REFER TO INTERPRETATION E201-1213-11. ADDITIONAL INFORMATION.
4. PROVIDE UNIT WITH FACTORY WIRE 115V GFCI CONVENIENCE OUTLET.
5. PROVIDE SINGLE POINT POWER, FACTORY WIRE.
6. MAINTAIN UNIT SERVICE CLEARANCES ON FRONT, BACK, SIDE, AND TOP OF UNIT. ENSURE OUTDOOR AIR INTAKE IS GREATER THAN 10'-0" FROM ANY BUILDING EXHAUST.
7. COORDINATE FIELD INSTALLATION OF ALL EQUIPMENT SHIPPED LOOSE FROM MANUFACTURER.
8. ANY ITEM IN CONTRACT DOCUMENTS NOT INCLUDED BY MANUFACTURER SHALL BE PROVIDED BY DIVISION 23. WIRE WITH FINAL APPROVED EQUIPMENT SUBMITTAL.
9. PROVIDE RTU-136 WITH HORIZONTAL SUPPLY AND RETURN CONNECTIONS. PROVIDE RTU-136 WITH DOWN DISCHARGE AND TYPHAR ROOF CURB FOR HORIZONTAL SUPPLY AND RETURN. PROVIDE RTU-DOAS-100 WITH DOWN DISCHARGE AND TYPHAR ROOF CURB FOR HORIZONTAL SUPPLY AND RETURN.
10. SUPPLY AND RETURN:
 - A. RTU-136: 158.5 MBH
 - B. RTU-136: 275 MBH
 - C. RTU-DOAS-100: 145 MBH
11. PROVIDE WITH ELECTRICAL PREWAT COIL.
 - A. RTU-136: 40 KW. SEPARATE DISCONNECT REQUIRED - 480V / 3 PHASE, 50.2 FLA
 - B. RTU-136: 50 KW. SEPARATE DISCONNECT REQUIRED - 480V / 3 PHASE, 62.6 FLA
 - C. RTU-DOAS-100: 30 KW. ELECTRIC PERFORMANCE AND REQUIREMENTS ARE PART OF UNIT. ONE DISCONNECT FOR ENTIRE UNIT.
12. R-410A VARIABLE CAPACITY SCROLL
13. PROVIDE WITH DRY-BULB ECONOMIZER
14. PROVIDE WITH BALANCING VALVES, WATER FLOW SWITCH, AND HEAD PRESSURE CONTROL
15. MINIMUM OPERATING CONDITIONS EFFICIENCY:
 - A. RTU-136:
 - i. EER 10.4
 - ii. COP 4.8
 - B. RTU-136:
 - i. EER 12.3
 - ii. COP 4.89
 - C. RTU-DOAS-100:
 - i. EER 13.8
 - ii. COP 5.08
16. COORDINATE UNITS A/C RATINGS WITH ELECTRICAL CONTRACTOR.

ELECTRIC TEMPERING COIL SCHEDULE

					AIR VELOCITY		ELECTRICAL		DISCONNECT			
UNIT ID	SERVICE	CAPACITY (kW)	STAGES	MIN FLOW (CFM)	MAX LBS (T)	MIN AIR VELOCITY (FT/MIN)	VOLTS	PHASE	FURN. INST.	INST. TYPE	MANUFACTURER/ MODEL NO.	REMARKS
ETC-HP-08	HP-08	1	1	250	95	400	208	3	MFR	SWITCH	WATERFURNACE/HERMAK/ ECOM4	
ETC-HP-114	HP-114	3.0	1	250	95	400	208	3	MFR	SWITCH	WATERFURNACE/HERMAK/ ECOM4	
ETC-HP-138	HP-138	3.0	1	250	95	400	208	3	MFR	SWITCH	WATERFURNACE/HERMAK/ ECOM4	
ETC-HP-140	HP-140	3.0	1	400	95	400	208	3	MFR	SWITCH	WATERFURNACE/HERMAK/ ECOM4	
ETC-HP-141	HP-141	3.0	1	400	95	400	208	3	MFR	SWITCH	WATERFURNACE/HERMAK/ ECOM4	
ETC-HP-145	HP-145	3.0	1	400	95	400	208	3	MFR	SWITCH	WATERFURNACE/HERMAK/ ECOM4	
ETC-HP-201	HP-201	7.3	2	550	95	550	460	3	MFR	SWITCH	WATERFURNACE/HERMAK/ ECOM4	
ETC-HP-201	HP-201	7.3	2	550	95	550	460	3	MFR	SWITCH	WATERFURNACE/HERMAK/ ECOM4	
ETC-HP-401	HP-401	11	2	700	95	700	460	3	MFR	SWITCH	WATERFURNACE/HERMAK/ ECOM4	

NOTES:

1. HEATER TO BE PROVIDED BY SAME MANUFACTURER/PRODUCT REPRESENTATIVE AS WATER SOURCE HEAT PUMP.
2. HEATER TO BE CONTROLLED BY WATER SOURCE HEAT PUMP CONTROLLER.
3. PROVIDE WITH FACTORY MOUNTED DISCONNECT (SEPARATE FROM HEAT PUMP DISCONNECT).
4. FIELD VERIFY DUCT SIZE REQUIREMENTS WITH SHEET METAL CONTRACTOR.

WATER SOURCE HEAT PUMP SCHEDULE - (GEOTHERMAL)

		SUPPLY FLOW (23% PG)					COOLING					HEATING					ELECTRICAL					DISCONNECT						
UNIT ID	SERVICE	TOTAL AIRFLOW (CFM)	OA AIRFLOW (CFM)	ESP (IN.WG)	FLOW (GPM)	WPD (F/GPM)	TOTAL CAPACITY (MMBtu)	SENSIBLE CAPACITY (MMBtu)	EWT (°F)	LWT (°F)	EDR (°F)	EWB (°F)	TOTAL CAPACITY (MMBtu)	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	MCCP	MCA	FLA	VOLTS	PHASE	FURN	INST	TYPE	MANUFACTURER / MODEL NO	REMARKS	
HPA-117	UNIT 100	465	0	0.40	2.0	10.60	8.7	7.1	90	100	75	63	60.9	7.0	32	26	84	101.5	6.1	5.0	208	1	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0009	2KW ELECTRIC HEAT (SEE SCHEDULE); NOTES 1, 5, 6-16	
HPA-114	UNIT 100	465	0	0.40	2.0	10.60	8.7	7.1	90	100	75	63	60.9	7.0	32	26	84	101.5	6.1	5.0	208	1	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0009	NOTES 1, 5, 6-16	
HPA-126	UNIT 100	465	0	0.40	2.0	10.60	8.7	7.1	90	100	75	63	60.9	7.0	32	26	84	101.5	6.1	5.0	208	1	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0009	NOTES 1, 5, 6-16	
HPA-103	UNIT 100	465	0	0.40	3.0	4.0	12.92	9.22	90	100	75	63	56.6	8.53	32	26	78	101.5	7.1	5.8	208	1	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0012	NOTES 1, 5, 6-16	
HPA-104	UNIT 100	465	0	0.40	3.0	4.0	12.92	9.22	90	100	75	63	56.6	8.53	32	26	78	101.5	7.1	5.8	208	1	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0012	NOTES 1, 5, 6-16	
HPA-140	UNIT 100	850	0	0.40	3.5	6.40	13.75	11.79	90	100	75	63	62.2	11.04	32	26	78	82	15	11.9	10.3	208	1	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0015	1 KW ELECTRIC HEAT (SEE SCHEDULE); NOTES 1, 3, 4, 6-16
HPA-108	UNIT 100	955	0	0.40	6.0	12.60	22.48	22.29	90	100	75	63	56.6	18.02	32	26	78	87.5	10.5	6.5	5.5	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0024	1 KW ELECTRIC HEAT (SEE SCHEDULE); NOTES 1, 3, 4, 6-16
HPA-116	UNIT 100	955	0	0.40	6.0	12.60	22.48	22.29	90	100	75	63	56.6	18.02	32	26	78	87.5	10.5	6.5	5.5	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0024	NOTES 1, 3, 4, 6-16
HPA-155	UNIT 100	955	0	0.40	6.0	12.60	22.48	22.29	90	100	75	63	56.6	18.02	32	26	78	87.5	10.5	6.5	5.5	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0024	NOTES 1, 3, 4, 6-16
HPA-151	UNIT 100	900	0	0.40	6.0	8.40	25.02	18.46	90	100	75	63	56	17.93	32	26	78	85.5	10.5	6.4	7.6	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0026	NOTES 1, 2, 4, 6-16
HPA-201	UNIT 200	100	150	0	6.0	8.40	25.61	20.26	90	100	77.3	64.3	58.7	18.46	32	27	58	74.9	10.5	8.4	7.6	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0026	1 KW ELECTRIC HEAT (SEE SCHEDULE); NOTES 1, 2, 4, 6-16
HPA-200	UNIT 200	100	150	0	6.0	8.40	25.61	20.26	90	100	77.3	64.3	58.7	18.46	32	27	58	74.9	10.5	8.4	7.6	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0026	1 KW ELECTRIC HEAT (SEE SCHEDULE); NOTES 1, 2, 4, 6-16
HPA-135	UNIT 100 SERVARY	1300	0	0.40	9.0	10.40	35.24	27.42	90	100	75	63	55.5	25.79	32	26	78	88.4	15	11.2	9.8	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0038	NOTES 1, 2, 4, 6-16
HPA-139	UNIT 100	1300	0	0.40	9.0	10.40	35.24	27.42	90	100	75	63	55.5	25.79	32	26	78	88.4	15	11.2	9.8	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0038	1 KW ELECTRIC HEAT (SEE SCHEDULE); NOTES 1, 3, 4, 6-16
HPA-141	UNIT 100	1300	0	0.40	9.0	10.40	35.24	27.42	90	100	75	63	55.5	25.79	32	26	78	88.4	15	11.2	9.8	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0038	1 KW ELECTRIC HEAT (SEE SCHEDULE); NOTES 1, 3, 4, 6-16
HPA-145	UNIT 100	1300	0	0.40	9.0	10.40	35.24	27.42	90	100	75	63	55.5	25.79	32	26	78	88.4	15	11.2	9.8	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0038	3 KW ELECTRIC HEAT (SEE SCHEDULE); NOTES 1, 3, 4, 6-16
HPA-147	UNIT 100	1300	0	0.40	9.0	10.40	35.24	27.42	90	100	75	63	55.5	25.79	32	26	78	88.4	15	11.2	9.8	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0038	3 KW ELECTRIC HEAT (SEE SCHEDULE); NOTES 1, 3, 4, 6-16
HPA-140A	UNIT 400	1300	0	0.40	12.0	11.60	36.44	31.61	90	100	75	63	55.5	34.47	32	26	78	90.6	15	12.5	10.5	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0038	8 KW ELECTRIC HEAT (SEE SCHEDULE); NOTES 1, 3, 4, 6-16
HPA-132	UNIT 100 KITCHEN	1500	0	0.40	12.0	11.0	42.22	30.61	90	100	75	63	55.7	34.47	32	26	78	90.6	15	12.0	10.0	460	3	MFR	MFR	NON-USED	WATERFURNANCE 600 SERIES / 0049	(SEE SCHEDULE); NOTES 1, 3, 4, 6-16

NOTES

1. SINGLE SPEED COMPRESSOR
2. TWO SPEED COMPRESSOR
3. HOT GAS REHEAT
4. VARIABLE SPEED ECM BLOWER
5. VARIABLE SPEED CONSTANT TORQUE ECM BLOWER
6. INSULATED COPPER WATER COIL
7. SOUND KIT
8. COMPOSITE DRAIN PAN WITH NO SECONDARY CONNECTION
9. ALL ALUMINUM, UNCOATED AIR COIL
10. MERV 13 FILTER WITH 4-SIDED FILTER RACK
11. AURORA DDC CONTROLLER TO BE INTERFACED AND COMPATIBLE WITH BACNET BMS
12. 2-WAY WATER VALVE W/ WATER FLOW REGULATOR
13. ROSE KIT WITH MEMORY STOP
14. ROOM THERMOSTAT (REFER TO DRAWING FOR LOCATION) WITH TEMPERATURE (AND HUMIDITY WHERE HOT GAS REHEAT AVAILABLE), WITH SLIDER AND NO DIGITAL DISPLAY
15. BULB-APR IONIZATION
16. PROVIDE LINGUE FOR RETURN DUCTWORK DIRECTLY CONNECTED TO HEAT PUMPS. PROVIDE FLEXIBLE CONNECTION FOR ALL DUCTWORK CONNECTED DIRECTLY TO HEAT PUMP SUPPLY AND RETURN
17. PROVIDE LHV-141 AND LHV-142S WITH 3-WAY CONTROL VALVE.

UNIT VENTILATOR SCHEDULE - (GEOTHERMAL)

UNIT ID	AIRFLOW (CFM)	GROUND SOURCE HEATING COIL										GROUND SOURCE COOLING COIL										CONTROL VALVE/CONFG	DIMENSIONS			ELECTRICAL				DISCONNECT		REMARKS			
		MIN. TOTAL CAPACITY (MBH)					23% PROPYLENE GLYCOL					AIR					23% PROPYLENE GLYCOL						DEPTH (IN)	WIDTH (IN)	HEIGHT (IN)	MOCP	MCA	FLA	VOLTS	PHASE	FURN BY		INST BY	FILTER TYPE	MANUFACTURER / MODEL NO.
		MIN. OA (CFM)	EAT (°F)	LAT (°F)	GLOW (GPM)	EWTF (°F)	LWTF (°F)	MAX WPT (°F)	MD (°F)	TD (°F)	SENSIBLE CAP (MBH)	TOTAL CAP (MBH)	EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	GLOW (GPM)	EWTF (°F)	LWTF (°F)	MAX WPT (°F)	MD (°F)														
VUA-208	1500	500	34.6	61.8	83.2	12	32	27.5	13.50	46.5	34	77	65	56.1	52.3	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-206	1500	500	34.6	61.8	83.2	12	32	27.5	13.50	46.5	34	77	65	56.1	52.3	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-212	1500	500	34.6	61.8	83.2	12	32	27.5	13.50	46.5	34	77	65	56.1	52.3	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-214	1500	500	34.6	61.8	83.2	12	32	27.5	13.50	46.5	34	77	65	56.1	52.3	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-216	1500	500	34.6	61.8	83.2	12	32	27.5	13.50	46.5	34	77	65	56.1	52.3	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-303	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-304	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-305	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-306	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-307	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-308	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-411	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-413	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-414	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-415	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			
VUA-416	1500	545	34.7	59.9	81.3	12	32	27.5	13.50	47.3	34	77	65	56.9	53.7	12	90	95.5	8.80	2-WAY	33"	48"	90"	0"	18.7	16.0	460	3	MFR	MERV 13	AIREDALE / SMG48	PROVIDE WITH SKW AUXILIARY HEATER			

NOTES:

1. COORDINATE UNIT AND PIPING ARRANGEMENT WITH FIELD CONDITIONS PRIOR TO ORDERING.
2. PROVIDE WITH FACTORY MOUNTED AND WIRED UNIT DISCONNECT SWITCH.
3. PROVIDE WITH MODINE CONTROL SYSTEMS AND INTEGRATE INTO BACNET CONTROL SYSTEM. REFER TO CONTROL DRAWINGS.
4. PROVIDE WITH EC MOTORS.
5. PROVIDE UNIT WITH PIPING PACKAGE INCLUSIVE OF COMBINATION STRAINER W BALL VALVE, BLOW DOWN, CONTROL VALVE, AND COMBINATION AUTO-FLOW VALVE WITH SHUT OFF & PI PORTS.
6. PROVIDE WITH 1/2" VALVE. SELECTED CONTROL VALVE SHALL BE SELECTED FOR A PRESSURE DROP EQUAL TO TWO TIMES THE PRESSURE DROP OF THE ASSOCIATED HEAT TRANSFER DEVICE, BUT NOT MORE THAN 10 FT OF HEAD OR LESS THAN 2.3 FT OF HEAD.
7. PROVIDE WITH 1/2" AND 3/4" AMPERAGE ECONOMIZER WITH POWERED EXHAUST.
8. PROVIDE STUDY PACKAGE CONSTRUCTOR.
9. PROVIDE NOT GAS RECALL.
10. PROVIDE WITH OUTDOOR AIR LOUVER, ADAPTER BACK, END PANELS, AND DUCT SHROUD.
11. PROVIDE COPPER CONDENSATE DRAIN THROUGH EXTERIOR WALL, TERMINATE WITH ELBOW TOWARDS GRADE.
12. PROVIDE LIGHT GRAY COLOR.

MAKE UP AIR UNIT SCHEDULE - (GAS HEATING ONLY)

SUPPLY FAN										NATURAL GAS HEATING SECTION										ELECTRICAL										DISCONNECT		CURB HEIGHT		UNIT WEIGHT		MANUFACTURER / MODEL NO.		REMARKS
UNIT-ID	SERVICE	AIRFLOW (CFM)	ESP (IN WG)	FAN TYPE	DRIVE TYPE	BHP	HP	INPUT (MMH)	OUTPUT (MMH)	GAS PRESS. MIN-MAX (IN WG)	BURNER TYPE	EAT (°F)	LAT (°F)	FILTER TYPE	MOPP	MC1	VOLTS	PHASE	FLUSH	INST BY	DISC BY	CURB HEIGHT (IN)	UNIT WEIGHT (LBS)	MANUFACTURER / MODEL NO.	GREEN/RED/BLUE/BLACK													
14-10	KITCHEN	1760		MIXED FLOW	DRIVE DIRECT	0.95	1.5	(MMH)	142.6	(IN WG)	DRIVE DIRECT	-5	70	MERV 8		4.1	460	3	PHASE	M/R	M/R		16															

NOTES:

1. TEMPERATURE CONTROLS BY TCC AND COORDINATED WITH KITCHEN HOOD CONTROLLER. REFER TO CONNECTION DIAGRAM AND SDO.
2. ALL ELECTRICAL WIRING IS TO BE PERFORMED IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE (NEC) AND ALL CODES ARE SELECTED FOR THIS MUST MEET REQUIREMENTS OF ASHRAE STANDARD 90.1-2010. (SECTION 6.5.1.2) WHEN DIAGNOSTIC MOTORS ARE USED THE REQUIREMENT IS TO USE THE NEXT AVAILABLE ECN NAMEPLATE HORSEPOWER MOTOR. REFER TO INTERPRETATION C90.1-2011-13.
3. NEMA NAMEPLATE HORSEPOWER MOTOR, AND WHEN ECM'S ARE USED THE REQUIREMENT IS TO USE THE NEXT AVAILABLE ECM NAMEPLATE HORSEPOWER MOTOR. REFER TO INTERPRETATION C90.1-2011-13.
4. ADDITIONAL INFORMATION:
5. PROVIDE SINGLE POINT POWER, FACTORY WIRED, MANUFACTURER TO PROVIDE DISCONNECT.
6. ANY UNIT SERVICE CLEARANCES ON FRONT, BACK, SIDE, AND TOP OF UNIT ENSURE OUTDOOR AIR INTAKE IS GREATER THAN 10" FROM ANY BUILDING EXHAUST, CONDENSATE DRAIN, OR EQUIPMENT SHIPPED LOOSE FROM FACTORY.
7. ANY ITEM IN CONTRACT DOCUMENTS NOT INCLUDED BY MANUFACTURER SHALL BE PROVIDED BY DIVISION 23. VERIFY WITH FINAL APPROVED EQUIPMENT SUBMITTAL.

PUMP SCHEDULE

UNIT ID	SYSTEM SERVED	TYPE	FLOW (GPM)	HEAD (FT)	MIN. SF	ELECTRICAL				DISCONNECT				STARTER				MANUFACTURER / MODEL NO.	REMARKS
						BHP	HP	VOLTS	PHASE	FURN. BY	INST. BY	TYPE	SIZE	FURN. BY	INST. BY	TYPE	SIZE		
GHPK-101	UNIT 100 GEOTHERMAL PRIMARY LOOP	END SUCTION BASE MOUNTED	285	71	7.1	10	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1510 2.68B			
GHPK-102	UNIT 100 GEOTHERMAL PRIMARY LOOP	END SUCTION BASE MOUNTED	285	71	7.1	10	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1510 2.68B			
GHPK-103	UNIT 100 GEOTHERMAL PRIMARY LOOP	END SUCTION BASE MOUNTED	285	71	7.1	10	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1510 2.68B			
GHPK-104	UNIT 100 GEOTHERMAL SECONDARY LOOP	END SUCTION BASE MOUNTED	290	90	76.5	9	15	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1510 2.68C		
GHPK-201	UNIT 200 GEOTHERMAL PRIMARY LOOP	INLINE	90	78	25	2.38	4	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1510 2.68B		
GHPK-202	UNIT 200 GEOTHERMAL PRIMARY LOOP	INLINE	90	78	25	2.38	4	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1510 2.68B		
GHPK-203	UNIT 200 GEOTHERMAL SECONDARY LOOP	INLINE	76	63	50.4	2.4	5	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1580		
GHPK-204	UNIT 200 GEOTHERMAL SECONDARY LOOP	INLINE	76	63	50.4	2.4	5	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1580		
GHPK-301	UNIT 300 GEOTHERMAL PRIMARY LOOP	INLINE	85	40	60.7	1.44	3	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1580		
GHPK-302	UNIT 300 GEOTHERMAL PRIMARY LOOP	INLINE	85	40	60.7	1.44	3	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1580		
GHPK-303	UNIT 300 GEOTHERMAL SECONDARY LOOP	INLINE	85	63	53.7	2.55	5	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1580		
GHPK-304	UNIT 300 GEOTHERMAL SECONDARY LOOP	INLINE	85	63	53.7	2.55	5	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1580		
GHPK-401	UNIT 400 GEOTHERMAL PRIMARY LOOP	INLINE	85	40	60.7	1.44	3	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1580		
GHPK-402	UNIT 400 GEOTHERMAL PRIMARY LOOP	INLINE	85	40	60.7	1.44	3	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1580		
GHPK-403	UNIT 400 GEOTHERMAL SECONDARY LOOP	INLINE	85	63	53.7	2.55	5	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1580		
GHPK-404	UNIT 400 GEOTHERMAL SECONDARY LOOP	INLINE	85	63	53.7	2.55	5	460	3	MFR	MC	VFD	VFD	-	MFR	MC	BELL & GOSSETT T-1580		

NOTES:
1. PERFORMANCE IS BASED ON 23% PROPYLENE GLYCOL UNLESS NOTED OTHERWISE.
2. PUMPS SHALL BE NON-OVERLOADING.
3. WHEN VFD CONTROL IS SPECIFIED, PROVIDE WITH NEMA PREMIUM EFFICIENT MOTOR WITH AEGIS SHAFT GROUNDING RINGS
4. BASE MOUNTED PUMPS TO BE MOUNTED ON 4" HOUSEKEEPING PAD.

EXPANSION TANK SCHEDULE

UNIT ID	SYSTEM SERVED	TYPE	MIN PSIG	MAX PSIG	MIN GPM	MAX GPM	SYSTEM VOLUME (GAL)	TANK VOLUME (GAL)	DIA (IN)	HEIGHT (IN)	MANUFACTURER / MODEL NO.	REMARKS
ET-100	UNIT 100 HEAT PUMP LOOP	DIAPHRAGM	10.00	50.00	32	90	1500	115	24"	66"	BELL & GOSSETT / D100	
ET-200	UNIT 200 HEAT PUMP LOOP	DIAPHRAGM	10.00	50.00	32	90	1500	115	24"	66"	BELL & GOSSETT / D100	
ET-300	UNIT 300 HEAT PUMP LOOP	DIAPHRAGM	10.00	50.00	32	90	1225	60	20"	49"	BELL & GOSSETT / D100	
ET-400	UNIT 400 HEAT PUMP LOOP	DIAPHRAGM	10.00	50.00	32	90	1250	60	20"	49"	BELL & GOSSETT / D100	

NOTES:

1. PERFORMANCE IS BASED ON 23.5% PROPYLENE GLYCOL UNLESS NOTED OTHERWISE
2. MOUNT ON 4" HOUSEKEEPING PAD

Willow School

Lansing School District

1012 W. Willow
Lansing, MI 48915



ISSUANCES	DATE
Bid and Construction	01.26.2024
Addendum 01	03.01.2024

LSD NO. SB-0059
JOB NO. 2414.01A

SHEET TITLE

MECHANICAL SCHEDULES

SHEET NO. _____

M60

RFI #99: Foundation Subbase Material

Status	Open		
To	Sami Szeszulski (Kingscott) Romica Singh (Kingscott)	From	Austin Brown (The Christman Company (LAN))
Date Initiated	Mar 4, 2024	Due Date	Mar 8, 2024
Location	Project Stage		
Cost Impact	Schedule Impact		
Spec Section	Cost Code		
Drawing Number	Reference		
Linked Drawings			
Received From			
Copies To			

Activity

Question

Question from Austin Brown The Christman Company (LAN) on Monday, Mar 4, 2024 at 01:34 PM EST

Please verify subbase material beneath building sog's. Is it 6" granular per S0.01, note 11-Foundations or is it per detail 3-S0.03?

Awaiting an Official Response

Thanks for passing this along. S0.1 foundation note #11 states 6" and detail 3/S0.03 depicts 4". The minimum granular sub-base should ultimately be determined by the geotechnical engineer, which is listed as "6 inches" per page 6 of SME Geotechnical Evaluation Report (092683.00 dated July 26, 2023).

Brad Cutter
Robert Darvas Associates
March 4, 2024

FOUNDATIONS

1. FOUNDATION CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SOIL REPORT BY SOIL AND MATERIALS ENGINEER, 2663 EATON RAPIDS ROAD, LANSING, MICHIGAN DATED JULY 26, 2023 (SME JOB NO. 092683.00). THE CONTRACTOR SHALL OBTAIN A COPY OF THE SOIL REPORT AND BECOME FAMILIAR WITH THE REQUIREMENTS AND RECOMMENDATIONS THEREIN.

The top 6 inches of the slab subbase should consist of an approved MDOT Class II granular material to provide a leveling surface for construction of the slab and a moisture capillary break between the slab and the underlying soils. MDOT 21AA dense-graded aggregate can be used as subbase material, instead of the Class II granular material, for improved stability and greater resistance to disturbance due to construction traffic. The thickness of dense-graded aggregate required to stabilize and protect the subgrade will depend on the condition of subgrade soils during construction and the type and volume of construction equipment to traffic the prepared subgrade. The leveling surface must be compacted per the "Engineered Fill Requirements" section of this report as discussed in Section 4.1.4.

Project Name	Willow Bid Package 2	Work Category	All
Christman Project No.	221125-090	Contractor	
		Meeting Date & Time	2/27/2024 9:30-10:30
		Meeting Location	TEAMS

Meeting Purpose:

- To communicate clearly defined work scope, quality standards, and anticipated schedule to subcontractors.
- Providing this information improves the likelihood that bids will be consistent with the owner's and The Christman Company's quality standards and schedule expectations.

Meeting Agenda:

I. Introduction

- a. Bid documents list
 - i. Kingscott Drawings
 - ii. Kingscott Specifications
 - iii. TCC Project Manual
 1. Work Category Specific Items
 2. Annotated Drawing Details
 3. Schedule
 4. Site Logistics Plan
 5. Bidding Form & Information
 6. Safety Manual
- b. Christman Front-End Documents (subcontract, insurance)

2. Construction Program Overview

- a. WC 02 - Earthwork
 - i. Note Demolition drawing included in WC items showing items to be demolished (ALL ITEMS NOT HIGHLIGHTED IN BLUE).
- b. WC 03 – Geothermal
 - i. Install wells, coordinate with Mechanical Contractor for Tie-in & manifold, and Excavation contractor for trenches & spoil haul off.
- c. WC 05 – Site Concrete
 - i. Exterior Amphitheater Seating
- d. WC 06 – Paving
- e. WC 07 – Fencing
- f. WC 08 – Landscaping
- g. WC 10 – Structural Concrete
 - i. Footings for canopy walkway
 - ii. Concrete Dye & polishing
- h. WC 11 – Masonry
- i. WC 12 – Structural Steel & Misc Steel
 - i. Decorative Steel elements, structural steel for canopy walkway
- j. WC 13 – Waterproofing
- k. WC 14 – Roofing
 - i. Covered canopy walkway
 - ii. Metal decking (only where shown)

- l. WC 15 – Metal Panel/siding
 - i. Corrugated metal siding throughout, multiple colors.
 - m. WC 18 – Glass & Glazing
 - n. WC 19 – Joint Sealants
 - o. WC 20 – General Trades
 - i. Bathroom partitions & Accessories, decorative trim & bathroom entrance signs, signage, gym equipment, bleachers, benches, doors, door frames, tectum decking.
 - p. WC 21 – Walls & Ceilings
 - i. Acoustical Wall Panels
 - q. WC 22 – Hard Tile
 - r. WC 23 – Carpet & Resilient Flooring
 - s. WC 24 – Painting & Wall Coverings
 - i. Paint of all mechanical system piping, including in mechanical rooms
 - t. WC 25 – Playground Equipment
 - u. WC 26 – Fire Protection
 - v. WC 27 – Mechanical & Plumbing
 - i. Geothermal System tie-in at Manifold & fill
 - ii. Exposed Mechanical & plumbing work to be in neat orderly manner
 - w. WC 28 – Electrical Systems
 - x. WC 29 – Food Service Equipment
- 3. General Quality Expectations**
- a. K-8 Building with Geothermal & Solar
 - i. Mothership with Pod Buildings
 - b. Quality finishes, especially with MEP requirements to be exposed & color coordinated
 - c. The Christman Company's quality commitment to the owner
- 4. Schedule Expectations**
- a. Total timeline; May 2024 - March 2026
 - b. Milestone dates
 - i. RFI's due MARCH 5, 2024 (3/5/2024) at 5:00PM – Email RFI's to projects@lansingschools.net
 - ii. Bids due MARCH 14, 2024 (3/14/2024) at 2:00PM – **Physical bids due, in person at 519 W. Kalamazoo St. Room 208, Lansing MI**
 - iii. Start of work – May 2024 start excavation work, demolition anticipated to be completed in April.
 - iv. End of work – Slated project completion for March 2026.
- 5. Work Scope**
- a. Allowances
 - i. WC 02 – Allowance of \$100,000
 - ii. WC 05 – Allowance of \$10,000
 - iii. WC 10 – Allowance of \$10,000
 - iv. WC 12 – Allowance of \$10,000
 - v. WC 19 – Allowance of \$5,000
 - vi. WC 20 – Allowance of \$10,000
 - vii. WC 21 – Allowance of \$5,000
 - viii. WC 24 – Allowance of \$5,000
 - ix. WC 27 – Allowance of \$20,000
 - x. WC 28 – Allowance of \$20,000

6. Project Specifics

- a. Contractor amenities
 - I. Portajons & dumpsters on site provided by CM.
- b. Contractor requirements (permits, delivery scheduling, clean up, dress code, smoking)
 - I. Cleanliness requirements
- c. Building occupancy (shared travel paths, operation of building systems, material delivery & removal, noise, conduct)
- d. Hazardous materials exposure or removal
- e. Safety requirements
 - i. Absolutely NO smoking/tobacco products on project site.
- f. Other challenges (Section 00825 Additional Conditions)

7. Bid Procedures

- a. Bond requirements
 - i. Prevailing Wages not required
- b. Included and voluntary alternates
- c. Tax status
- d. Requests for site access

8. Walk Through

PRE-BID MEETING ATTENDANCE REPORT

1. Summary

Meeting title	Willow Pre-Bid Meeting	
Attended participants		83
Start time	2/27/24, 8:56:56 AM	
End time	2/27/24, 10:16:44 AM	
Meeting duration	1h 19m 47s	

2. Participants

Name	Email	Participant ID (UPN)
Andrew Dobbs	andrew.dobbs@christmanco.com	andrew.dobbs@christmanco.com
Dustin Schneemann	ds@mackenzieco.com	ds@mackenzieco.com
Dan - Twin Lakes Nursery		
Trevor Dobson SDI		
Nicklaus Bierstetel	nbierstetel@wmfloyd.net	nbierstetel@wmfloyd.net
Dan		
Dustin Howard		
Trevor Dobson SDI		
Alex Santiago	Alex@metaltech.com	Alex@metaltech.com
Josh		
Rick Murphy	rmurphy@samorman.com	rmurphy@samorman.com
Karen Headley		
Cooper Moore	cmoore@mooretrosper.com	cmoore@mooretrosper.com
Robert McKinney - Midwest Wall		
Kyle Lochonic	klochonic@davenportmasonry.com	klochonic@davenportmasonry.com
Jami Nyhuis	jnyhuis@mtc-test.com	jnyhuis@mtc-test.com
Lance Hewitt		
Cal Vohwinkle	cvohwinkle@acpmich.com	cvohwinkle@acpmich.com
Brett Butcher	bbutcher@mcdonaldroofing.biz	bbutcher@mcdonaldroofing.biz
Clay (RD Landscape)		
Gerald Rutkowski	grutkowski@reichenbachco.com	grutkowski@reichenbachco.com
Pat McGann	pat@leavittandstarck.com	pat@leavittandstarck.com
Kevin Zimmerman	kevin@candrelec.com	kevin@candrelec.com
Ivan Custodio	Ivan.Custodio@WolverinePower.com	Ivan.Custodio@wolverinepower.com
Vince Buss	vbuss@hoffmanbrosinc.com	vbuss@hoffmanbrosinc.com
Jon Laing	jon.laing@lansingschools.net	laingj1219@lansingschools.net
John Vescio	John.Vescio@WolverinePower.com	John.Vescio@wolverinepower.com
Andy Xtreme Mason Contractors		
John		
Christopher Hammond	chammond@fesslerbowman.com	chammond@fesslerbowman.com
Daniel R	daniel.r@Rieckhoff.com	daniel.r@Rieckhoff.com
Chad Comps		
Kevin Schnarr		
Chad Shepard Glazing Solutions		
Corey Torres	ctorres@centerlineprefab.com	ctorres@centerlineprefab.com
Brian Lapham	BrianL@summit.ws	BrianL@summit.ws
Brian Johnson	bjohnson@pioneerinc.com	bjohnson@pioneerinc.com
Nick Rodgers	n.rodgers@gunthorpeplumbing.com	n.rodgers@gunthorpeplumbing.com
Dean Chance	dchance@brigadefire.com	dchance@brigadefire.com
Dobie Construction		
Ryan Egleston		
Jennifer Geier	j.geier@greatlakeswest.com	j.geier@greatlakeswest.com
Marc Alexa	Marc.Alexa@plantemoran.com	Marc.Alexa@plantemoran.com
Corey T (pleune)		
Dean Morales	dmorales@teamheritage.com	dmorales@teamheritage.com
Matt Merryfield		
Rowland (FD Hayes)		
Nick Hanna	hannan@fairmontsign.com	hannan@fairmontsign.com
Harold Whitcomb	haroldw@deecramer.com	haroldw@deecramer.com
Paul Davison	pdavison@precisionpipingllc.com	pdavison@precisionpipingllc.com
Sybert, Dave (Michigan Paving)	dave.sybert@mipmc.com	dave.sybert@mipmc.com
Brandon Kettenbeil	brandon.kettenbeil@christmanco.com	brandon.kettenbeil@christmanco.com
Romica Singh	rsingh@kingscott.com	rsingh@kingscott.com
Joe Perez	joe@jperezconstruction.com	joe@jperezconstruction.com
Pete		
Seth Haas	SHaas@wolverinefp.com	SHaas@wolverinefp.com
Andrew Bromberg	AndrewB@bornor.com	AndrewB@bornor.com
Jeff Bolkema		
Dustin Howard	dustin@local333.com	dustin@local333.com
Troy		
Jack Bunker	Jack@candrelec.com	Jack@candrelec.com
Dave Clark		
Spencer Palmer	spalmer@archmetalsinc.com	spalmer@archmetalsinc.com
Miranda Swartz	mirandaswartz@superiorelectricinc.com	mirandaswartz@superiorelectricinc.com
Steve		
Byron Welch American Asphalt		
Amber	Amber@jperezconstruction.com	Amber@jperezconstruction.com
Matt VanHekken		
Jett Moore	jmoore@mooretrosper.com	jmoore@mooretrosper.com
Greg Dansereau	greg@integrity-interiors.com	greg@integrity-interiors.com
Chris Kassel	chrisk@redguardfs.com	chrisk@redguardfs.com
David Sheasley (Guest)		
teamsvisitor:f8d5d5bdc21040208e73e09b3520f998		
Theron Coe	todd.coe@lansingschools.net	todd.coe_lansingschools.net#EXT#@christmanco.onmicrosoft.com
Brendan		
Robert LeuVoy	rleuvoy@bjpaint.com	rleuvoy@bjpaint.com
Sherri Magness	Sherri.Magness@ConstructConnect.com	MagnessS@BUILDONE.CO
Brandon - McKearney Asphalt		
Matt VanHekken	mvanhekken@boumacorp.com	mvanhekken@boumacorp.com
Jen Raymond		
16167955375		
John		
Ryan Sly	Ryan.sly@eandlgroup.com	Ryan.Sly@eandlgroup.com

The Christman Company

RFI LOG

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
128	OSB or DensGlass	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
<p>Austin Brown Sent Mon Mar 4, 2024 at 02:26 pm EST Please clarify if exterior sheathing for fabricated walls is either to be OSB or DensGlass.</p> <p>If OSB, please clarify ratings (FR)?</p> <p>Q: The architectural details are showing 5/8" DensGlass Sheathing.</p> <p>When you look at Structural Framing Note #16/S1.11, OSB is noted. If you look at the table labeled "Cold-Formed Shear Wall Schedule (Min.)" on the same sheet, the fastener spacing is identical to note #16. However, note #16 does say "exterior wall sheathing" which implies all exterior sheathing (not just at shear walls).</p> <p>A: Romica Singh (Kingscott) Responded Mon Mar 4, 2024 at 04:59 pm EST Exterior wall sheathing to be gyp, not OSB.</p>														
127	Service Yard Concrete	Closed		None	Brown, Austin (Th...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 02:14 pm EST Who is responsible for the concrete in the service yard?</p> <p>A: Austin Brown (The Christman Company (LAN)) Responded Mon Mar 4, 2024 at 02:20 pm EST Structural Concrete (WC10) shall be responsible for the forming and pouring of the structural foundation walls for the masonry walls, Site Concrete (WC 05) shall be responsible for the "Exterior Slab On Grade"</p>														
126	Prevailing Wage	Closed		None	Brown, Austin (Th...	03/04/2024	Austin Brown	03/08/2024	03/04/24					
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 02:13 pm EST Is this project prevailing wage?</p> <p>A: Austin Brown (The Christman Company (LAN)) Responded Mon Mar 4, 2024 at 02:13 pm EST No.</p>														
125	Concrete Footing Excavation	Closed		None	Brown, Austin (Th...	03/04/2024	Austin Brown	03/08/2024	03/04/24					
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 02:12 pm EST Who is responsible for foundation excavation?</p> <p>A: Austin Brown (The Christman Company (LAN)) Responded Mon Mar 4, 2024 at 02:13 pm EST WC02 responsible to provide all trenching for foundation wall forming and pouring, and responsible to backfill as required.</p>														
124	FDC Requirement	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024			Szeszulski, Sami ... Singh, Romica (Ki...			

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	Q: Austin Brown Sent Mon Mar 4, 2024 at 02:01 pm EST The city of Lansing is requesting all FDC be Storz 5" not the 2.5" siamese that they show on the drawings. Please verify													
123	SUBSTITUTION REQUEST - Carehawk 2000IP and Lightspeed 975	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 02:00 pm EST We would like to propose using the Carehawk 2000IP and Lightspeed 975 system as an alternate to the Audio Enhancement Epic System. Let us know if this is approved. Caerehawk_App_Brief_v5 (003).pdf 975_Datasheet_DS0597US01-2 (002).pdf CareHawk-CH2000IP-Brochure (LIT-0020-2.00).pdf													
122	Gates & Rails Requirement - Fencing	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:58 pm EST 1 - Regarding Alternate 2: Deco black metal picket fence in lieu of black PVC chain link: How many rails is the deco fence to have? 2 - Regarding larger Gates: The written specs indicate horizontal slide gates, the plans indicate swing gates, and there is no detail drawing for the base bid, but the alternate shows swing gates. Please advise the style of gate for the larger gates.													
121	Fence Height	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:57 pm EST What is the height of the fence as the drawing indicates 6' tall but the written specs indicate 8' tall. The detail sheet states: height as specified.													
120	Differences in Details on S1.11	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:57 pm EST In Unit 100B, sheet S1.11 appears to show the Storage Building 181 as CFMF Panels. On sheet A1.1B, this building is shown as 8" Reinforced Masonry (see architectural section 4/A4.3). Which is correct? Exterior wall cuts show the exterior sheathing to be 5/8" Gyp sheathing But on the Structural Plans under framing plan notes #16 is says exterior wall sheathing to be OSB Sheathing See page S1.11 for example Romica Singh (Kingscott) Responded Mon Mar 4, 2024 at 03:57 pm EST A: <ul style="list-style-type: none"> 8" reinforced masonry construction is correct for the exterior storage building. Exterior wall sheathing to be 5/8" gyp, not osb. 													
119	Finish Floor Plan Class B or Class D	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:55 pm EST The floor finish plan states that the polished floor will have a salt and pepper finish (Class B), while the specification book indicates that the polished floor will receive a large aggregate finish (Class D). Could you please clarify this discrepancy for us?</p> <p>A: Romica Singh (Kingscott) Responded Tue Mar 5, 2024 at 09:56 am EST Floor plan is correct, polished floor will have a salt and pepper finish (class B). Specs to be corrected in Addendum.</p>														
118	FSE Elevation Request	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024			Szeszulski, Sami ... Singh, Romica (Ki...			
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:54 pm EST Are there elevation drawings available for the serving counters? We cannot make out what is surrounding item #11, the hot cabinet. Is that a counter that has the heated box underneath or is that a field-built item? We also need elevations for the counters -in reference to the heights.</p>														
117	Metal Soffit Continuous Run	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:54 pm EST Section 2 / A4.1 and 3 / A4.3 indicate a run of continuous soffit vent within the soffit panels. Spec 074293 2.2.C.2 notes the soffit panels to be vented/perforated panels. Can you clarify if design intent is solid soffit panels with continuous vent or vented soffit panels?</p> <p>A: Romica Singh (Kingscott) Responded Mon Mar 4, 2024 at 02:18 pm EST Soffit to be vented/perforated panels per spec. Details 2 and 3 will be updated with correct wording in addendum.</p>														
116	2 coat ILO 3 coat Finish System	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:53 pm EST Spec 074213.13 2.3.C notes 3-coat fluoropolymer finish system. Manufacturer standard is 2-coat fluoropolymer finish system. Is 2-coat fluoropolymer acceptable in lieu of 3-coat?</p> <p>A: Romica Singh (Kingscott) Responded Mon Mar 4, 2024 at 02:16 pm EST 2-coat fluoropolymer finish is acceptable.</p>														
115	Mitered Corner Panels or Metal Corner Flashing	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:52 pm EST Spec 074213.13 2.4.C notes mitered corner panels. Details 8 & 9 / A5.3 indicate metal corner flashing at corner of panels. Please clarify if mitered corner panels or metal corner flashing is required?</p> <p>A: Romica Singh (Kingscott) Responded Mon Mar 4, 2024 at 02:12 pm EST Detail 8 and 9 are correct with metal corner flashing at corner of panels.</p>														
114	Wood Trim Signage	Closed		None	Brown, Austin (Th...	03/04/2024	Austin Brown	03/08/2024	03/04/24					

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:51 pm EST Cut sheet A1.10 item toilet room glass signage calls out to have wood trim painted to match adjacent wall. Who is to supply the wood trim?</p> <p>A: Austin Brown (The Christman Company (LAN)) Responded Mon Mar 4, 2024 at 01:51 pm EST Signage is to be done by WC20, trim is to be installed by WC20.</p>														
113	Differences in Room Lettering Requirements	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:50 pm EST Cut sheet A1.10 calls item room lettering does not call out for the Paint, Laundry or Restroom letters as presented on Cut Sheet A9.4. item 1. Please advise.</p> <p>A: Romica Singh (Kingscott) Responded Tue Mar 5, 2024 at 10:18 am EST Sheet A9.4 is correct. A1.10 will be corrected to match A9.4 in addendum.</p>														
112	SUBSTITUTION REQUEST - VALLEY SIGN	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024			Szeszulski, Sami ... Singh, Romica (Ki...			
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:49 pm EST Specification 101423.16 Room-identification panel signage. For room ID signs can Valley City Sign be an approved alternative manufacturer? Please see the attached documents for construction methods VCS ADA vandal resistant 6.28.pdf VCS ADA Signs 6.28.pdf</p>														
111	Panel Signage Material	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024			Szeszulski, Sami ... Singh, Romica (Ki...			
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:48 pm EST Specifications 101423 Panel signage what is the material for the female and male pictorial graphics?</p>														
110	Alternative Sign - Plexiglass over Glass Request	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024			Szeszulski, Sami ... Singh, Romica (Ki...			
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:47 pm EST Specifications 101423 Panel signage For Bathroom Pictorial signage can an acrylic panel be an approved alternate instead of the glass? Glass has a high chance of being damaged due to tampering. Acrylic would be a more economical and safer alternative.</p>														
109	Eco-Resin Clarification	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024			Szeszulski, Sami ... Singh, Romica (Ki...			
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:46 pm EST Specifications 101423 Panel signage for the panel infographic signage calls out for a eco-resin and glass to be used for the construction of the sign please advise.</p>														
108	Meter Pit Details	Open		None	Szeszulski,	03/04/2024	Austin	03/08/2024			Szeszulski,			

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
					Sami ... Singh, Romica (Ki...		Brown			Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:45 pm EST Do you have details for the Meter/Valve Pit structure and the internal piping design?													
107	Fire Service Line Size	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:44 pm EST It is not clear as to if the fire service line and the Domestic line are both 4" and the Domestic lines step down to 2.5 " for service connections, Please clarify ?													
106	New Water Service Connection Method	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:43 pm EST Is there a new connection that will be required in the ROW of MLK? Live tap?													
105	GAGA Pir Underbase	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:42 pm EST The GAGA pit. Is there anything under the rubber mat? Then on drawing L1.01 it looks like there are two of these pits. Is that correct?													
104	Gym Ductwork Clash	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:39 pm EST The duct work in the gym appears to be in conflict with the divider curtain and at least 3 of the basketball backstops. Will the ductwork be moved or will we need to figure into our bid cradling down below the duct work? If we need to cradle below then the divider curtain will be in the airspace of the volleyball court.													
103	Laydown Area Stone	Closed		None	Dobbs, Andrew (Th...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:38 pm EST Who's responsible for the laydown stone?													
	A: Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 07:16 am EST WC 02 shall be responsible to furnish and install, as well as maintain laydown stone areas as shown on the logistics plan.													
102	Concrete Maintenance Strip at fence/building	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:38 pm EST I haven't seen a detail for the conc. maintenance strip at the fence or the building.													
101	Crane Pad	Open		None	Brown, Austin (Th...	03/04/2024	Austin Brown	03/08/2024		Brown, Austin (Th...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:35 pm EST What size of crane pad is needed and is stone required?													
	A: Austin Brown (The Christman Company (LAN)) Responded Mon Mar 4, 2024 at 01:37 pm EST Crane Pad requirements shall be coordinated between trades on location and duration, and assembly required. The uncertainty of this why this shall be funded by WC allowance.													
100	Retaining Wall at Service Yard	Open		None	Dobbs, Andrew (Th...	03/04/2024	Austin Brown	03/08/2024		Dobbs, Andrew (Th...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:35 pm EST Who's responsible for the retaining wall at service yard?													
99	Foundation Subbase Material	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:34 pm EST Please verify subbase material beneath building sog's. Is it 6" granular per S0.01, note 11-Foundations or is it per detail 3-S0.03?													
	A: Romica Singh (Kingscott) Responded Mon Mar 4, 2024 at 02:39 pm EST S0.1 foundation note #11 states 6" and detail 3/S0.03 depicts 4". The minimum granular sub-base should ultimately be determined by the geotechnical engineer, which is listed as "6 inches" per page 6 of SME Geotechnical Evaluation Report (092683.00 dated July 26, 2023). RFI-099_bc.pdf													
98	Building Subbase Requirement	Closed		None	Brown, Austin (Th...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:33 pm EST Who is responsible for the building subbase?													
	A: Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 07:22 am EST Fill material shall be supplied by the excavation contractor (WC02) to bring building foundations to grade, including foundation walls and slabs on grade up to 1" of final grade requirements, with fine grading by installing contractor (either site or structural concrete).													
97	Tree Protection	Closed		None	Brown, Austin (Th...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:32 pm EST 1. Tree Protection Fence is in WC02 and WC08													
	A: Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 07:34 am EST Removed temporary protection measures for WC 08.													
96	Pre-Bid Meeting List	Closed		None	Brown, Austin	03/04/2024	Austin	03/08/2024	03/04/24					

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
					(Th...		Brown							
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:31 pm EST Will a pre-bid meeting (Teams) attendee list be made available?													
	A: Austin Brown (The Christman Company (LAN)) Responded Mon Mar 4, 2024 at 01:32 pm EST Yes, this will become available in an upcoming addendum													
95	Footings for Fencing - WC Responsibility	Closed		None	Brown, Austin (Th...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:30 pm EST The footings for the fence, it states that the concrete contractor is installing footings for the fence post. Does this include digging the holes and placing the poles in the correct location (material will be supplied by the fence contractor)?													
	A: Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 07:44 am EST Fence contractor required to auger, assemble and set posts for fencing. Fencing contractor shall place concrete for footings in post bases just enough to shore posts in place and prevent movement when site concrete contractor pours the maintenance strip. Fencing contractor shall then return to complete fencing.													
94	FRP Door Specification	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024			Szeszulski, Sami ... Singh, Romica (Ki...			
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:29 pm EST Is there a specification for the FRP doors?													
93	Floor Tile to Vinyl Tile Transitions	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024			Szeszulski, Sami ... Singh, Romica (Ki...			
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:27 pm EST In Family Room 155 there is a Toilet Room that receives CFT-1 Floor Tile. What type of transition will they be installing at the door where CFT-1 Floor Tile meets LVT-1 Vinyl Tile.													
92	Shower Room Stall Requirements	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:27 pm EST 1. Does the Shower Rooms stalls only in Family 155, Shower 161 & 162 receive mud beds? Or the stall and toilet room where CFT-1 is being installed?													
	A: Romica Singh (Kingscott) Responded Tue Mar 5, 2024 at 09:42 am EST Mud beds in all areas where CFT-1 is installed.													
91	Wall Tile requirement in Men's Storage Room 126B	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:26 pm EST													

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
<p>There is a storage room in Men's Room 126A. I just want to verify that storage room 126B does not receive wall tile correct?</p> <p>A: Romica Singh (Kingscott) Responded Mon Mar 4, 2024 at 01:38 pm EST Correct, there is no wall tile in storage room 126B.</p>														
90	Trim between Resinous Base and Wall Tile	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:25 pm EST The Men's Room, Women's Room & Single Restrooms on Details 3,6 & 7/ A9.5 shows resinous base to be installed. Wall Tile is being installed above the resinous wall base. Is there any metal trim between the resinous wall base and the ceramic wall tile being installed? Please advise.</p>														
89	Wall Tile at Water Fountain	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:24 pm EST Finish Plan A8.1 shows a water fountain in Corridor 104 to receive CTW-2 on the return walls at the water fountain. Detail 11/A9.4 shows CTW-1 wall tile to be installed on return walls at the water fountain. Please advise as to what Wall Tile is to be installed at the return walls for the water fountain in Corridor 104. CTW-1 or CTW-2.</p>														
88	Attachment Method Above Baffles	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:23 pm EST Is there a drywall ceiling above the baffles that they attach to? It appears that there is in section 2/A5.4. Please advise.</p> <p>A: Romica Singh (Kingscott) Responded Mon Mar 4, 2024 at 01:34 pm EST There is no gyp ceiling above the baffles. The baffles are on a suspended track system.</p>														
87	Z- BAR at Kitchen Base Detail 2/A8.1	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:21 pm EST Is note #2 of Specific Notes and Details on Bid Category 21 work scope referencing detail 2/A8.1? If yes, it appears to be part of FRP installation. What is the specific part required? Generally, a cap mold is included at the top of base at this condition. Please advise.</p>														
86	Firestopping Requirement for WC21	Closed		None	Brown, Austin (Th...	03/04/2024	Austin Brown	03/08/2024	03/04/24					
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 01:13 pm EST Scope indicates Bid Category 21 is to include firestopping for mechanical and electrical work. Is this correct? Very difficult to estimate someone else's work.</p> <p>A: Austin Brown (The Christman Company (LAN)) Responded Mon Mar 4, 2024 at 01:16 pm EST WC 21 is only responsible to fireproof any penetrations caused by their own work in fire rated walls. Electrical penetrations made by the electrical contractor in fire rated walls shall be fireproofed by the electrical contractor, and mechanical penetrations made by the mechanical contractor in fire rated walls shall be fireproofed by the mechanical contractor.</p>														

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	Should walls include penetrations in the pre-manufacture assembly to allow for MEP equipment, MEP contractors are required to coordinate the location and appropriate sizes for penetrations installed by factory manufacturer. The MEP trade is then responsible to fireproof/smokeproof as required in all rated walls once MEP equipment is installed.													
85	Rigid Insulation Requirement	Open		None	Dobbs, Andrew (Th...	03/04/2024	Austin Brown	03/08/2024		Dobbs, Andrew (Th...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:11 pm EST Which bid category is responsible for the 1" rigid insulation shown over the air barrier on exterior walls?													
84	Sheathing & Block Walls	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:11 pm EST Section detail 4/A4.2 shows sheathing over block wall. Is this detail correct? Sheathing is not detailed on drawing.													
	A: Romica Singh (Kingscott) Responded Mon Mar 4, 2024 at 01:31 pm EST The detail was worded incorrectly. There is no sheathing over the block wall. Wording will be corrected in addendum.													
83	Acoustical Ceiling Limits & Termination	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 01:10 pm EST Acoustical ceiling in corridors 302 and 402 does not show going wall to wall. Should an aluminum cap be included at these locations and will 4" be acceptable?													
82	ACP-2 Grid Requirements	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 12:57 pm EST Does ACP-2 require Aluminum capped Grid? Specs unclear.													
81	AWP requirements	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Mon Mar 4, 2024 at 12:55 pm EST Is Classroom 145 the only classroom that gets Acoustical Wall Panels?													
80	Backing Specified Requirements	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
	Q: Austin Brown Sent Mon Mar 4, 2024 at 12:55 pm EST All wall types are showing a horizontal stud at 34" and 84". If this is for backing, should it occur only where backing is required, and it appears that the scope is calling for wood blocking. If metal backing is desired flat stock is a much more economical choice.													

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
<p>If the purpose for the horizontal stud is for wall stiffening rather than blocking or backing, may we use a spazzer in place of the horizontal stud? These are made specifically for that purpose and reduce the labor cost significantly.</p> <p>A: Romica Singh (Kingscott) Responded Mon Mar 4, 2024 at 01:28 pm EST The horizontal studs at 34" and 84" are for installation of vdb's &/or casework and could be either metal or wood studs.</p>														
79	Furniture Requirements	Closed		None	Brown, Austin (Th...	03/04/2024	Austin Brown	03/08/2024	03/04/24					
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 12:50 pm EST Which scope are the shelving, shoe displays, soft seating and clothing racks in the family room 155 in? Are these owner finished? Product info and details are missing.</p> <p>A: Austin Brown (The Christman Company (LAN)) Responded Mon Mar 4, 2024 at 12:53 pm EST Adjustable shelving racks, shoe racks, soft seating, and clothing racks are not a part of any work category for this project at this time. Assume no responsibility to supply these items as noted in Family Room.</p>														
78	Locker Detail T-155	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 12:49 pm EST Can you provide more details for T-155. It is unclear if this is a millwork locker or a metal locker?</p>														
77	Request for Finish/Equipment Schedule	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 12:48 pm EST Can you issue a finish/equipment legend and finish schedule? It is hard to determine what finishes are what when there isn't a legend and schedule to reference.</p>														
76	Tectum Panel Thickness	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
<p>Q: Austin Brown Sent Mon Mar 4, 2024 at 12:47 pm EST AWP Tectum panels are spec'd as Designart, 2" thick. Designart panels only come in 1" thick. Tectum can custom produce these panels at 2" but for an additional custom fee. Please clarify if 1" or 2" are required.</p>														
75	General Trades & Exterior Benches	Closed		None	Dobbs, Andrew (Th...	03/04/2024	Austin Brown	03/08/2024	03/05/24					
<p>Austin Brown Sent Mon Mar 4, 2024 at 12:43 pm EST Q: General trades scope mentions to furnish and install exterior benches at scope item #9. The only exterior benches shown are built in CMU with a precast top and concrete footing shown on A5.2. Surely this is not by the general trades contractor. Please clarify the which if any exterior benches are provided by the general trades contractor.</p> <p>A: Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 07:49 am EST Correct. Removed "exterior benches" from WC 20 in Addendum 1.</p>														
74	Playground Surfacing	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	03/04/2024	Austin Brown	03/08/2024		Szeszulski, Sami ... Singh, Romica (Ki...				

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	<p>Austin Brown Sent Mon Mar 4, 2024 at 12:42 pm EST</p> <p>L1.01 displays multiple shaded textures which do not appear in the legend on the same page. Please clarify the attached shade requirements, and what the surface material shall be.</p> <p>Q: In addition, the sidewalk coming into the project from MLK appears to interfere with the surfacing texture on the lower playground equipment. Please clarify the intent for this detail.</p> <p>RFI 74.pdf</p>													
73	SUBSTITUTION REQUEST - DrexelMetals	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024			Szeszulski, Sami ... Singh, Romica (Ki...			
	<p>Austin Brown Sent Tue Feb 27, 2024 at 02:21 pm EST</p> <p>Attached substitution request for Metal Wall Panels manufacturer to be substituted for Drexel Corrugated metal.</p> <p>Drexel Corrugated.pdf</p>													
72	SUBSTITUTION REQUEST - Perimeter Edge System	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024	03/05/24					
	<p>Austin Brown Sent Tue Feb 27, 2024 at 02:20 pm EST</p> <p>See attached.</p> <p>Q: JAMF Substitution Request For New Willow Elementary Project.pdf</p> <p>JA-22-Fascia.pdf</p>													
	<p>A: Romica Singh (Kingscott) Responded Tue Mar 5, 2024 at 10:17 am EST</p> <p>Approved.</p>													
71	SUBSTITUTION REQUEST - SINAK products	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024	03/05/24					
	<p>Austin Brown Sent Tue Feb 27, 2024 at 01:16 pm EST</p> <p>We respectfully submit for your consideration a request to approve SINAK products as an accepted substitute on New Willow Elementary Construction. Please find links below to supporting documentation demonstrating equal or superior performance to the specified products.</p> <p>Substitution Request Summary: Substitution Request - New Willow Elementary Construction.pdf</p> <p>SINAK LithiumCure 2000, classified as a Curing Agent, Water Cure Equivalent Type, Penetrating, is topically spray applied at the time of concrete placement, taking the place of traditional water curing methods. Compatible with all sealers, hardeners/densifiers, adhesives, flooring, coatings, and moisture vapor control systems, including MVRA, SINAK LithiumCure 2000 is a cost effective alternative to all other curing methods and will reduce labor costs and accelerate the construction schedule.</p> <p>Q:</p> <p>Suggested Water Cure Equal Concrete Curing Agent Substitute for Moisture-Retaining Cover: ASTM C171; Absorptive Cover: AASHTO M182; Water Cure: - LithiumCure 2000</p> <p>Supporting Documentation:</p> <ul style="list-style-type: none"> MSDS - LithiumCure 2000 Product Spec - LithiumCure 2000 Sustainability Certifications & Standards - LithiumCure 2000 Technical Datasheet - LithiumCure 2000 													
	<p>A: Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 12:16 pm EST</p>													

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
What is actually being substituted? The specifications already list the curing materials in 2.9 and the cutsheets already seem to match and this reads more as a submittal. Or is it supposed to replace something else?														
70	Caulking & Fireproofing/caulking	Closed		None	Dobbs, Andrew (Th...	02/27/2024	Austin Brown	03/02/2024	03/05/24					
Q: Austin Brown Sent Tue Feb 27, 2024 at 01:14 pm EST Can you further define scope item #7 in work category 19 fireproofing/smokeproofing														
A: Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 08:17 am EST Mechanical and plumbing fixtures (ie. Toilets & Sinks) shall be caulked by this WC. Penetrations created by MEP contractor shall be fire caulked by this WC as required.														
69	WC 15 - Scope Clarifications	Closed		None	Dobbs, Andrew (Th...	02/27/2024	Austin Brown	03/02/2024	03/05/24					
Austin Brown Sent Tue Feb 27, 2024 at 01:13 pm EST														
Q: <ol style="list-style-type: none"> See work category 15, item number 1&2 says copings, but the coping spec section 077100 is listed under work category 14, please confirm who is responsible for these copings? See work category 15, item number 1 says integral louvers, where are these located? See work category 15, item numbers 5&6, item 5 says to include the custom colors, but item 6 says to provide an add for custom colors, which is correct? 														
A: Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 08:28 am EST 1. Details showing metal panels matching coping, where coping meets metal panels is to be provided and installed by WC 15, coping not to match and not located at metal panel assembly is to be by WC 14. Coping is by WC15 to match metal panels, specification section added to WC15. 2. Integral louver referenced in WC15 is in relation to the continuous vent, an example of which is shown on detail 2/A4.1. 3. Custom Colors are to be considered base bid, and shall be included in WC15's pricing. Intent for item 6 on the bid form is to provide the "added" cost for custom colors where if "standard" colors are utilized may be reduced.														
68	2-Coat or 3-Coat finish	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024	02/28/24					
Q: Austin Brown Sent Tue Feb 27, 2024 at 01:12 pm EST See spec section 074213.13, 2.6, C, 1 says 3-coat finish, but Centria's Dove Gray is a standard 2-coat finish. Is a 2-coat finish acceptable for this color? See spec section 074293, C, 3, c&d, it says 3-coat finish, but Centria's Regal White is a standard 2-coat finish. Is a 2-coat finish acceptable for this color?														
A: Romica Singh (Kingscott) Responded Tue Feb 27, 2024 at 02:24 pm EST Yes, 2-coat finish for centria panels are acceptable.														
67	074213.13, 2.4, F Location	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024	02/28/24					
Q: Austin Brown Sent Tue Feb 27, 2024 at 01:11 pm EST See spec section 074213.13, 2.4, F, where are these located?														
A: Romica Singh (Kingscott) Responded Tue Feb 27, 2024 at 02:36 pm EST Refer to elevations A3.1a-A3.4														
66	Air/Weather Barrier Included in Wall Assembly, and WC	Open		None	Dobbs, Andrew	02/27/2024	Austin	03/02/2024			Dobbs, Andrew			

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	Responsible for Vertical Girts				(Th...		Brown			(Th...				
	Q: Austin Brown Sent Tue Feb 27, 2024 at 01:10 pm EST See 3/A4.1 & similar details, please confirm that the prefabricated wall sections will include the air / water barrier, horizontal Z furrings and 1" rigid insulation? Bid Category 15 to supply only the vertical girts and wall panels, correct?													
65	Wall Panel penetration	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024	02/28/24					
	Q: Austin Brown Sent Tue Feb 27, 2024 at 01:09 pm EST See 3/A4.3 & similar details are the wall panels actually required to go all the way up to the roof deck, or can they stop at the soffit?													
	A: Romica Singh (Kingscott) Responded Tue Feb 27, 2024 at 02:38 pm EST They should stop at the soffit.													
64	SS Flashing to Finish Siding Flashing Color	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Brown, Austin (Th...				
	Q: Austin Brown Sent Tue Feb 27, 2024 at 11:47 am EST See 6/A4.1 & similar details, it says "Flashing with SS drip trim", typically these flashings are the same material and finish as the panels, is that acceptable?													
	A: Romica Singh (Kingscott) Responded Tue Mar 5, 2024 at 09:49 am EST Same material and finish as the wall panel is acceptable.													
63	Metal Fascia WC Responsibility	Closed		None	Brown, Austin (Th...	02/27/2024	Austin Brown	03/02/2024	03/05/24					
	Q: Austin Brown Sent Tue Feb 27, 2024 at 11:46 am EST See 2/A4.1, which work category is responsible for the "Prefinished Metal Fascia, Gray"													
	A: Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 08:47 am EST WC15 to provide and install noted item.													
62	Specification Section for 8/A5.2	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Tue Feb 27, 2024 at 11:45 am EST See 8/A5.2, this detail shows a 2" Metal Panel, please provide a specification for this panel.													
61	SUBSTITUTION REQUEST - Morin	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Brown, Austin (Th...				
	Q: Austin Brown Sent Tue Feb 27, 2024 at 11:43 am EST Please see attached for Product Data associated with the below items;													

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	<p>Morin's C-29-E Profile B as an equal for spec section 074213.13, 2.2, B, 1, a Morin's F-12-0 as an equal for spec section 074293, 2.2, C, 2? Morin F-12-0 Product Data.pdf Morin C-29-E Profile B Product Data.pdf</p> <p>A: Romica Singh (Kingscott) Responded Tue Mar 5, 2024 at 09:22 am EST Approved with metal corner flashing, not mitered, per RFI #115.</p>													
60	Insulated Glass Material	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	<p>Q: Austin Brown Sent Tue Feb 27, 2024 at 11:38 am EST Specification section 088000-Glazing does not call out insulated glass unit material description to be bid. Please provide a specification.</p>													
59	Residential Appliance quantity & models	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	<p>Q: Austin Brown Sent Tue Feb 27, 2024 at 11:37 am EST In regard to the upcoming bid for the Willow School project, the scope of work category #29 (food service equipment) includes residential appliances. Upon reviewing the written itemized spec section 113013 for the residential appliances, there are no quantities or model #'s listed. Are you able to provide this information?</p>													
58	Security Film Requirement	Closed		None	Brown, Austin (Th...	02/27/2024	Austin Brown	03/02/2024	02/27/24					
	<p>Q: Austin Brown Sent Tue Feb 27, 2024 at 11:35 am EST Bid Category # 18 includes "Security Window Film" but I don't see it called for on any notes or elevations. Where is it to be used?</p> <p>A: Austin Brown (The Christman Company (LAN)) Responded Tue Feb 27, 2024 at 11:36 am EST Refer to note 14 on Architectural General Notes, pasted below for reference; 3M SECURITY FILM -AT ALL EXTERIOR WINDOWS, 6FT AND BELOW OR FROM THE NEXT MULLION AFTER 6FT AND BELOW. REFER TO SPECIFICATION SECTION 088716.</p>													
57	Corridor Door Fire Rating Confirmation	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024	03/05/24					
	<p>Q: Austin Brown Sent Tue Feb 27, 2024 at 11:32 am EST It appears there are several door openings in corridors that may need to be fire-rated but are not called out as such on the door schedule. Please review and advise if fire-rating is to be added to any door openings.</p> <p>A: Romica Singh (Kingscott) Responded Thu Feb 29, 2024 at 05:10 pm EST Door Schedule is correct.</p>													
56	BL-2 Glazing Rating	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024	03/05/24					

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
<p>Q: Austin Brown Sent Tue Feb 27, 2024 at 11:32 am EST It appears window type BL-2 may require 45-min. rated glazing. Please confirm.</p> <p>A: Romica Singh (Kingscott) Responded Thu Feb 29, 2024 at 05:02 pm EST Correct, BL-2 requires 45 min rated glazing.</p>														
55	Window Type A, A1, B, C location	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Brown, Austin (Th...				
<p>Q: Austin Brown Sent Tue Feb 27, 2024 at 11:31 am EST I can not find aluminum storefront windows type A, A-1, B, or C on the drawings? Were these not used and need to be deleted from the documents?</p> <p>Romica Singh (Kingscott) Responded Tue Feb 27, 2024 at 02:51 pm EST</p> <p>A: <ul style="list-style-type: none"> A and A1 are tagged on composite clerestory plan A0.2. B and C to be removed from documents. </p>														
54	Frame Type 5	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024	02/28/24					
<p>Q: Austin Brown Sent Tue Feb 27, 2024 at 11:31 am EST Frame type # 5 is not used on the door schedule. Should this frame type be deleted, or is a frame not listed correctly on the schedule?</p> <p>Romica Singh (Kingscott) Responded Tue Feb 27, 2024 at 02:59 pm EST</p> <p>A: Door 156A should be frame type 5, but without the transom. Door Frame Type 5.png</p>														
53	Vestibule Fire Rated Glass & Fire Rated Frames	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
<p>Q: Austin Brown Sent Tue Feb 27, 2024 at 11:30 am EST All interior vestibule aluminum frames with FRP doors are called on the door schedule to have insulated glass. Shouldn't all of these be non-thermal frames with ¼" glass?</p>														
52	Roof drain and overflor design	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
<p>Q: Austin Brown Sent Tue Feb 27, 2024 at 11:30 am EST Can we get a basis-of-design for the roof drains and overflows please? The drawings lead us to believe these could be combination units so it is imperative we know what is desired.</p>														
51	Cubicle Curtains and Track responsibility	Closed		None	Brown, Austin (Th...	02/27/2024	Austin Brown	03/02/2024	02/27/24					
<p>Q: Austin Brown Sent Tue Feb 27, 2024 at 11:28 am EST</p>														

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
Please verify what work category is responsible for curtain track system (Spec 102123). Currently shown to be installed by WC 21 though this is typically installed by WC 20.														
A:	Austin Brown (The Christman Company (LAN)) Responded Tue Feb 27, 2024 at 11:28 am EST Work Category responsibility will be revised from WC 21 to WC 20 in an upcoming addendum.													
50	SUBSTITUTION REQUEST - Dimensional Metals	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
Q:	Austin Brown Sent Tue Feb 27, 2024 at 11:26 am EST Attached substitution request. Substitution Request - New Willow Elementary.pdf													
49	Mechanical Piping - Painting Responsibility	Closed		None	Brown, Austin (Th...	02/27/2024	Austin Brown	03/02/2024	02/27/24					
Q:	Austin Brown Sent Tue Feb 27, 2024 at 11:23 am EST There are notes on Plumbing & Mechanical drawings stating to "paint piping to match adjacent architecture where crossing above open ceilings" as well as "all piping to be painted within mechanical rooms". Please verify who is responsible for this painting. We don't feel this should be the mechanical's responsibility. Thank you													
A:	Austin Brown (The Christman Company (LAN)) Responded Tue Feb 27, 2024 at 11:25 am EST Painting of all mechanical piping, fixtures, plumbing, etc. as shown is the responsibility of the Painting contractor. WC27 (mechanical) is required to install all items for a complete system, including insulation and labels in coordination with WC24 (painters) to prevent clashes/touchups where possible.													
48	AWP Color Selection	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024	02/28/24					
Q:	Austin Brown Sent Tue Feb 27, 2024 at 11:22 am EST On sheet A1.9, the color codes are not all assigned to the wall sound panels. Most of the square panels are labeled AWP1, and a couple of the circles are labeled AWP11. The triangles are not labeled with anything. What color are the triangles supposed to be? Also, am I to assume all squares and all circles will share the same color?													
A:	Romica Singh (Kingscott) Responded Tue Feb 27, 2024 at 01:28 pm EST Squares and circles will be different colors. See image for updated color codes, sheet to be issued in addendum. Acoustic Wall Panel Schedule.png													
47	SUBSTITUTION REQUEST - Versico Roofing Systems	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Brown, Austin (Th...				
Q:	Austin Brown Sent Tue Feb 27, 2024 at 11:21 am EST Attached is a brochure showing the roofing systems that Versico offers. Versico All Systems Brochure.pdf													
A:	Romica Singh (Kingscott) Responded Tue Mar 5, 2024 at 08:49 am EST Approved.													
46	Underground Detention System Design	Open		None	Szeszulski,	02/27/2024	Austin	03/02/2024		Szeszulski,				

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
					Sami ... Singh, Romica (Ki...		Brown			Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Tue Feb 27, 2024 at 11:19 am EST Sheet C6.1 at the underground detentions; the OCS that is within the systems 4 ea, 2 at ea system is not being designed by ADS, per their table on pages 6.3 and 6.4. In chart reference items G & F. See attachment, let me know if I am missing this information somewhere else. UGS OCS.pdf													
45	RCP and HDPE piping	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/27/2024	Austin Brown	03/02/2024		Szeszulski, Sami ... Singh, Romica (Ki...				
	Q: Austin Brown Sent Tue Feb 27, 2024 at 11:18 am EST It appears per note 1 on C6.1 that RCP pipe is required for the project except when the size is under 12". Specifications call for HDPE water treatment chamber. Please verify. Why is the engineer utilizing RCP pipe for the whole job (note 1 page c6.1), except when the size is under 12" I only ask because they have spec'd an HDPE water treatment chamber.													
44	Casework Manufacturer Substitution Request	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/23/2024	Austin Brown	02/27/2024	02/28/24					
	Q: Austin Brown Sent Fri Feb 23, 2024 at 09:56 am EST Substitution request to add Grand Valley Wood Products, 4030 Eastern Ave, Grand Rapids, MI 49508, as a manufacturer for Specification Sections: 123000 MANUFACTURED PLASTIC-LAMINATE-CLAD MUSIC CASEWORK 123216, MANUFACTURED PLASTIC-LAMINATE-CLAD CASEWORK													
	A: Romica Singh (Kingscott) Responded Tue Feb 27, 2024 at 02:17 pm EST Approved. Confirmed with owner and CM.													
	A: Romica Singh (Kingscott) Responded Mon Feb 26, 2024 at 08:51 am EST We are unfamiliar with this manufacture. Can they provide specs and a list of similar projects?													
43	FS5.2 Bubbles	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
	Q: Austin Brown Sent Thu Feb 22, 2024 at 11:23 am EST Why are some of the notes on FS5.2 bubbled?													
	A: Romica Singh (Kingscott) Responded Thu Feb 22, 2024 at 02:10 pm EST These are not revision clouds, but rather bubbles shown on the manufacturer's drawings to highlight critical dimensions and action items for installation.													
42	Depressed Slab Foundations, and Structural/FSE drawing height discrepancies	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
	Q: Austin Brown Sent Thu Feb 22, 2024 at 11:23 am EST													

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	<ul style="list-style-type: none"> It looks like there is supposed to be a detail cut number for the depressed slab foundations on S1.01 as there is a cut line but no detail number on it. There are two details for the depressed slab on S4.01. <ul style="list-style-type: none"> It appears to be that per section F-F on F55.2, the ½" difference is supposed to be filled with leveling sand. In regards to the leveling sand, section F-F says it is to be "by others" but spec section 114000 Item #100 feature #29 says "FEC to provide sand to fill...". Please clarify if FEC is to provide/install? Details on the structural drawings indicate the depressed slab is to be 8". The FSE drawings indicate the slab is to be recessed 8-1/2". 													
	Romica Singh (Kingscott) Responded Tue Feb 27, 2024 at 09:50 am EST													
	A: <ul style="list-style-type: none"> The cut line on S1.01 is the tail end of 3/S2.01, which is a building section for the head is on the other side of the sheet. The FEC should provide the sand. The walk-in drawings refer to "others" to indicate that the sand will not be provided from the walk-in manufacturer with the walk-in itself. Structural drawings will be updated to show 8-1/2" recess. The cooler/depressed slab will be shifted to the west by 5-1/4" to keep the right side of cooler -8" to keep the exterior masonry veneer on coursing. 													
41	Desk, Scrapping Stations, Lockers	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	03/05/24					
	Q: Austin Brown Sent Thu Feb 22, 2024 at 11:19 am EST Item #47 is a desk but it calls it as NIFEC "not in FEC" scope. I don't see a detail for this desk anywhere else throughout the drawings so I can easily assign it to my general trades contractor. It also is not called on the equipment plan. Can we get a detail for this desk or is it in the specs somewhere?													
	<ul style="list-style-type: none"> Same for Items #63 and 130 scrapping stations Same for Item #110 lockers 													
	A: Romica Singh (Kingscott) Responded Thu Feb 29, 2024 at 04:25 pm EST Desk, lockers, and scrapping stations to be detailed in addendum.													
40	Equipment Schedule NIFEC or VFVI requirement	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
	Q: Austin Brown Sent Thu Feb 22, 2024 at 11:13 am EST On the equipment schedule on F51.1 it calls for Item 33 to be NIFEC. However in the specs it calls for it to be VFVI. Since this is the same item as #32, I'm pretty sure it is supposed to be VFVI. Please confirm?													
	A: Romica Singh (Kingscott) Responded Thu Feb 22, 2024 at 02:09 pm EST Item 33 should also be V.F.V.I. The intention is that these racks will be supplied by the school's bread vendor, but we are simply making space for them on the plan.													
39	Earthwork/Landscaping WC Requirements for Stone & Fabric at Retaining Wall	Closed		None	Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024	03/05/24					
	Q: Austin Brown Sent Thu Feb 22, 2024 at 10:50 am EST Specific notes and details item 12 - this is inefficient to have this WC place the stone and fabric usually the retaining wall installer will do this. It would make more sense for this WC to prep the subgrade then get out of the landscapers way so they can install everything.													
	A: Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 08:09 am EST WC 02 to install subbase up to 1" of grade required for WC 08 to take over from there. Revised in Addendum 1.													
38	Temporary Road Construction	Open		None	Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024			Brown, Austin (Th...			

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	<p>Austin Brown Sent Thu Feb 22, 2024 at 10:48 am EST WC Note 17, Install maintain and remove temp roads for concrete and deliver, etc. Where do these roads go? Is this the green road on the logistic plan? Please provide location if other than what is on logistic plan, width depth etc for proper pricing.</p> <p>Q:</p> <p>Same question would pertain to Specific notes and Detail item 7. Where, width length, depth, etc.</p> <p>Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 10:31 am EST A: Yes, this is the green drive on the logistics plan. The drive dimensions are roughly 15' wide and 150' long. The dimensions for the laydown area are 120' x 130'. Depth shall be 10", maintenance as required by the construction manager to maintain drives and access through the site.</p>													
37	2" & 3" Underground outlet & pipe size	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
	<p>Austin Brown Sent Thu Feb 22, 2024 at 10:46 am EST Q: There are drains and cleanouts scheduled/specified with 2" outlets on the drawings (example - trench drains). Plumbing general note #11 states that the minimum pipe size underground is to be 3". Please explain. Code allows for a minimum pipe underground to be 2". Typically 2" piping would run underground to serve sinks and lavatories.</p> <p>Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 09:21 am EST A: Underground piping shall be 3 inches. The drain from the fixture can be 2" in the vertical until it connects to the 3" horizontal piping buried underground. 221125-090-LSD_Willow_School-37-2_amp_3_Underground_outlet_amp_pipe_size-2024-02-22.pdf</p>													
36	BWL Water Service & BWL installation	Closed		None	Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
	<p>Austin Brown Sent Thu Feb 22, 2024 at 10:44 am EST Q: Being this project will have BWL for water service it is assumed that BWL will bring the water services into the building and up to the first flange. Please confirm.</p> <p>Andrew Dobbs (The Christman Company (LAN)) Responded Wed Feb 28, 2024 at 12:22 pm EST A: I do not believe that is the case. I don't believe Lansing Board of Water and Light brings the water service into the building. WC 02 is responsible for tapping off the main and bringing it into the building to the first flange.</p>													
35	BIM Requirements	Closed		None	Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024	02/22/24					
	<p>Austin Brown Sent Thu Feb 22, 2024 at 10:44 am EST Q: Are you looking to have on-site coordination meetings/efforts or BIM? Will the design model be provided to develop coordination drawing from?</p> <p>Andrew Dobbs (The Christman Company (LAN)) Responded Thu Feb 22, 2024 at 03:28 pm EST A: BIM is not required on this project so no coordinate meetings will be held by The Christman Company.</p>													
34	Temporary Heating Requirement	Closed		None	Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024	02/22/24					
	<p>Austin Brown Sent Thu Feb 22, 2024 at 10:43 am EST Q: Who is responsible to supply, install and maintain temporary heating/ventilation for the project? Can there be an allowance allocated for this keeping all bids inline?</p> <p>Andrew Dobbs (The Christman Company (LAN)) Responded Thu Feb 22, 2024 at 03:26 pm EST A: The CM (Christman) will be responsible for providing and maintaining temporary heat during the winter. No temporary air conditioning is planned at this time.</p>													
33	Glycol in Geothermal System Requirement	Closed		None	Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024	03/05/24					
	<p>Q: Austin Brown Sent Thu Feb 22, 2024 at 10:43 am EST</p>													

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	Who is responsible for the Glycol in the heat pump loop (interior and exterior)? What is the estimated volume of the exterior geothermal system?													
	A: Austin Brown (The Christman Company (LAN)) Responded Tue Mar 5, 2024 at 08:09 am EST WC27 to provide glycol or liquid fill for geothermal system.													
32	MUA Exhaust Fan WC 27 or 29 Install	Closed		None	Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024	02/22/24					
	Q: Austin Brown Sent Thu Feb 22, 2024 at 10:42 am EST Please verify if Kitchen MUA unit and Kitchen exhaust fans are provided and installed by WC 29 or WC 27?													
	A: Andrew Dobbs (The Christman Company (LAN)) Responded Thu Feb 22, 2024 at 03:14 pm EST WC 27 to provide and install MAU and Kitchen Exhaust Fans.													
31	Cast Iron Piping to PVC for Storm & Sanitary Request	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
	Q: Austin Brown Sent Thu Feb 22, 2024 at 10:40 am EST 221005 Plumbing Piping, Below Grade - Specifications only allow for cast iron piping on underground (sanitary & storm). Please consider the use of PVC for these applications.													
	A: Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 09:06 am EST PVC can be used and will be indicated in spec in upcoming addendum. 221125-090-LSD_Willow_School-31-Cast_Iron_Piping_to_PVC_for_Storm_amp_Sanitary_Request-2024-02-22.pdf													
30	Meter Valve Pit Detail Request	Open		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024			Szeszulski, Sami ... Singh, Romica (Ki...			
	Q: Austin Brown Sent Thu Feb 22, 2024 at 10:39 am EST I cannot find a detail for the meter/valve pit, can a detail be provided? And a detail for the inside, if we are providing the valve and accessories.													
29	Gas line installation requirement	Closed		None	Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024	02/22/24					
	Q: Austin Brown Sent Thu Feb 22, 2024 at 10:39 am EST Specific Notes, item 4, the site utility contractor will not be able to furnish and install the gas lines, this would probably be by the gas company? As far as the coordination of the install with the municipality that seems that would be something the CM would do and we would just make sure that that our work does not interfere with theirs? What is your intent with that note?													
	A: Andrew Dobbs (The Christman Company (LAN)) Responded Thu Feb 22, 2024 at 03:02 pm EST Utility provider to provide and install gas line main to meter and PRV. WC 27 to provide and install all gas piping after the PRV including the generator. Correct the CM will schedule and coordinate the work for the utility company gas main but need to make sure work carried out by others in this area is coordinated with.													
28	Trench Drain Responsibility Requirement	Closed		None	Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024	02/22/24					
	Q: Austin Brown Sent Thu Feb 22, 2024 at 10:34 am EST What WC is installing the ACO trench drain?													
	A: Andrew Dobbs (The Christman Company (LAN)) Responded Thu Feb 22, 2024 at 02:36 pm EST ACO trench drain(s) to be provided and installed by WC 02.													

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
27	Existing Meter Vault Size	Open		None	Singh, Romica (Ki... Szeszulski, Sami ...	02/22/2024	Austin Brown	02/26/2024		Singh, Romica (Ki... Szeszulski, Sami ...				
Q: Austin Brown Sent Thu Feb 22, 2024 at 10:32 am EST On sheet 6.1 coming out of the back of the meter vault towards MLK, what size line is this? I do not see an existing line there, I am guessing we are to assume that the line is under the curb? Please clarify.														
26	Request to use poly pipe ILO specified systems for Natural Gas Piping	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
Q: Austin Brown Sent Thu Feb 22, 2024 at 09:24 am EST 231123-2, 2.1 Natural Gas Piping Buried Within 5 Feet - Please consider the use of poly pipe, direct bury for approval in this application. Neither of the (2) specified systems are conducive to today's project budgets.														
A: Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 09:08 am EST Yes, proposed piping is allowed for buried pipe. Updated spec will be issued in addendum. 221125-090-LSD_Willow_School-26-Request_to_use_poly_pipe_ILO_specified_systems_for_Natural_Gas_Piping-2024-02-22.pdf														
25	Type K or Type L copper for Geothermal Heat Pump Loop	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
Q: Austin Brown Sent Thu Feb 22, 2024 at 09:21 am EST 232113-3, 2.2 Geothermal Heat Pump Loop Water Piping, Above Grade (B) - Please verify that the intent is to use type "K" copper in lieu of industry standard type "L" on this system for piping ¾" - 2".														
A: Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 09:09 am EST Type L or Type K are allowed. Spec to be updated in addendum. 221125-090-LSD_Willow_School-25-Type_K_or_Type_L_copper_for_Geothermal_Heat_Pump_Loop-2024-02-22.pdf														
24	Hyrdronic System & Grooved Systems	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
Q: Austin Brown Sent Thu Feb 22, 2024 at 09:20 am EST 232113-3, 2.1 Hydronic System Requirements B.3.a - Please verify if Grooved systems are acceptable above lay-in ceilings.														
A: Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 09:10 am EST Yes, grooved systems are acceptable above lay-in ceilings. 221125-090-LSD_Willow_School-24-Hyrdonic_System_amp_Grooved_Systems-2024-02-22.pdf														
23	Roof Work Clarification for WC27 & 14	Closed		None	Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024	02/22/24					
Q: Austin Brown Sent Thu Feb 22, 2024 at 09:19 am EST WC 27 note #19 - Indicates that the roof sumps are provided by WC 14 and WC 27 plumbs up to them. WC 14 - Related work by others #3 states roof sump pans, roof drains and overflows are furnished and installed by others.														
A: Andrew Dobbs (The Christman Company (LAN)) Responded Thu Feb 22, 2024 at 02:31 pm EST Sump pans to be provided and installed by WC 12. Roof drains and overflows by WC 14. Plumbing to roof drains/sump pans by WC 27.														
22	Pre-Fabricated Walls & WC27 Specific Note Clarification	Closed		None	Dobbs, Andrew	02/22/2024	Austin	02/26/2024	02/22/24					

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
					(Th...		Brown							
	<p>Austin Brown Sent Thu Feb 22, 2024 at 09:18 am EST</p> <p>Q: W2 27 Specific Notes and Details #3 – Please give better clarity to this note. Is there something more to us needing to have our installation done in the “pre-fabricated” walls prior to enclosing walls? This doesn’t seem to be any different than if the walls were field assembled.</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Thu Feb 22, 2024 at 02:27 pm EST The intent of this note is to clarify that this WC might need to travel to the pre-fabrication site of where these walls are pre-fabricated to install in-wall rough-ins if needed.</p>													
21	Meter vault to site water line size	Open		None	Singh, Romica (Ki... Szeszulski, Sami ...	02/22/2024	Austin Brown	02/26/2024			Singh, Romica (Ki... Szeszulski, Sami ...			
	<p>Q: Austin Brown Sent Thu Feb 22, 2024 at 09:17 am EST On sheet 6.1, coming from the meter vault to the site, there is a 4” water line and a 2.5? I am having a hard time figuring out if it is a 2.5”, please confirm.</p>													
20	HP Control Points	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
	<p>Austin Brown Sent Thu Feb 22, 2024 at 09:13 am EST</p> <p>Q: M8.4 Please Confirm what points are to come with the HP Controls. “UNITS THAT ARE PROVIDED WITH PACKAGED OR SEMI PACKAGED CONTROLS SHALL BE CAPABLE OF INTERFACING / INTEGRATING INTO THE BMS.”</p> <p>A: Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 09:12 am EST Coordination of points need to occur with submitted and purchased equipment. 221125-090-LSD_Willow_School-20-HP_Control_Points-2024-02-22.pdf</p>													
19	Control Valves & Controls Conduit	Closed		None	Singh, Romica (Ki... Szeszulski, Sami ... Dobbs, Andrew (Th...	02/22/2024	Austin Brown	02/26/2024	03/05/24					
	<p>Austin Brown Sent Thu Feb 22, 2024 at 08:57 am EST</p> <p>Q: General Please Confirm who is responsible for the control valves on the equipment with factory controls.</p> <p>Will there be a conduit for Controls, provided by Electrical, between the buildings?</p> <p>Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 09:15 am EST As indicated in the schedules (VUV and HP), the unit shall be provided with control valve from factory. A: CM (Christman) to coordinate who provides final valve. CM (Christman) to coordinate required conduit between buildings as required and ensure scope is covered. 221125-090-LSD_Willow_School-19-Control_Valves_amp_Controls_Conduit-2024-02-22.pdf</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Thu Feb 22, 2024 at 02:24 pm EST WC 27 to provide and install control valves for the mechanical equipment. Kingscott, please confirm if any of the technology conduits are for controls?</p>													
18	RTU Controls: Factory supplied or contractor supplied	Closed		None	Szeszulski, Sami ...	02/22/2024	Austin Brown	02/26/2024	02/28/24					

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
					Singh, Romica (Ki...									
	<p>Austin Brown Sent Thu Feb 22, 2024 at 08:39 am EST</p> <p>Q: M8.2 Please Confirm ALL RTU Controls and points are by Factory. "CONTROLS CONTRACTOR TO COORDINATE WITH THE REFRIGERATION EQUIPMENT FOR FINAL CONTROL POINTS"</p> <hr/> <p>Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 09:16 am EST SES will update Note 2 in RTU schedule to indicate controls by TCC. 221125-090-LSD_Willow_School-18-RTU_Controls_Factory_supplied_or_contractor_supplied-2024-02-22.pdf</p>													
17	Kitchen Controls	Closed		None	Dobbs, Andrew (Th... Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
	<p>Austin Brown Sent Thu Feb 22, 2024 at 08:38 am EST</p> <p>Q: M8.1 Please Confirm all of the Kitchen MAU and EF Controls are by FSEC - TCC Contractor has one point (BACnet) connection.</p> <hr/> <p>Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 09:18 am EST FSEC is providing the hood controller only, and a BMS drop is required for that. A: However, MAU, EF, and wiring between hood panel and controllers shall be by TCC. All points need to be coordinated with the submitted equipment and between all trades (TCC, FSEC, EC, and MC). 221125-090-LSD_Willow_School-17-Kitchen_Controls-2024-02-22.pdf</p>													
16	UV Controls: Provided by Contractor/Manufacturer	Closed		None	Szeszulski, Sami ... Singh, Romica (Ki...	02/22/2024	Austin Brown	02/26/2024	02/28/24					
	<p>Austin Brown Sent Thu Feb 22, 2024 at 08:37 am EST</p> <p>Q: M8.1 Please confirm if the Unit Ventilator controls are provided by the manufacturer or provided by the controls contractor. In the past, this has been an item provided by the controls contractor for Lansing Schools projects.</p> <hr/> <p>Romica Singh (Kingscott) Responded Wed Feb 28, 2024 at 09:19 am EST VUV's are to be supplied with Modine controls capable of interfacing with the BMS system and the TCC shall ensure the BMS can read points. 221125-090-LSD_Willow_School-16-UV_Controls_Provided_by_Contractor_Manufacturer-2024-02-22.pdf</p>													
15	Tree Removal	Open		None	Szeszulski, Sami ...	01/30/2024	Austin Brown	02/03/2024		Brown, Austin (Th...				
	<p>Austin Brown Sent Tue Jan 30, 2024 at 01:45 pm EST</p> <p>Q: Please find attached images and aerial view of trees not noted on the demolition drawings. Please verify if the intent for these trees and shrubs is to be demolished, it appears they are fairly young (5-7 years old; 6-9' tall). 23410e15-ac71-48c0-8612-e2d7b75a621d.pdf Willow Tree Demolition RFI.pdf</p> <hr/> <p>Sami Szeszulski (Kingscott) Responded Mon Feb 5, 2024 at 06:37 am EST A: After review with Kristina at LSD, the trees can be demolished. DEMO RFI 15_Existing Trees_response.pdf</p>													

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
14	Air Monitoring	Closed		None	Dobbs, Andrew (Th...	12/08/2023	Austin Brown	12/12/2023	12/08/23					
<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 08:08 am EST Is BDN handling air monitoring or are we provided own 3rd party clearance testing?</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Fri Dec 8, 2023 at 10:11 am EST BDN is handling air monitoring.</p>														
13	SESC Permitting	Closed		None	Dobbs, Andrew (Th...	12/08/2023	Austin Brown	12/12/2023	12/08/23					
<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 08:07 am EST Per the City of Lansing, the easiest way to handle SESC permits for this project is for the earthwork or CM to apply for it. Can you clarify how the permitting will be done for this project?</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Fri Dec 8, 2023 at 10:34 am EST Scopes will be adjusted in an addendum for CM to apply and pay for permit. WC 01 will be responsible for all installing and maintaining all SESC measures and working with the city directly on correcting any deficiencies.</p>														
12	Insurance Requirements	Closed		None	Dobbs, Andrew (Th...	12/08/2023	Austin Brown	12/12/2023	12/08/23					
<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 08:00 am EST Are the insurance requirements provided in the sample subcontract accurate for this project?</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Fri Dec 8, 2023 at 10:44 am EST Yes</p>														
11	Liquidated Damages	Closed		None	Dobbs, Andrew (Th...	12/08/2023	Austin Brown	12/12/2023	12/08/23					
<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 08:00 am EST Do liquidated damages apply to this project?</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Fri Dec 8, 2023 at 10:48 am EST Per A134-2019 Modified, 6.1.7 Liquidated Damages are not applicable.</p>														
10	Water & Sanitary Sewer Direction	Closed		None	Szeszulski, Sami ...	12/08/2023	Austin Brown	12/11/2023	12/12/23					
<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 07:59 am EST From which direction do water and sanitary sewer enter the building?</p> <p>Sami Szeszulski (Kingscott) Responded Tue Dec 12, 2023 at 04:38 am EST We believe the sanitary and water services are located on the west side of the building, see the attached demolition plan (C2.1) for location. Please field verify and refer to existing building plans to confirm.</p> <p>A: Spalding DeDecker Collin DePrekel Dated: 12/11/23 2023_12_11_C2.1_Demolition Plan_Addendum 1.pdf</p>														
9	Demolition Contractor - Underground Utilities	Closed		None	Szeszulski, Sami ...	12/08/2023	Austin Brown	12/11/2023	12/12/23					
<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 07:59 am EST</p>														

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	<p>Are demolition contractors required to completely remove underground utilities shown on drawing C2.1? The demolition notes below the keynotes state abandonment and capping / plugging procedures that conflict with complete removal.</p> <p>Sami Szeszulski (Kingscott) Responded Tue Dec 12, 2023 at 04:44 am EST Please see the attached updated sheet C2.1 for clarification. The storm sewer along the east side of the building is either being removed (keynote 10 - south portion) or abandoned in place (keynote 13-north portion).</p> <p>A: Spalding DeDecker Collin DePrekel Dated: 12/11/23 2023_12_11_C2.1_Demolition Plan_Addendum 1.pdf</p>													
8	Compaction Testing	Closed		None	Dobbs, Andrew (Th...	12/08/2023	Austin Brown	12/12/2023	12/08/23					
	<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 07:58 am EST Who will be responsible for compaction testing?</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Fri Dec 8, 2023 at 11:05 am EST The owner is hiring a 3rd party testing company that will do the compaction testing.</p>													
7	Demolition Contractor - Stabilized Entrance Requirements	Closed		None	Dobbs, Andrew (Th...	12/08/2023	Austin Brown	12/12/2023	12/08/23					
	<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 07:57 am EST The SESC plan calls out (3) stabilized construction entrances to be provided. How many will the demolition contractor be responsible for providing?</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Fri Dec 8, 2023 at 11:38 am EST WC 01 to provide, install, and maintain 2 of the 3 stabilized construction access road. The two that WC 01 will install are the one in the SE corner of the site and the one in the middle of the north side of the site. The one in the NW corner will be provided and installed by a future WC after the underground detention system is installed where that drive goes.</p>													
6	Existing Foundation Plan Request	Closed		None	Szeszulski, Sami ...	12/08/2023	Austin Brown	12/11/2023	12/12/23					
	<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 07:56 am EST Are there existing foundation plans available for the SE addition and gymnasium? Provided as-built drawings do not show these areas.</p> <p>A: Sami Szeszulski (Kingscott) Responded Mon Dec 11, 2023 at 09:12 am EST Yes, this document is available. Please see attached drawing, to be issued as Addendum 01, issued for Reference Only. 2023_12_11_C4.2_Existing Foundation Plan for Reference.pdf</p>													
5	Demolition Scope - Clear & Grub Site	Closed		None	Dobbs, Andrew (Th...	12/08/2023	Austin Brown	12/12/2023	12/08/23					
	<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 07:55 am EST Are demolition contractors required to clear and grub the entire site or will this be handled in another bid package by a site worker?</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Fri Dec 8, 2023 at 11:37 am EST WC01 is responsible for clearing and grubbing the site to the extent shown on C2.1 Note 18. WC01 responsible for clear and grub to the limits shown, including removal of all signs, posts, footings, gravel, brush, shrubs, trees not indicated for protection, including roots. This WC is NOT responsible to strip topsoil and stockpile on site.</p>													
4	Topsoil Requirements	Closed		None	Dobbs, Andrew (Th...	12/08/2023	Austin Brown	12/12/2023	12/08/23					
	<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 07:44 am EST</p>													

The Christman Company

#	Subject	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
	<p>Will topsoil only be required to be stripped the width of a dozer bucket around disturbed areas and stockpiled for later use? Or will demolition contractors be required to strip and stockpile topsoil within the entire work boundaries? It is our opinion that stripping and stockpiling topsoil outside of disturbed areas should be handled by the site contractor along with providing new topsoil at unknown extents for build back purposes to eliminate unnecessary overlap in costs.</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Fri Dec 8, 2023 at 11:42 am EST Stripping and stockpiling topsoil will not be in WC 01's scope of work. All stripping and stockpiling of topsoil to be by future WC 02.</p>													
3	Air Monitoring Requirement	Closed		None	Dobbs, Andrew (Th...	12/08/2023	Austin Brown	12/12/2023	12/08/23					
	<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 07:41 am EST Will air monitoring be a 3rd party contracted by the owner?</p> <p>A: Andrew Dobbs (The Christman Company (LAN)) Responded Fri Dec 8, 2023 at 11:42 am EST BDN will be handling 3rd party air monitoring for abatement activities.</p>													
2	Foundation ACM Friable/Non-Friable	Closed		None	Burnham, Hanna (K... Szeszulski, Sami ...	12/08/2023	Austin Brown	12/12/2023	12/12/23					
	<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 07:39 am EST Do the foundations with weatherproofing applied need to be treated as non-friable ACM material to the landfill for pricing purposes between all bidders?</p> <p>A: Sami Szeszulski (Kingscott) Responded Mon Dec 11, 2023 at 08:07 am EST It is not in the AE team scope to comment on the presence or handling of asbestos related materials. We defer to Christman to handle this question.</p>													
1	Hazardous Material Waste	Closed		None	Szeszulski, Sami ... Burnham, Hanna (K...	12/08/2023	Austin Brown	12/12/2023	12/12/23					
	<p>Q: Austin Brown Sent Fri Dec 8, 2023 at 07:36 am EST A survey was not provided for universal wastes i.e. bulbs, ballasts, chemicals, refrigerants, thermostats, etc. These items are required to be removed prior to demolition and quantities are typically provided. Please let us know how these are to be handled.</p> <p>A: Austin Brown (The Christman Company (LAN)) Responded Tue Dec 12, 2023 at 08:18 am EST Demolition contractor is responsible for the removal of all universal wastes of unknown quantities.</p>													

The Work Category (W.C.) Description is included as a guide for Prospective Bidders to summarize the scope of work involved with the work category. The description included is **not** a final summary of the scope of work and should not be construed as such. **All** Contract Documents should be used, as a reference in preparing the Bid Proposal and any omissions in the proposal does not relieve the successful bidder of the responsibility to perform this work.

W.C. No.	Category Description	Specification Reference
02	Earthwork / Site Utilities	Division 00, Division 01, 311000, 311012, 311018, 312000, 323220, 331100, 333100, 334100, 334605
03	Geothermal	Division 00, Division 01, 232113, 232610, 232620, 232630, 232650
05	Site Concrete	Division 00, Division 01, 033000, 311012, 321313, 321373
06	Asphalt Paving	Division 00, Division 01, 311012, 321216, 321415
07	Fencing	Division 00, Division 01
08	Landscaping	Division 00, Division 01, 311012, 329200
10	Structural Concrete	Division 00, Division 01, 033000, 033543, 311012, 096119
11	Masonry	Division 00, Division 01, 042000, 072100, 072119, 083113
12	Structural Steel	Division 00, Division 01, 051200, 052100, 053100, 055000, 118129
13	Waterproofing/Dampproofing	Division 00, Division 01
14	Roofing & Sheetmetal	Division 00, Division 01, 061053, 061600, 075323, 075416, 076200, 077100, 077200
15	Metal Siding	Division 00, Division 01, 074213.13, 074293, 077100
18	Glass/Glazing & Aluminum Entrances	Division 00, Division 01, 084113, 084523, 087100, 088000, 088700
19	Joint Sealants	Division 00, Division 01, 078413, 078446, 079200

20	General Trades	Division 00, Division 01, 035113, 061053, 061600, 081113, 081416, 081816.23, 083323, 087100, 101100, 101416, 101419, 101423, 101423.16, 102113.17, 102600, 102800, 104400, 105113, 116623, 116653, 122413, 123000, 123216, 123616, 123661.16, 127600, 102123	ADD 1 - Moved from WC 21 to WC 20
21	Walls & Ceilings	Division 00, Division 01, 054000, 054400, 061600, 072100, 072500, 074200, 083113, 092216, 092900, 095113, 098433, 098436	
22	Hard Tile & Terrazzo	Division 00, Division 01, 093013, 096723	
23	Carpet & Resilient Flooring	Division 00, Division 01, 096513, 096516, 096519, 096566, 096813	
24	Painting & Wallcovering	Division 00, Division 01, 097200, 099124, 099600	
25	Playground Equipment	Division 00, Division 01, 116800, 329410,	
26	Fire Protection	Division 00, Division 01, 083113, Division 21, 331100	
27	Mechanical & Plumbing Systems	Division 00, Division 01, 077200, 083113, Division 22, Division 23, 311012, 312000, 331100, 333100	
28	Electrical Systems	Division 00, Division 01, 077200, 083113, 115213, Division 26, Division 27, Division 28, 311012, 312000	
29	Food Service Equipment	Division 00, Division 01, 113013, 114000	

Section 00210 - Special Provisions

1. General - All Bidders are responsible to review all work categories descriptions, and report any conflicts or ambiguities which may affect the execution of their Work Categories. All Bidders are responsible to review all Bidding Documents and become familiar with them to coordinate their work accordingly. Work Category descriptions should in no way be construed as being all-inclusive. Should a conflict exist between the Work Category description and other Bidding Documents, the Work Category description shall prevail and take precedence. Bidders are required to bid the entire Work Category and may bid more than one Work Category.
2. Electronic Documentation – In an effort to promote sustainability, information shall be conveyed electronically to the greatest extent possible.
3. Labor Requirements – This project has no labor rate requirements.
4. Construction Waste Management And Disposal – Review Spec Section 017419 Construction Waste Management And Disposal.
5. General Commissioning Requirements – Review Spec Section 019113 General Commissioning Requirements.
6. Indoor Air Quality Management Plan – During Construction. Comply with site specific IAQ Management Plan for this project.
7. Parking – Limited parking is available on-site. Additional parking is available on side streets.
8. Project Scheduling - A preliminary project schedule has been included within the Bidding Documents for your review and use. As input from the Trade Contractors is provided and as progress begins, this schedule will be periodically updated and re-issued. Each Trade Contractor is required to become familiar with the preliminary schedule and sequence their work accordingly. Activity durations shall be maintained regardless of actual start dates.
9. Post Bid interviews – We will be holding post bid interviews for the low qualified bidders immediately after bids are received. It is essential to the interview process that the primary and secondary Trade Contractors are included in the meeting, as well as the intended project foreman and project manager. The purpose of the interview will be to discuss the bids but will also focus on schedule, submittals, safety, site utilization and unique project requirements. These are to be conducted week of February 26th
10. Shop Drawings & Submittals –The Trade Contractor shall review, approve in writing, and submit through the Construction Manager all submittals within two weeks after contract award at the latest, as to cause no delay in the work or in the work of any separate Trade Contractor. Shop drawings, product data and samples shall be properly identified as specified or as the Construction Manager may require. At the time of submission, each Trade Contractor shall inform the Construction Manager in writing of any deviation in the shop drawings, product data or samples from the requirements of the Bidding Documents.

For Re-Submittals – Each Trade Contractor shall make any corrections required by the Construction Manager or Architect and shall resubmit the shop drawings, product data or new samples until approved. Each Trade Contractor shall direct specific attention, in writing or on resubmitted shop drawings, product data or samples, to revisions other than those requested by the Construction Manager or Architect on previous submittals. Refer to Section 01300 Submittals for definitions of Action Markings.)
11. Procure –The Christman Company has set up a Procure project for the construction documents for the This website will be used for (not limited to) the following:

- a. Submittal upload and approvals
 - b. RFI upload and approvals
 - c. Updated drawings
 - d. Updated schedule
 - e. Meeting minutes
 - f. Project directory
 - g. Testing reports
 - h. Notice of commencement
 - i. Safety Information
 - j. Quality Control Logs
 - k. Punch Lists
12. Submittal Uploads –All submittals must be submitted to The Christman Company via Procore and must be the original PDF document. Hard copies or re-scanned documents will not be accepted. The only exception is actual samples (paint draw downs, masonry, etc.); however, all brochures and product data related to these samples must be submitted electronically. For any questions regarding this process, email austin.brown@christmanco.com.
13. Schedule of Values (SOV) – Per Section 01370 Schedule of Values, submit for approval through the Trade Contractor Portal. Once approved, adhere to the Application for Payment process. The SOV must be divided up by: building, type of work, general conditions, supervision, insurance, submittals, closeout, labor and materials. No single item can be greater than \$100,000.
14. Application for payment – Create and Submit the Pay Application through the Trade Contractor Portal. Payment period: Signed payment applications are due the 25th of each month. Each request for payment shall be provided with a fully executed sworn statement along with its relative unconditional waivers. All subcontractors and suppliers are to be listed on the sworn statement.
15. Change Management – Refer to Sections 01150 and 01019 for definitions, but the following change management documents will be utilized on this project: Bulletins
16. Existing Services – There are no existing utilities to be assumed for this project, all demolition activities will remove any existing storm, water, sewer, gas, electricity and internet connections. Trades will be responsible to furnish and supply their own required connections. Temporary power for the use during construction is the responsibility of the electrical contractor for use by other trades, and must accommodate standard 120V equipment as necessary. Any special requirements for electrical feeds must be supplied by that trade. Temporary water is to be the responsibility of the mechanical contractor to feed a single hydrant line to the project site, with special provisions to accommodate city regulations, and protect against frost/freezing in the winter months.
17. Temporary Power – Please note that there will be no temporary power/lighting provided on site. All site contractors will be responsible for providing their own power and lighting within MIOSHA standards. WC 28 will set up power and lighting within the building immediately after concrete has been installed. Temp power will include 20 AMP 120V. Any additional power needed is the responsibility of the contractor needing the power.

18. Hoisting – In general, any hoisting activities required to be used on-site must be reviewed in advance with Construction Manager for coordination of site logistics, safety procedures, access, lift swing areas, duration, and overall activities relating to the hoisting equipment.
19. Site Boundaries – Boundaries of this site are established in the site plans and surveys conducted by required parties,
20. Existing Facilities – There are no existing facilities on this project. Portable chemical toilets will be provided and are to be utilized for the duration of the project.
21. Material Deliveries and Staging – Due to the limited lay-down area available, all material deliveries must be coordinated with the Construction Manager a minimum of 24-hours in advance of said delivery. At no time, will delivery trucks be allowed to stage or park on existing roads and parking lots. Queuing for trucks will be available on-site at designated locations as coordinated with the Construction Manager. If deliveries require traffic control, the Trade Contractor is required to provide flagmen accordingly. All Trade Contractors are responsible for directing responsible trucks into project site, unloading of materials, handling, protection and storage of all received equipment. The Owner and Construction Manager will not accept deliveries.
22. Communication and Phones – All Trade Contractor field supervision shall have cellular phones available for communication with The Christman Company's field personnel. All project managers shall have email access for communications with The Christman Company's office personnel. Cell phone use by trade personnel (non-supervisory) will not be permitted, except during breaks or lunch.
23. Independent Testing, Inspections and Commissioning – The Owner has arranged independent testing for certain portions of the project. All Trade Contractors are to cooperate and provide access and assistance for the independent testing and inspections to be performed. These services include at a minimum: soil/material testing and commissioning.
24. Layout – The Construction Manager will provide two perpendicular control lines and one benchmark indicated on the documents .
25. Noise, Odors & Vibration – Due to close proximity of residential homes, vibration must be closely monitored as to not cause any damage to the existing building and facilities. Odor causing chemicals, adhesives, paints, cleaning supplies must have MSDS sheets submitted and approved by the Construction Manager prior to use. All equipment shall be self powered and all diesel powered equipment shall be operated with "Bio-diesel" fuels and/or emission "scrubbers" to reduce exhaust fumes.
26. Jobsite Safety Orientation – All Trade Contractors of any tier and visitors entering this jobsite will be required to check-in with the Construction Manager upon arrival at the project site. Check-in procedures will include the review and acknowledgement of the Construction Managers Project Specific Safety Orientation and Policies. All construction personnel will be required to wear The Christman Company issued safety sticker when working on or visiting this jobsite).
 - a. Safety (see contract form section for project safety program) - It is a fundamental value of the Construction Manager that safety is always a primary consideration. There is no phase of the project that has greater importance than accident prevention and the preservation of human resources. The Construction Manager's safety program is stringent and rigorous. The following represents a few important pre-construction requirements that apply to this project. Before any awarded Trade Contractor starts work on-site, the following requirements shall be satisfied:
 - i. Provide a copy of Trade Contractor's site specific safety program.

- ii. Attend Construction Manager's project specific safety orientation program, which includes review of our safety video, review of project specific written safety program, review of Project Specific Infection Control Policy, sign-in and badging requirements.
 - iii. No tobacco products, including but not limited to cigarettes, cigars, chewing tobacco, etc. are permitted on Lansing School District premises.
 - iv. Provide a copy of Safety Data Sheets (SDS) for all proposed materials.
 - v. Hardhats, High Vis, and safety glasses are to be worn at all times. Additional personal protection equipment will be worn appropriately based on the work performed.
 - vi. Designate a Safety Representative(s) who will be working on-site – Provide telephone numbers and emergency telephone numbers.
 - vii. Hoisting over occupied areas will not be permitted unless areas are vacated or a controlled access program initiated.
 - viii. Hot work permits shall be obtained as required, including fire watch requirements.
 - ix. Shut down notifications shall be obtained as required with a minimum of five (5) working days advance notice.
 - x. An understanding of our safety program and specifically our policy that in the event of an injury or near miss, all parties involved will be required to take a drug screening test immediately. Failure to perform the required test will result in removal from the site.
 - xi. Fall protection shall be worn and used, 100% of the time, by all persons when there is exposure to a fall greater than six (6) feet unless other provisions such as guardrails, safety nets, or fall restraints have been provided. This includes, but is not limited to, steel erection (including connecting, bolting-up, decking, welding or any other steel erection activity), pre-cast erection, roofing activities and masonry work including overhand laying operations.
 - xii. Hot Work Permits - Hot work permits will be required during all cutting, grinding, welding and torch cutting activities, including fire watch requirements. These permits are to be filled out in the jobsite trailer with a copy of it to be placed at the place of hot work.
27. Unsupported Walls – This project will include unsupported walls exposed to wind during construction. All contractors working within the restricted zones will be required to have proper training per the MIOSHA Part 2 Masonry Wall Bracing requirements.
28. Progress Cleanup – A composite clean-up crew will be assembled each Wednesday immediately after lunch. Each Trade Contractor shall provide labor and supplies as directed by the Construction Manager to support this effort. This does not relieve any Trade Contractor of their responsibility to cleanup all debris resulting from their own operations on a continuous basis and discard waste into jobsite dumpsters provided by the Construction Manager (as identified in section 01524), Each Trade Contractor shall clean all surfaces and leave the work area "broom clean" or its equivalent, unless otherwise specified.

If contractors do not maintain their work areas or provide the proper resources for our daily clean up, The Christman Company will provide one warning to the contractor. If the problem continues after the warning, The Christman Company will provide labor for the relative clean-up at the cost of the contractor.

29. Drug Testing – Upon incident requiring drug testing (including but not limited to accident, damages, injury) the Construction Manager may require the responsible parties, or parties involved to submit a drug test within 24 hours of the incident.
30. As-Builts – As-Builts must be accurately updated throughout the project. At the end of the project, the trade contractor must update the As-Builts and forward the following to The Christman Company: CAD drawing file, PDF file and two full size hard copies.
31. Warranties – The contractor shall guarantee all materials and work for a period of two (2) years from Substantial Completion. Before final payment, Contractor must provide a letter of guarantee confirming the effective date and duration of the guarantee.
32. Waste Management/Indoor Air Quality Plan – The Construction Manager's Waste Management Plan and Indoor Air Quality plan will be strictly adhered to for this project. The trade contractors are responsible to provide the necessary resources to follow these guidelines.
33. RFI's – RFI's must be submitted to Projects@lansingschools.net prior to the specified RFI cutoff date to be considered for the Architect's review. RFI's received after the cutoff date will not receive an answer from the Architect, if any answer is provided. All Pre-bid RFI's will be published through an Addendum. During construction, all RFI's must be handled through Procore.
34. Work Hours - Common jobsite working hours shall be 7:00 am to 3:30 pm, Monday through Friday. Any overtime, or working hours needed outside of the window described above, requires advance approval by Construction Manager. The Construction Manager reserves the right to alter the working schedule to 4/10s.
35. Hazardous Materials – There are no assumed hazardous materials on this project.
36. Sealant Schedule - Sealants are to be installed as listed in the schedule below. WC 19 has providing and installing all sealants on the project unless called out otherwise. If sealants are required within a product assembly, the work category installing that assembly is responsible for that sealant.

Sealant Schedule		
<u>Item to be sealed</u>	<u>Responsible WC</u>	<u>Comments</u>
Curb, Sidewalk, Concrete Paving	WC 05	
Asphalt Paving	WC 06	
Concrete Paving Joints	WC 19	
Masonry Systems	WC 19	
Roofing Systems	WC 14	
Metal Panel Systems	WC 15	For sealants within assemblies
Glazing Systems	WC 18	For sealants within assemblies
Face of Glazing Systems and Panel Systems	WC 19	
Door Frames	WC 19	
Plumbing fixtures	WC 19	

Tops and Sides of Rated Walls	WC 19	If rated walls come premanufactured, caulking between wall section joints by WC 21
Top of Base and Tile	WC 19	
Countertops	WC 19	
Wall Penetrations	By WC that Created Penetration	
Structural Concrete Slab Joints & Sealants	WC 10	

37. All materials within the footprint of the building (after the building has been enclosed and concrete floor poured) must be stored on pallets or movable rubber wheeled carts. The intent is all materials, equipment, etc. to be easily movable at all times.

End of Special Provisions Section 00210

←
ADD 1

Work Category No. 02 – Earthwork and Site Utilities**Work Included:**

The subcontractor shall timely perform all Earthwork and Site Utility work, as detailed below, in accordance with the contract documents (including Bidding Requirements, Proposal Section, Contract Forms, General Conditions, Supplemental Conditions, General Requirements, Addenda, etc.), including, but not limited to, the following Specification Sections and Work Scope Items. Unless otherwise noted, this contractor is responsible for all items specified in the following specifications sections:

Reference Work Category Index

Work Category Notes:

1. Provide all utility demolition as shown or specified including, but not limited to water lines, fire lines, concrete pipe, hydrants, backflow preventors, sewer and storm cleanouts, pipe, and manholes, irrigation pumps, monitoring wells, access ports, etc.
2. Provide all necessary items for complete construction and relocation of the water systems to within 5' of the building as shown or specified including all associated structures, manholes, pressure testing, bacteria testing, flushing, drain basins, meters, backflow preventors, wet taps, temporary piping, valving and capping in existing piping for permanent and final connections, demolition and re-working of existing (as called out per the plans), concrete thrust blocks and restraints, inspections, testing and certifications, and all agency fees and agency work as required.
3. Furnish and install all piping, structures and accessories required for the performance of the storm and sanitary work to within 5' of the building as shown or specified including all associated structures, as required. Clean the systems upon completion of the work and prior to acceptance by the Owner. Include final adjustment of structures to match final grades.
4. Provide all mass excavation, grading, compaction, backfill, topsoil, berms and off-site borrowed fill to final subgrade elevations as shown or specified, including backfill required around the building foundations, foundation walls, retaining walls, sidewalks, curb and gutters, drives, asphalt paving, etc. This is to include all rough and final grading to +/- 0.1'. All unsuitable soils and materials shall not be permitted to be stockpiled and must be removed on a daily basis.
 - a. Provide excavation and backfill needed at header trenches for Geothermal scope. Coordinate with WC 03.
5. Furnish, install, and grade topsoil. Include necessary preparation of the soil (plowing, disking, rototilling, additives, etc.) for planting, seeding, etc. Initial placement to within +/- 1" is by this WC. Prior to importing material, follow specifications and obtain required approvals for topsoil, trees, etc. Provide all raking, leveling and removal of miscellaneous stones and debris necessary to obtain final grades. This contractor is responsible for the removal and legal disposal of debris.
6. Furnish and install soil erosion control measures as shown and/or specified, silt fencing is to be already installed by Demolition Contractor, this WC to maintain and modify as necessary for new construction needs. Maintain soil erosion control measures during the course of this project. Remove erosion control and clean all catch basins and/or pipe as required at completion of project. All inspection logs to be copied directly to the Construction Manager and copies shall be kept within a soil erosion control manual, located within the Construction Manager's trailer. Any modifications to the soil erosion control measures will be funded from allowance.
7. Provide all cutting, patching and repairs by a qualified person as required of existing roadways, landscape

areas, paving, hardscape, etc. disturbed by this scope of work.

8. Provide all required tree protection, sedimentation and water pollution control shown, specified or necessary to perform the work in this package or the work of others, including maintenance and removal upon completion and acceptance of work by the governing agency.
9. Provide all dewatering (ground and rain water) as necessary until final grade and complete and operational storm system is available. All ground water will be diverted so as not to interfere with construction or public traffic flow and the operations of the existing facility. All drainage inlets shall be protected as specified. Maintenance of dewatering system to be considered a 24 hour/7 day week assignment.
10. This subcontractor shall participate in all coordination meetings (internal and meetings with local agencies and those having jurisdiction) concerning the relocation of existing utilities so as not to impact the existing facility operations. Include temporary utilities and provisions as necessary to allow relocation of existing utilities without interruption of service to existing facilities. This contractor to provide for temporary support and protections for any existing utility or other piping encountered during performance of this work. Include verification of existing utility locations prior to excavations, and monitoring during excavation and backfill.
11. Provide all right-of way bonds, etc. as required by city, county, and state agencies relative to the work within this package.
12. Prior to any imported soils entering project site, provide material analytical soils reports and documentation that material is free of contaminants/hazardous materials.
13. Clean roads and staging areas of any tracking dirt or debris generated during site clearing, excavation, earth retention, foundations/slab-on-grade and caisson activities as necessary or as directed by the Construction Manager. Dust control and street cleaning on a regular basis as job conditions require.
14. Furnish and install all under-drain/foundation drainage systems as shown and specified.
15. Strip and stockpile topsoil for re-use. Re-spread topsoil to within specified tolerances, upon completion of rough grading. Large clumps of dirt and stones shall be removed from topsoil.
16. Where existing asphalt/concrete paving is removed for new utilities, place compacted aggregate base to bottom of asphalt for asphalt patch by others. If asphalt cannot be patched immediately, place aggregate to top of adjacent asphalt. Remove additional aggregate at such time when asphalt can be placed.
17. Install, maintain, and remove temporary roads for concrete & delivery trucks to move under their own power.

Specific Notes and Details:

The following details and notes are included in this Work Category; this list is to clarify the specific items noted below and does not exclude other details or otherwise limit the scope of work for this Work Category.

1. Furnish and install underground detention systems, refer to all details on drawings C6.3, C6.4.
2. Furnish and install meter/valve pit.
3. Furnish and install perforated drain tile & peastone at all locations as required, including beneath playground surfaces.
4. Furnish and install all Catch Basins, outlet control structure, inlets, storm lines, pretreatment structures, gas lines, sanitary lines, fire suppression/service lines, cleanouts, manholes, trench drain systems.
 - A. Coordinate with local municipality on all installations for gas piping and systems.

5. Responsible to install all lines beyond 5' of building footprint.
 - A. Exception to be made for the Schier GB-1000 Grease Interceptor, this will be furnished and installed by WC 27, this WC responsible to coordinate installation of sanitary line, and responsible to tie into grease interceptor outlet & complete installation beyond the outlet.
6. Include connections to existing utilities as required at multiple locations. Include any sawcutting, breaking, removal, of existing roadways and complete repair and reestablishment of paving where patching is required for any connections in the existing street.
7. This WC to provide temporary construction drives and accesses, as well as approaches as required. Include maintenance.
8. Snow removal required by this WC in temporary drives, parking lots/laydown areas, and material storage areas as required by the Construction Manager. Snow removal shall be tracked on a Time & Material basis,
9. Trench and backfill as necessary all footings and foundations, ensuring excavations are shored, sloped, or stepped to allow forming and pouring of concrete. Removal of any frost and protection of open trenches is the responsibility of this WC.
10. Provide and install subbase for permanent parking surfaces and walkways.
11. This subcontractor will establish a concrete wash out area, maintain, remove, and properly dispose of concrete washout materials offsite periodically or as directed by the Construction Manager.
12. Coordinate with WC 08 (landscaping) on installation of exterior amphitheater seating. This WC responsible for all sub-base requirements ~~including geotextile fabric and crushed stone as shown on amphitheater detail C5.2.~~ up to 1" of required grade. Crushed stone, geotextile fabric, and seating stones shall be furnished and installed by others (WC08).

ADDENDUM 1 – REVISE NOTE 12 FOR WC 02

13. Construct an adequately sized crane pad. Remove crane pad when directed by Construction Manager and restore grades to there original grades or as shown on drawings. The crane pad shall be constructed and maintained as a flat level work platform suitable for heavy cranes. Confirm size, length and location with trades utilizing cranes. To be funded from your allowance.
14. This WC to perform all work indicated on drawing C2.I Demolition Plan as highlighted in BLUE, including items like saw cutting of curbs, removal of pavement, protections of existing curbs, utilities, etc., cutting and removing of pavement. Note all demolition notes not highlighted is to be done by others (Asbestos Abatement Inc.). This WC shall be responsible for all patching/repair when complete including temporary or permanent measures.

Related Work by Others:

1. Refer to Sections 00210 and 01019 for testing requirements and responsibilities.
2. Imported topsoil to be furnished and placed by WC 08. Topsoil will be raked by WC 08 as required.
3. Final connection of utilities (sewer, water and gas) from 5' outside of building and all work inside of the building by W.C. 26, 27, and 28.
4. Mechanical and electrical contractors will perform excavation, backfill, compaction and removal of spoils within the building, as needed.
5. SESC Permit held by Construction Manager, permit fees and inspections are paid for. This WC responsible to maintain, correct, modify, and install any measures called out by the SESC drawings, and required by

the local municipality.

6. Removal of spoils from drilling operations by Geothermal system to be by others.

Allowances:

This Contractor shall include in their Base Bid a Construction Manager's allowance of \$100,000. Reference Section 01020 for specific instructions on allowances. Intent if for additional soil erosion measures, unsuitable soils and crane pads.

Unit Prices:

Unit Prices are to be complete furnished in-place operations, and include all costs, incidental materials and work, insurance, fringes, bonds, engineering, overhead and profit. Reference the Trade Contract Proposal form for unit pricing required.

End of Work Category No. 02

Work Category No. 03 – Geothermal

Work Included:

The subcontractor shall timely perform all Elevator work, as detailed below, in accordance with the contract documents (including Bidding Requirements, Proposal Section, Contract Forms, General Conditions, Supplemental Conditions, General Requirements, Addenda, etc.), including, but not limited to, the following Specification Sections and Work Scope Items. Unless otherwise noted, this contractor is responsible for all items specified in the following specifications sections:

Reference Work Category Index

Work Category Notes:

1. All field layout for this work to be by this work category. Benchmarks have been established within area of work.
2. Prior to mobilizing on-site (within 1-week), meet with the project team to discuss and resolve any issues relating to material ordering, scheduling, safety, site conditions, site logistics, quality control, and sequencing of Work. Prior to this meeting, Subcontractor shall have previously sent a submittal schedule, proposed progress billing schedule of values, site specific safety manual, SDS data, insurance certificate, drug screening information, emergency contact information data and a detailed working schedule to Construction Manager.
3. Provide full-time on-site supervision during the performance of this Work. Supervision will be responsible for coordination, scheduling of manpower and equipment, safety and other activities necessary to achieve safety, quality and scheduling requirements. Supervision shall not be removed from this project without prior consent and approval of Construction Manager.
4. Contractor to provide all signage, barricading, flagman, etc. necessary for the safe performance of the work.
5. Include drilling for hydraulic shafts and removal of spoils. Coordinate schedule and access for drilling equipment with the Construction Manager. This contractor is responsible for dewatering at shaft drilling.
6. Coordinate with the Construction Manager and electrical trade contractor the power requirements and location of same.
7. Prior to beginning installation verify all field conditions and measurements, reporting any discrepancies to the Construction Manager.
8. Provide safety barricades at all the shaft openings. These barricades are to be maintained until the shafts are enclosed and free of fall hazards.

Specific Notes and Details:

The following details and notes are included in this Work Category; this list is to clarify the specific items noted below and does not exclude other details or otherwise limit the scope of work for this Work Category.

1. Furnish all layout and controls for this work category by a qualified surveyor before and after completion of well grid system.
2. Storm sewer installation to be installed concurrently with geothermal system. This work category to work and coordinate closely with excavator and The Christman Company for installation logistics.
3. Cleaning of adjacent roads and entries to be by this work category. Minimum of one cleaning per week. If the roadway is found to be dirty as a result of boring operations this work category is to clean the roadway as necessary.

4. Due to limited areas of staging, aggregate stockpiles will be placed as directed by The Christman Company.
 1. Existing storm, gas, cable, electrical & water utilities will be identified by Subcontractor calling Miss Dig and coordinating with The Christman Company.
 2. One test bore has been installed that is to be utilized.
 3. Excavation of header trenches, sand backfill, and class II backfill with 95% compaction of the 5ft trenches to be by others. Coordination by this work category. Excavated areas shall be properly barricaded and maintained by Excavation Subcontractor.
 4. This work category to supply and install all tracer tape for installation in trenches and all electronic marking balls directly above the bore holes.
 5. Remove all soil spoils and fluids from drilling operations and dispose of offsite. Maintain areas of work and access into and out of project site to support entire geothermal exchange field installations. Contain drilling slurry, well grouting debris and spoils cleanup using vacuum trucks. Complete all prior to parking lot restoration. Water that the site is not taking must be removed by this work category. Do not jeopardize soil erosion control requirements of project.
 6. This work category to provide its own water as needed throughout the installation of the ground heat exchanger. Use of local hydrants is permitted by obtaining a usage permit from the Lansing Board of Water and Light, with a certified backflow prevention device and associated water utilization fees.
 7. Open ends of all ground heat exchanger pipe shall be sealed and clearly marked to prevent contamination before final connections to the header system and accidental on site collisions. This work category to mark each bore with 4-6ft stakes with orange paint or tape. If an unmarked bore is hit it is the responsibility of this work category to repair.
 8. This work category to provide all flushing of the geothermal lines in the sequence outlined in the plans and specifications and documented for review by The Christman Company and the design team.
 9. It is the responsibility of this WC to provide all work up to the manifold, beyond the manifold work by others (WC27). Coordination and on site pre-installation meetings are an expectation for quality work to be performed by both this WC and WC27.
 10. All manifold piping support to be provided by this work category.

Related Work by Others:

1. Excavations down 5' provided by WC02.
2. Geothermal liquid fill provided and installed by others.

ADDENDUM 1 – ADDED NOTE 2 TO WC 03

Allowances:

This Contractor shall include in their Base Bid a Construction Manager's allowance of \$0. Reference Section 01020 for specific instructions on allowances.

Unit Prices:

Unit Prices are to be complete furnished in-place operations, and include all costs, incidental materials and work, insurance, fringes, bonds, engineering, overhead and profit. Reference the Trade Contract Proposal form for unit pricing required.

End of Work Category No. 03

Work Category No. 08 - Landscaping

Work Included:

The subcontractor shall timely perform all Landscaping work, as detailed below, in accordance with the contract documents (including Bidding Requirements, Proposal Section, Contract Forms, General Conditions, Supplemental Conditions, General Requirements, Addenda, etc.), including, but not limited to, the following Specification Sections and Work Scope Items. Unless otherwise noted, this contractor is responsible for all items specified in the following specifications sections:

Reference Work Category Index

Work Category Notes:

1. Furnish and install all fine grading, plants, trees, stone, pavers, soil amendments, fertilizers, seeding, geogrid material, edging, and site furnishings. Includes all labor, material, accessories, and equipment for a complete installation.
2. Lawn cutting and maintenance per specifications.
3. Backfill and compact all excavations created by this work.
4. Furnish and install all drain piping, pre-fabricated assemblies, trench drains, sleeves, etc.
5. Field verification of underground piping, electrical conduit, site utilities, etc., prior to digging, trenching, plowing or spading operations.
6. Provide all necessary staking and anchoring of trees and plants and remove at the end of the warranty period.
7. ~~Furnish and install protective fencing as required for all existing trees as shown and/or required.~~

ADDENDUM 1 - REMOVE NOTE 7 FROM WC 08

Specific Notes and Details:

The following details and notes are included in this Work Category; this list is to clarify the specific items noted below and does not exclude other details or otherwise limit the scope of work for this Work Category.

1. Include seeding of the laydown areas shown on the logistics plan at completion of the project.
2. ~~Install redi-rock amphitheater seating, including everything above 6" crushed stone/6AA stone. Work with WC 02 on coordination and installation timelines.~~

ADDENDUM 1 - REMOVE NOTE 2 FROM WC 08

3. WC02 Amphitheater sub base by others up to 1" of required grade (WC02). Crushed stone, geotextile fabric, and seating stones shall be furnished and installed by this WC.

ADDENDUM 1 - ADD NOTE 3 TO WC 08

Related Work by Others:

1. Refer to sections 00210 and 01019 for testing requirements.
2. Subbase material installed to +/-0.1' by W.C. 02.

Allowances:

This Contractor shall include in their Base Bid a Construction Manager's allowance of \$0. Reference Section

01020 for specific instructions on allowances.

Unit Prices:

Unit Prices are to be complete furnished in-place operations, and include all costs, incidental materials and work, insurance, fringes, bonds, engineering, overhead and profit. Reference the Trade Contract Proposal form for unit pricing required.

End of Work Category No. 08

Work Category No. 14 - Roofing & Sheet Metal**Work Included:**

The subcontractor shall timely perform all Roofing & Sheet Metal work, as detailed below, in accordance with the contract documents (including Bidding Requirements, Proposal Section, Contract Forms, General Conditions, Supplemental Conditions, General Requirements, Addenda, etc.), including, but not limited to, the following Specification Sections and Work Scope Items. Unless otherwise noted, this contractor is responsible for all items specified in the following specifications sections:

Reference Work Category Index

Work Category Notes:

1. Furnish and install all membrane roofing, metal roofing, built-up roofing, roof insulation, roof expansion joints, roof hatches and accessories, gutters and downspouts, overflow scuppers, walkway protection, pre-finished metal coping with cleats, ballast, flashings, copings, gravel stops, reglets, termination bars, trim, sealants, ice and water shield, etc., indicated by the contract documents (not just limited to the roof plan) or as required for a complete installation, including labor, materials, equipment, adhesives, fasteners and accessories.
2. Include removal of perimeter fall protection system in conjunction with roofing installation.
3. Include covered walkway metal roofing, including break metal concealed gutters, and metal flashing. Steel supports by others (WC12).
4. Where perimeter details cannot be completed until the building skin is complete, provide preliminary weather protection (i.e. extend and secure membrane over parapet walls, if required).
5. Coordinate with mechanical contractor and steel contractor for installation of roof curbs for mechanical equipment.
6. Furnish all hoisting, lifting, and handling, etc. of materials as required for this W.C.
7. Provide broom cleaning of concrete and metal deck roof areas, just prior to installation of roofing systems, i.e. tracked dirt, unidentifiable debris.
8. All fire stopping, flashings, roof termination details shall be inspected and documented by Construction Manager prior to being covered up and concealed.
9. All specified warranty requirements shall be met by this W.C., including all costs of inspection and observation by manufacturer's representatives as required.
10. Subcontractor and manufacturer's representatives shall attend a Pre-Roofing Conference at the project site at a time determined by Owner, Architect, and the Construction Manager.
11. Furnish, install and maintain safety barricades and flagging for the duration of the project to be used by all contractors. If this subcontractor creates an opening or leading edge that creates a fall hazard, perimeter protection/guardrails shall be promptly installed by this subcontractor. Fall protection shall satisfy all safety requirements. If this subcontractor requires existing fall protection to be removed or modified, seek prior approval from the Construction Manager, adjust fall protection as needed and promptly restore fall protection to original condition. This subcontractor shall install perimeter protection to meet safety standards before and after concrete decks are poured. Once this subcontractor has completed respective work, an inspection of all perimeter protection shall be conducted by the Construction Manager, and all identified deficiencies shall be corrected by this subcontractor. Perimeter roof protection/guardrails

similar to above, shall be furnished and installed by this subcontractor, constructed and located, as approved by the Construction Manager prior to installation. All perimeter guardrails/protection shall be removed by others as permanent walls and details are constructed.

12. All materials and equipment shall be secured at all times for wind loads.

Specific Notes and Details:

The following details and notes are included in this Work Category; this list is to clarify the specific items noted below and does not exclude other details or otherwise limit the scope of work for this Work Category.

1. Furnish and install roof hatch assembly including associated roof curb.
2. Provide and install roof walkway pads where required as shown on A0.3.
3. Penetrations for roof drains in metal decking to be cut and sealed by this WC.
4. This WC responsible for any winter conditions needed to install roofing systems per the schedule. Including but not limited to snow removal, ice removal, and temporary heaters.
5. This WC to provide all flashing, sealing, and termination points as required in metal panel, brick, etc. as required where this roofing membrane ties into vertical walls.
6. Furnish and install tectum decking, include cutting for roof penetrations & coordinate with MEP trades for all locations.

This WC responsible for cutting of all tectum decking as required, including for roof drains, plumbing, mechanical, etc. as required. Coordinate with WC 27, 28, 14 for locations. Corrective work for damaged tectum, or improper cutting to be the responsibility of this WC and corrected by this WC.

ADDENDUM 1 – ADD NOTE 6 TO WC 14

Related Work by Others:

1. Prefabricated roof curbs for mechanical equipment to be furnished and installed by W.C. 27.
2. Wood blocking and wood nailers by others.
 - a. This WC required for all roof blocking as noted in specific details and diagrams at roof edge, and terminations.
3. Roof sump pans, roof drains, overflow roof drains, roof stairs and ladders – furnished and installed by others.
4. Manufacturer representative to be on site for all inspections as specified. This WC responsible for all payments and fees associated with these inspections, and perform all corrective actions.

Allowances:

This Contractor shall include in their Base Bid a Construction Manager's allowance of \$0. Reference Section 01020 for specific instructions on allowances.

Unit Prices:

Unit Prices are to be complete furnished in-place operations, and include all costs, incidental materials and work, insurance, fringes, bonds, engineering, overhead and profit. Reference the Trade Contract Proposal form for unit pricing required.

End of Work Category No. 14

Work Category No. 20 – General Trades

Work Included:

The subcontractor shall timely perform all work as detailed below, in accordance with the contract documents (including Bidding Requirements, Proposal Section, Contract Forms, General Conditions, Supplemental Conditions, General Requirements, Addenda, etc.), including, but not limited to, the following Specification Sections and Work Scope Items. Unless otherwise noted, this contractor is responsible for all items specified in the following specifications sections:

Reference Work Category Index

Work Category Notes:

1. Complete all exterior and interior Carpentry/Millwork (rough and finish) and various General Trades Work as noted within this Work Category, including all labor, materials and equipment required for a complete installation.
2. All exterior and interior rough and finish carpentry including counters, cabinets, trim, nailers, blocking and plywood sheathing. This includes all wood framing in openings.
3. Furnish and install all plywood sheathing and blocking.
4. Furnish all embedded anchors and bolts for rough carpentry to masonry and concrete to be installed by others.
5. Furnish and install all reading nooks, including all padded seats.
6. Furnish and install wood blocking, FRT, sheets, boards, plywood, etc. for required materials that are to be installed by this work category.
7. Furnish and install all retractable bleacher seating, gymnasium equipment, including but not limited to basketball hoops, gymnasium divider, retractable backstops, scoreboards, and volleyball equipment.
8. Provide and install all signage and visual displays, including but not limited to 3D lettering, Dedication Plaque, wayfinding, architectural & interior signage, room lettering, wall applied vinyl lettering.
 - Parking lot signage (Handicapped parking for example) provided by others (WC06).
- ~~9. Furnish and install tectum decking, include cutting for roof penetrations & coordinate with MEP trades for all locations.
 - This WC responsible for cutting of all tectum decking as required, including for roof drains, plumbing, mechanical, etc. as required. Coordinate with WC 27, 28, 14 for locations. Corrective work for damaged tectum, or improper cutting to be the responsibility of this WC and corrected by this WC. **ADDENDUM 1 – REMOVE NOTE 9 FROM WC 20**~~
10. If in-wall backing/blocking is required by a specific manufacturer for products included as part of this Work, though not specifically shown within the documents, i.e. architectural millwork, handrails, wall trim, wall mounted toilet partitions, shower rods and curtains, visual display surfaces, metal lockers, fire extinguisher cabinets, misc. accessories, etc., Subcontractor to furnish and install blocking for a complete installation. Also, Subcontractor to furnish and install required sheet metal strip backing for materials provided as part of this Work, as well as materials furnished by the Owner and specifically assigned to Subcontractor for installation of sharps containers, coat hooks, and other items listed.
11. Furnish and install all wood blocking in gypsum walls as required for cabinets, toilet partitions, metal and

- wood lockers, hangers, racks, brackets, handrail, owner furnished items, etc. Also furnish and install all roof required nailers/blocking. Any blocking in pre-manufactured metal studs walls will need to be coordinated with WC 21.
12. Furnish and install all toilet partitions, and all bathroom/toilet accessories including but not limited to semi-recessed paper towel dispenser/waste combo unit (4.9gal, 12gal, 18gal), sanitary napkin disposal unit, grab bars (all), mirrors, shower rods and curtains, mop & broom racks, wardrobe hooks, baby changing stations.
 - Include installation of all, including ones noted as provided by owner installed by contractor. For example, TAI is provided by owner, this WC to receive and install all locations. TA-3A is to furnish and install.
 13. Provide non-combustible wood blocking in walls for wall mounted accessories and equipment installed by Owner/others shown or specified.
 14. Furnish and install all fire extinguisher cabinets, fire extinguishers, including any selective demolition necessary, and wall blocking necessary for a complete installation of recessed or surface mounted cabinets.
 - Provide temporary fire extinguishers & fire extinguisher stands throughout the project duration for all contractors use. Provide and place per MIOSHA regulations.
 15. Furnish and install doors, frames, and hardware. Furnish only and coordinate delivery of frames to be received and installed by others. Electric strikes, magnetic hold-opens, power transfer units will be installed by others – WC-28. Coordinate deliveries, installation instructions & wiring diagrams directly with WC-28.
 16. Furnish and install all hollow metal door frames.
 17. Manufacturer's rep is to review, approve and sign off on the installation of all door hardware before acceptance by TCC and the Owner.
 18. All interior finish carpentry, architectural woodwork, countertops, shelving and millwork. Provide all sealants to adjacent surfaces, including dissimilar materials. Coordinate counter top support spacing with WC 27 under lavatory guards and lavatory installation.
 19. Furnished and install all window sills.
 20. Furnish and install all solid-surface materials and grommets as indicated.
 21. All architectural hardware for cabinets supplied by this Work Category.
 22. Include all stainless steel required and associated with millwork.
 23. All fabricated materials are to be shop assembled to the greatest extent possible before shipping to the job site.
 24. Furnish and installation of specialties including but not limited to: lockers, casework, countertops, visual display boards, Velcro boards, acrylic art displays, benches, towel bars, shower curtain rods, curtain tracks, coat rods, coat racks, mop holders, robe hooks, shelving, wall and corner guards, impact rails, fire extinguishers, fire extinguisher cabinets, wall protection, brackets, associated signage, coat/clothes hooks, shelving, bulletin boards, wall mounted cabinets, cabinet fillers, tack strips, tack boards, overhead doors coiling counter doors, etc., as well as all items mentioned in the above referenced spec sections. Include all accessories required for coiling doors including supports, structural steel, etc. as required for a complete installation in openings.
 25. Equipment items designated as Owner-Furnished/Contractor-Installed are a part of this scope of work.

Owner furnished equipment isolated to an electrical connection “only” will be handled by the electrical subcontractor. Equipment requiring water, steam, ducting, etc. will be handled by the mechanical subcontractor. All equipment that does not have any mechanical and/or electrical connection is the responsibility of this work category to receive, unload, distribute, and install.

Specific Notes and Details:

The following details and notes are included in this Work Category; this list is to clarify the specific items noted below and does not exclude other details or otherwise limit the scope of work for this Work Category.

1. Furnish and install flagpole, including the footing required.
2. Furnish volleyball net pole sleeves for installation by WC10. Instruct on final location for installation.
3. Furnish and install all roller window shades.
4. Furnish and install a set of temporary double doors at each building, include ability for doors to be locked from the outside for site security.
5. Furnish and install temporary windows constructed of 2x4 frame, with visqueen like material wrapped for site security and temperature control, anchored in a non-destructive manner so as to not damage finished walls.
6. Keying of all cylinders including master keying, etc. in accordance with the specifications. Key schedule to be provided by Owner.
7. Provide 832 hour allowance for laborers and 240 carpenter hours to be used at the discretion of TCC. Daily time tickets will be required by TCC.
 - i. Purpose for general laborer hours is to be for general construction site cleanup, ensure laborer is supplied appropriately to perform general construction cleanup with cleaning supplies, sweeping compound, hand tools, etc.
8. Broom clean finish to be left for WC 22 & 23 flooring installation, provided by this WC.
9. Furnish and install all benches, including interior locker room benches ~~exterior benches~~, including all anchoring, sleeves, pedestals, reinforcing, footings, blocking, etc. as required for a complete installation.

ADDENDUM I – REMOVE EXTERIOR BENCHES FROM WC 20

10. Furnish and install all interior and exterior shelving, including stainless steel shelf on wall brackets shown on A3.1B detail 1.
11. Furnish and install cubicle system.

ADDENDUM I – ADD NOTE 11 TO WC 08

Related Work by Others:

1. Dumpsters provided by the Construction Manager.
2. Temporary water and electrical
3. Benchmarks and column lines (one in each direction) by Construction Manager.
4. Roof access doors, curbs, expansion joints and accessories by WC 14
5. Roof insulation by WC 14.

6. Independent testing and inspections by Owner.
7. Roof mechanical equipment curbs by WC 27, installed by WC 14.
8. Temporary heat by Construction Manager.
9. Aluminum entrance door hardware furnished and installed by WC 18.
10. Roof accessories furnished and installed by WC 14.
11. All aluminum door hardware provided by WC 18 and keyed by same.
12. All structural framing by WC 12 and WC 21.
13. Stainless steel countertops with Food Service Equipment by WC 29.

Allowances:

This Contractor shall include in their Base Bid a Construction Manager's allowance of \$10,000. Reference Section 01020 for specific instructions on allowances. Intent of allowance is possible weather structures over mock-ups if needed.

Unit Prices:

Unit Prices are to be complete furnished in-place operations, and include all costs, incidental materials and work, insurance, fringes, bonds, engineering, overhead and profit. Reference the Trade Contract Proposal form for unit pricing required.

End of Work Category No. 20

Work Category No. 21 – Walls & Ceilings

Work Included:

The subcontractor shall timely perform all Walls & Ceilings work, as detailed below, in accordance with the contract documents (including Bidding Requirements, Proposal Section, Contract Forms, General Conditions, Supplemental Conditions, General Requirements, Addenda, etc.), including, but not limited to, the following Specification Sections and Work Scope Items. Unless otherwise noted, this contractor is responsible for all items specified in the following specifications sections:

Reference Work Category Index

Work Category Notes:

1. Furnish and install all interior and exterior gypsum board including all requirements for high abuse type and type X, metal stud framing, cold-formed framing, insulation, ceiling grid, ceiling tile, as shown and/or specified. Includes all labor, material, accessories, and equipment for a complete installation.
2. Above ceiling support wires for ceiling grid, soffits and hard ceilings will be installed after MEP-above ceiling rough-ins. Hanger wires where required to support light fixtures, grilles, and registers, etc.
3. Furnish and install all expansion joints and covers in drywall, soffit assemblies and/or ceiling grid assemblies. Properly anchor, level and set, including fire barrier(s) under and beyond expansion joint areas. Installation of wall and ceiling expansion joints shall occur just prior to finish painting per floor. Fire barrier(s) within concealed locations shall be installed and inspected prior to being covered by architectural walls and ceilings.
4. All interior and exterior wall and ceiling fire stopping, thermal and acoustical insulation as it relates to this contractors work.
5. Furnish and install all fireproofing where this WC is responsible to join fire rated assembly walls, and all penetrations made by with WC's activities per the drawings and specifications.

ADDENDUM I – REVISED NOTE 5

6. Acoustic sealants and caulking of work within this work category including bottom, sides and top of rated walls. Furnish and install all necessary fire caulking related to this W.C including all required fire taping of walls and ceilings. Subcontractor shall be required to fire-stop, smoke seal and sound seal, all other remaining penetrations, and schedule all Work of this type to completed and inspected just prior to ceiling grid installation.
7. Coordinate with MEP contractors for any ceiling grid penetrations/custom ceiling tile cuts.
8. Properly fire stop and seal all fire wall penetrations created by this work. Fire stop to mechanical, electrical, and plumbing sleeves furnished and installed by others.
9. Furnish and install all access panels shown on the drawings in stud partitions or ceilings including mechanical and electrical panels. It is your responsibility to review all drawings complete including the mechanical and electrical drawings. Install all access panels in metal stud walls and ceilings furnished by mechanical, fire protection, and electrical contractors (not shown on drawings).
10. All layout and control lines for wall, partitions, and ceilings related to this W.C.
11. Furnish and install all ceiling surfaces per the drawings and specifications. Include cutting sprinkler heads. A nominal quantity of additional heads required by inspectors to be expected in addition to those shown on the fire protection drawings.

12. Install all light gauge metal framing including truss system & stiff clips.
13. Include furnishing and installing all acoustical wall panels, and acoustical baffles.
14. Tape and sand joints to bottom of gypsum board to provide even, clean joints to receive vinyl base.
15. All cold-formed framing, fire-stopping, vapor barriers, non-load bearing steel framing, gypsum board, glass-reinforced gypsum fabrications, acoustical ceilings, acoustical wall panels Work, including all labor, materials and equipment required for a complete installation.
16. All interior joint sealants at the following conditions:
 - a. All fire rated joints in pre-fabricated joints shall be installed by this WC as required, including any fire rated insulation and fire caulking as required on the life safety plan.

Specific Notes and Details:

The following details and notes are included in this Work Category; this list is to clarify the specific items noted below and does not exclude other details or otherwise limit the scope of work for this Work Category.

1. This WC responsible to provide and install joint sealants, fire stopping, etc. at pre-manufactured wall joints if needed after installation in the field.
2. This WC responsible to provide and install Z Strip where shown in transitions from Protect All Flooring; Wall base to Wall Protection.
3. Base bid is to include pre-manufactured CFMF walls and trusses in contractors shop as much as possible and then deliver and install on site. Alternate #1 is to forgo this option and instead build walls and trusses onsite with conventional methods.
4. This WC responsible for all exterior weather barriers, including vapor/moisture barriers, sealants associated for a complete installation.

Related Work by Others:

1. Dumpsters by Construction Manager.
2. Temporary Water and electrical by Construction Manager.
3. Benchmarks and column lines (one in each direction) by Construction Manager.
4. Roof insulation by WC-14.
5. Independent testing and inspections by Owner.
6. Temporary heat by Construction Manager.
7. Exclude foundation and masonry insulation.

Allowances:

This Contractor shall include in their Base Bid a Construction Manager's allowance of \$5,000. Reference Section 01020 for specific instructions on allowances.

Unit Prices:

Unit Prices are to be complete furnished in-place operations, and include all costs, incidental materials and work, insurance, fringes, bonds, engineering, overhead and profit. Reference the Trade Contract Proposal form for unit pricing required.

End of Work Category No. 21

Work Category No. 27 – Mechanical and Plumbing Systems**Work Included:**

The subcontractor shall timely perform all Mechanical and Plumbing work, as detailed below, in accordance with the contract documents (including Bidding Requirements, Contract Forms and General Conditions, Supplemental Conditions, General Requirements, Addenda, etc.), including, but not limited to, the following Specification Sections and Work Scope Items. Unless otherwise noted, this contractor is responsible for all items specified in the following specifications sections:

Reference Work Category Index

Work Category Notes:

1. Furnish and install all mechanical and plumbing systems, including domestic water, sanitary and vent, hydronic piping, water heaters, boilers, unit heaters, unit ventilators, air handling units, chillers, water features, VAV boxes, mechanical louvers, radiant heat systems, humidifiers, condensate, heat exchangers, ductwork, insulation, plumbing fixtures, temperature controls including DDC or BMS systems, system commissioning, air and water balancing, etc., indicated by the contract documents (not just limited to the mechanical and plumbing drawings) or as required for a complete installation, including labor, materials, accessories and equipment for a complete installation.
 - a. This WC required to carry SC Tech as controls subcontractor for base bid. Provide any alternate contractors as a voluntary alternate.
 - i. Controls Contractor shall provide their own underground conduit for all controls wiring between buildings as necessary.
2. All cutting, capping, coring, patching and firesafing of walls, floors, ceilings, etc., required for the installation of this work. Patch and repair work is to be done professionally by skilled craftsmen. All such openings require prior written approval from the Construction Manager, before work begins. Furnish and install all sleeves and or misc. steel in walls, floors, roofs and ceilings that may be required by this W.C.
3. Furnish drawings showing size and location of concrete pads required for mechanical equipment to Construction Manager. Installation of these pads is by W.C. 10.
4. All utility connection, disconnections, tie-ins, crossovers, shut downs and similar work must be performed and scheduled so they will not interfere with other work. It may be necessary to make these changes during "off" hours, or it may be necessary to make "hot tap" connections. The contractor should plan on premium time for this work. Coordinate with the Construction Manager prior to performing this work.
5. Furnish access panels where required for the wall and ceiling valves, dampers and controls that are not shown on the Architectural/Mechanical plans but are necessary for the Mechanical Systems.
6. Furnish all hoisting, lifting, scaffolding and handling of all materials required to complete this work category.
7. Installation of all plumbing and mechanical equipment up to tie in points of food service equipment is required by this WC including floor drains, cold water & hot water supply tie-ins, gas tie ins, etc. as required for WC29 to furnish equipment, and tie in to services provided by this WC.
8. The Electrical, Fire Protection, and Mechanical Contractors will be required to coordinate in a formal coordination process to accomplish the rough-in and final layout as required and specified in Section 1049. Any relocation required to coordinate work will be done at no additional cost to the Owner. All contractors are required to furnish layout and coordination prints for their work prior to these meetings allowing the team to be better prepared at each coordination meeting. Detailers will be provided by this

contractor to accomplish this coordination. These meetings shall be coordinated with the construction manager and shall be held on-site.

9. Provide and install mechanical equipment tags, pipe identification and other required identification of signage related to his work.
10. Run the various building piping systems out five (5) feet from the building walls and make the final connections to underground systems.
11. The mechanical contractor will provide assistance during concrete pours to guarantee the proper elevation of drains is maintained during the concrete pour. Accommodate floor finishes when calculating elevations.
12. Furnish and install all roof curbs and necessary or required auxiliary steel framing for equipment supplied under this W.C. This includes any auxiliary steel required at roof openings not shown on the structural drawings, or for pipe hangers and plenum stiffeners.
13. A coordination meeting will be set up between the controls contractor, mechanical contractor, electrician, and construction manager prior to control work. This will include all required work for a complete system as indicated in the construction documents.
14. Provide and install all plumbing equipment including but not limited to under-lavatory guards, mixing valves, water fountains, vacuum breakers, expansion tanks, water heaters, check valves, recirculation pumps, flow measuring devices, thermometers, pressure relief valves, vents, eye wash stations, showers, wall hydrants, sinks (including 3-station wash basin), service tubs, urinals, grease interceptor.
 - a. Food service equipment by others (WC29).
15. Provide and install all mechanical equipment & associated accessories including but not limited to roof curbs/rails, fan coils, condensing units, BMS controllers, exhaust fans, return units, unit ventilators, duct smoke detectors, glycol makeup units, electric heaters, mini-split systems, differential pressure devices,
 - a. Kitchen Hoods by others (WC29).
16. Provide and install all aluminum louvers for unit ventilators.
17. This WC responsible for the entirety of the geothermal system beyond the riser, including furnishing and installing all pumps, tanks, valves, etc. as required to perform all geothermal system functions.
18. Cutting of metal deck by others, this WC to provide temporary protection for roof penetrations that cannot be enclosed by end of the day.
19. Provide and install all plumbing up to roof drain locations.
 - a. Installation of roof drains, and cutting of metal decking, or Tectum Decking to be provided by WC 14.
20. Provide valve schedule indicating the location of all valves installed at the completion of the plumbing system.
21. Provide and install all roof curb and roof top equipment including placing and hoisting as required.
22. This WC responsible for caulking and patching all plumbing & mechanical penetrations, including any toothing, grouting, caulking, firestopping, firecaulking, etc. as necessary to enclose penetrations made by this WC's work.

Specific Notes and Details:

The following details and notes are included in this Work Category; this list is to clarify the specific items noted below and does not exclude other details or otherwise limit the scope of work for this work category:

1. Installation in exposed ceiling locations needs to be closely coordinated and approved by The Christman Company. All contractors will do a mock up for all unitstrut, fasteners, clips, etc. that will be installed in the ceiling space of a typical classroom. This mock up needs to be approved before overhead MEP installation can start.
2. Pipe insulation wrap must be installed in a clean and visually appealing manner as the mechanical spaces are to be visible. Ensure pipe wrap joints are tight, labels are straight and applied in a clear, consistent manner.
3. ~~This WC shall assume that pre-fabricated walls (by WC 21) are base bid, and this WC is responsible to coordinate with pre-fabricated wall contractor. This coordination is to ensure all in-wall rough-ins are complete and in place prior to enclosing walls, this may include coordination between trades for shop time for fabricated materials. Failure to coordinate and install all in-wall material will need to be corrected, and this WC will be responsible for any repairs, painting, etc. as required to correct revised work.~~

ADDENDUM I – REMOVE NOTE 3 FROM WC 27

4. Upon completion of Geothermal System installation, provide liquid fill to complete level.”

ADDENDUM I – ADD NOTE 4 TO WC 27

Related Work by Others:

1. Concrete equipment pads by W.C. 10.
2. Roof vents flashing and counter flashing by W.C. 14.
3. Fire protection system and risers by W.C. 26.
4. Site and footing drainage systems by W.C. 02.
5. Power supply to mechanical equipment by W.C. 28.
6. Installation of access panels/doors by W.C. 21 or WC 11.
7. Furnish and install of vents in metal panel assembly by WC 15.
8. Site utilities beyond 5' from building perimeter by WC 02 or Utility Company.
9. Counter tops to be cut by WC 20.
10. Food service equipment by WC 29.
11. Residential appliances by WC 29.

Allowances:

This Contractor shall include in their Base Bid a Construction Manager's allowance of \$20,000. Reference Section 01020 for specific instructions on allowances.

Unit Prices:

Unit Prices are to be complete furnished in-place operations, and include all costs, incidental materials and work, insurance, fringes, bonds, engineering, overhead and profit. Reference the Trade Contract Proposal form for unit pricing required.

End of Work Category No. 27

Work Category No. 28 – Electrical Systems

Work Included:

The subcontractor shall timely perform all Electrical work, as detailed below, in accordance with the contract documents (including Bidding Requirements, Contract Forms and General Conditions, Supplemental Conditions, General Requirements, Addenda, etc.), including, but not limited to, the following Specification Sections and Work Scope Items. Unless otherwise noted, this contractor is responsible for all items specified in the following specifications sections:

Reference Work Category Index

Work Category Notes:

1. Furnish and install all electrical systems, including power, photovoltaic modules, fire rated plywood this WC's equipment mounts to, generator, lighting, site lighting, lighting controls, fire alarm, public address system, lightning protection system, clocks and clock system, telephone/data and CATV systems, technology systems, security systems, system commissioning, etc., indicated by the contract documents (not just limited to the electrical drawings) or as required for a complete installation, including labor, materials, equipment, adhesives, fasteners, supports, hangers, grounds, blocking, shims and all necessary anchoring devices and accessories.
2. Provide all outlets/tie ins for food service equipment. FSE equipment to be provided by others (WC25).
3. Coordinate door hardware installation and electrical requirements, furnish and install all electrical equipment therein.
4. Care and coordination must be taken to ensure as much conduit as possible is ran in-wall, including for example gymnasium equipment. Absolutely no wall mounted conduit shall be shown unless noted otherwise. Failure to coordinate and install conduit, fixtures, and outlets in the correct space will require additional work to be performed to correct the condition at no extra cost.
5. All cutting, capping, coring, patching and firesafing of walls, floors, ceilings, etc., required for the installation of this work. Patch and repair work is to be done professionally by skilled craftsmen. All such openings require prior written approval from the Construction Manager, before work begins. Furnish and install all sleeves and or misc. steel in walls, floors, roofs and ceilings that may be required by this W.C.
6. Furnish drawings showing size and location of concrete pads indicated on the drawings for electrical equipment to the Construction Manager. Installation of these pads is by W.C. 10. All excavation, backfill and compaction related to this W.C. Suitable backfill will be required by this trade and this contractor will be responsible for removal (from site) of all unsatisfactory fill in accordance with the documents.
7. All utility connection, disconnections, tie-ins, crossovers, shut downs and similar work must be performed and scheduled so they will not interfere with other work. It may be necessary to make these changes during "off" hours, or it may be necessary to make "hot tap" connections. The contractor should plan on premium time for this work. Coordinate with the Construction Manager prior to performing this work.
8. Furnish access panels where required for the wall and ceiling valves, dampers and controls that are not shown on the Architectural/Electrical plans but are necessary for the Electrical Systems.
9. Furnish all hoisting, lifting, scaffolding and handling of all materials required to complete this work category.
10. The Electrical, Fire Protection, and Mechanical Contractors will be required to coordinate in a formal coordination process to accomplish the rough-in and final layout as required and specified in Section 1049. Any relocation required to coordinate work will be done at no additional cost to the Owner. All

contractors are required to furnish layout and coordination prints for their work prior to these meetings allowing the team to be better prepared at each coordination meeting. Detailers will be provided by this contractor to accomplish this coordination. These meetings shall be coordinated with the construction manager and shall be held on-site.

11. Provide and install panel labeling, identification and other required identification of signage related to his work.
12. The electrical contractor will provide assistance during concrete pours to guarantee the proper elevation of in-floor items (outlets, activation kits (if applicable), etc) are maintained during the concrete pour. Accommodate floor finishes when calculating elevations.
13. A coordination meeting will be set up between the controls contractor, mechanical contractor, electrical contractor, and construction manager prior to control work. This will include all required work for a complete system as indicated in the construction documents.
14. Electrical connections to equipment and devices provided by others, including by not limited to duct detectors, fire dampers, flow and tamper switches, variable frequency drives, power assist door motors, food service equipment, overhead doors, coiling shutters, projection screens, Owner furnished items, etc. Verify construction documents have been coordinated with power requirements of equipment prior to installation of devices.
15. Furnish and install electrical disconnects for all mechanical equipment provided by WC 27.
16. This WC responsible for caulking and patching all electrical/data penetrations, including any toothing, grouting, caulking, firestopping, firecaulking, etc. as necessary to enclose penetrations made by this WC's work.

Specific Notes and Details:

The following details and notes are included in this Work Category; this list is to clarify the specific items noted below and does not exclude other details or otherwise limit the scope of work for this work category:

1. Where contract documents callout "Provided by Access Control Contractor", this WC is required to furnish and install, including commissioning for a complete system. This WC is responsible to provide all access control system requirements.
2. Provide and install electrical duct bank, including all associated trenching, backfilling, compaction, etc. as required by E5.0 Direct Burial Duct Bank Conduit Detail.
3. Provide and install photovoltaic system including all accessories for a complete installation. Be sure to include ballasts, rack system, blocking, inverters, disconnects, labels, and grounding.
4. Installation in exposed ceiling locations needs to be closely coordinated and approved by The Christman Company. All contractors will do a mock up for all unitstrut, fasteners, clips, etc. that will be installed in the ceiling space of a typical classroom. This mock up needs to be approved before overhead MEP installation can start.
5. Provide shop drawings showing locations of all access panels this WC needs. Provide access panels to WC 11 & 21 for them to install.
6. Provide and install exterior power enclosures.
7. Furnish and install projector screen(s), and cord reels.
8. Furnish and install all heat tape for all mechanical and food service equipment per contract documents and

specifications.

9. This WC responsible for electrical feed requirements for monument signage. Final monument signage is still in design, assume this WC is responsible for feeding wires based on locations on the civil drawings and rated wires based on electrical panel requirements.
 - a. Foundations of monument sign by others
 - b. Monument sign by others (This WC responsible to coordinate termination method with WC20).
- ~~10. This WC shall assume that pre-fabricated walls (by WC 21) are base bid, and this WC is responsible to coordinate with pre-fabricated wall contractor. This coordination is to ensure all in-wall rough-ins are complete and in place prior to enclosing walls, this may include coordination between trades for shop time for fabricated materials. Failure to coordinate and install all in-wall material will need to be corrected, and this WC will be responsible for any repairs, painting, etc. as required to correct revised work.~~

ADDENDUM I – REMOVE NOTE 10 FROM WC 28

Related Work by Others:

1. Concrete equipment pads by WC 10.
2. Fire protection system and risers by WC 26.
3. Installation of access panels/doors by WC 21 or 11.
4. Low voltage wiring not identified on the drawings by the trade providing equipment.
5. Site utilities to transformers/cabinets by Utility Company.
6. Temperature Control wiring and conduit associated with the mechanical systems by WC 27.

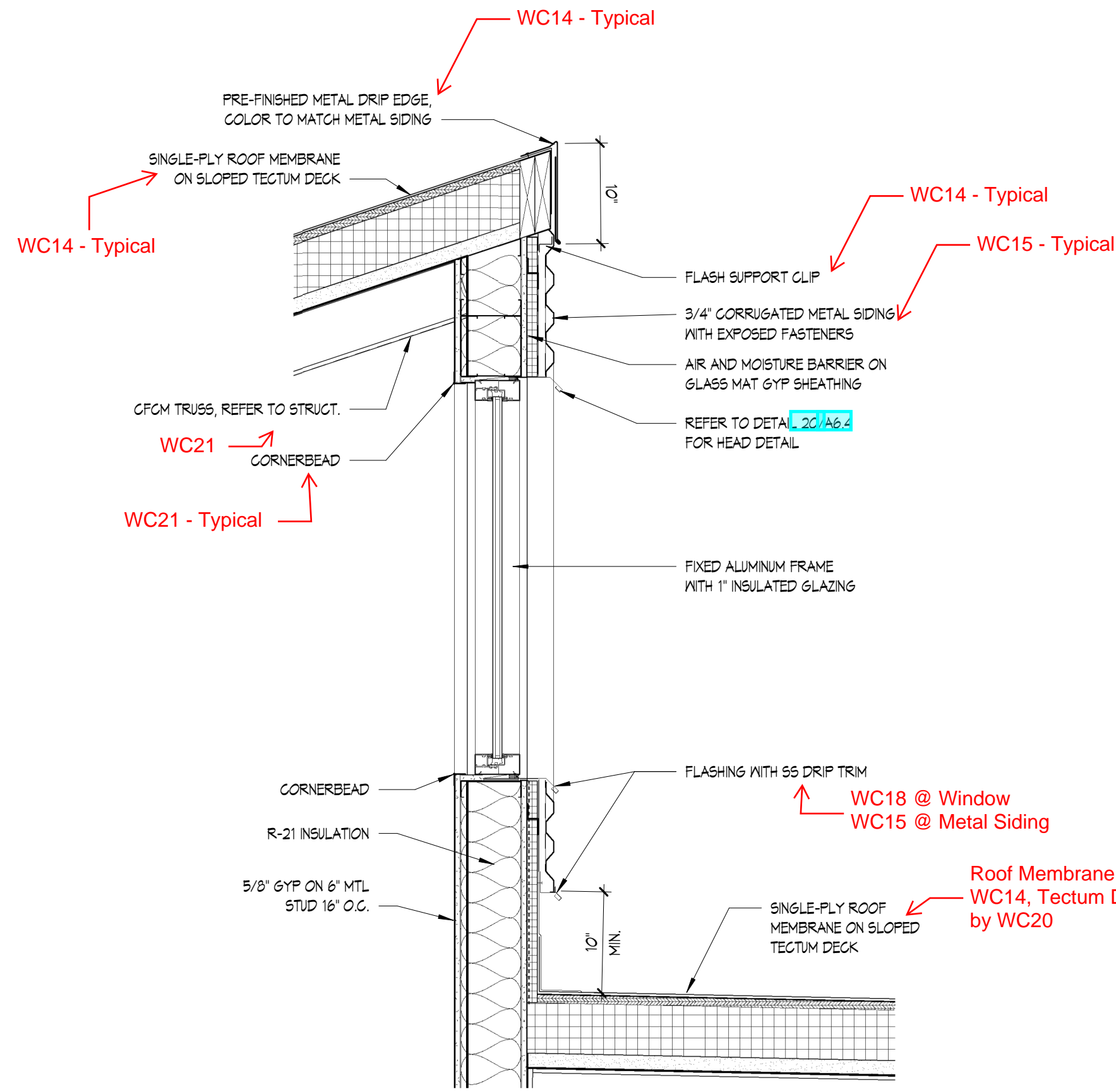
Allowances:

This Contractor shall include in their Base Bid a Construction Manager's allowance of \$20,000. Reference Section 01020 for specific instructions on allowances.

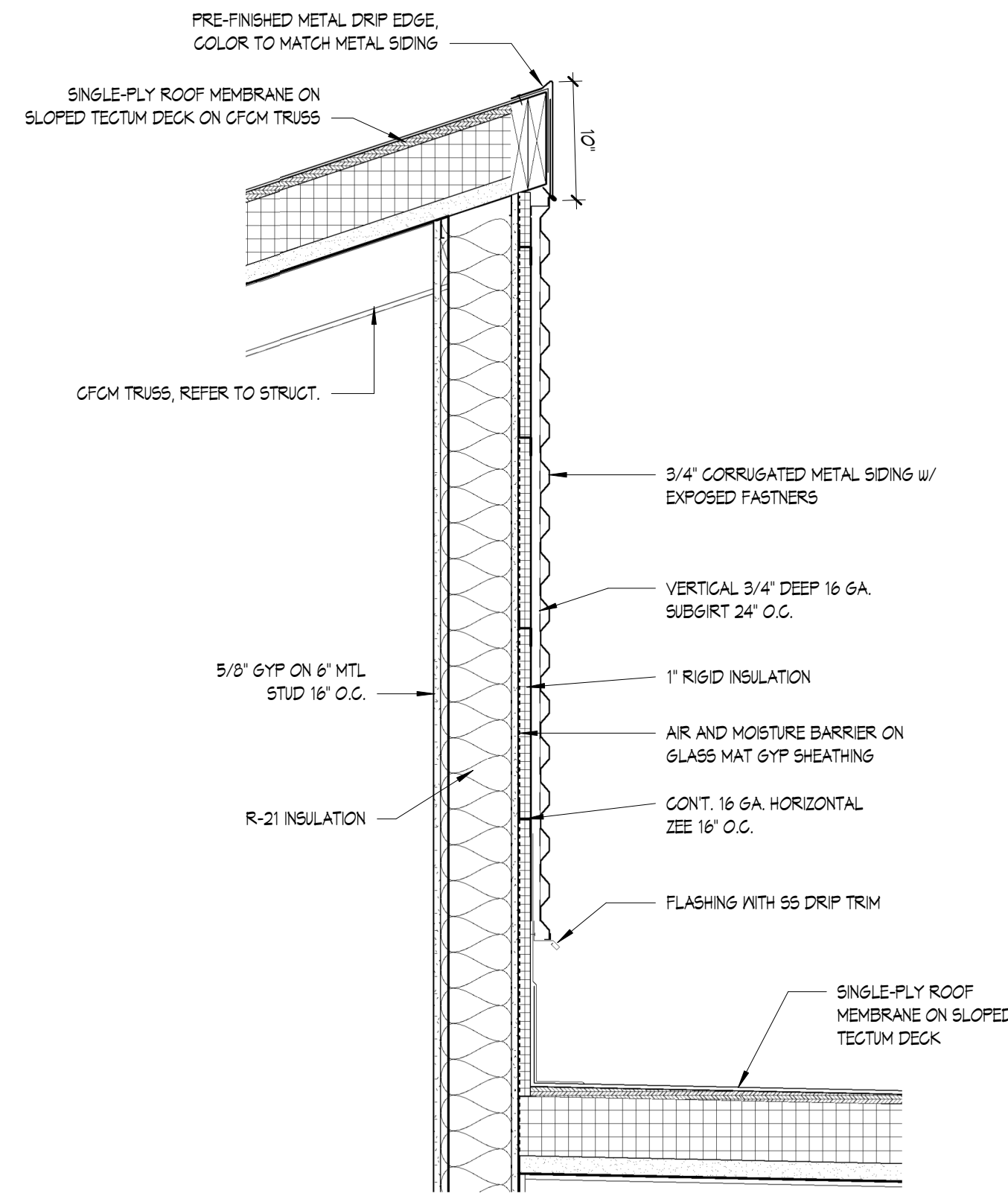
Unit Prices:

Unit Prices are to be complete furnished in-place operations, and include all costs, incidental materials and work, insurance, fringes, bonds, engineering, overhead and profit. Reference the Trade Contract Proposal form for unit pricing required.

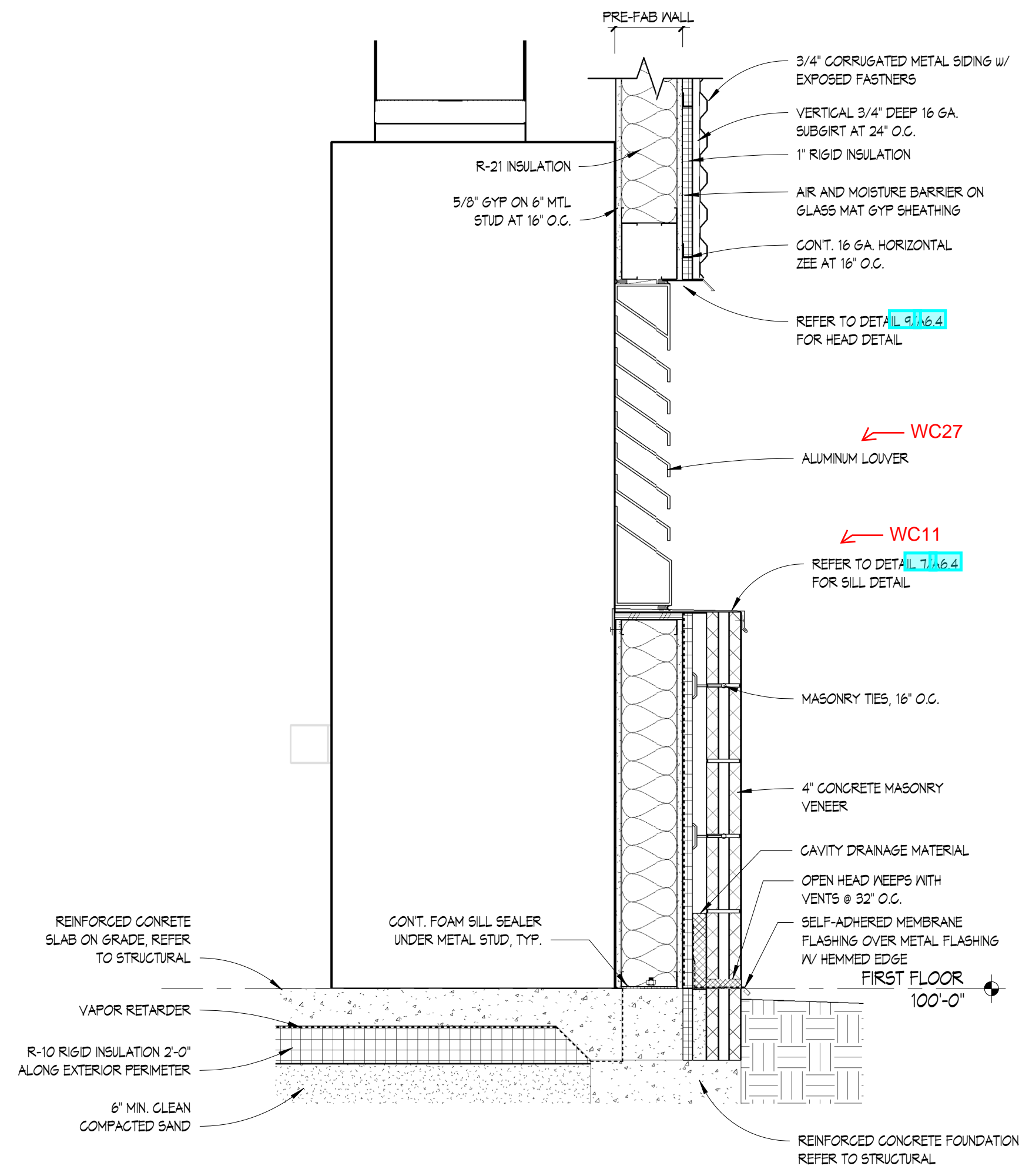
End of Work Category No. 28



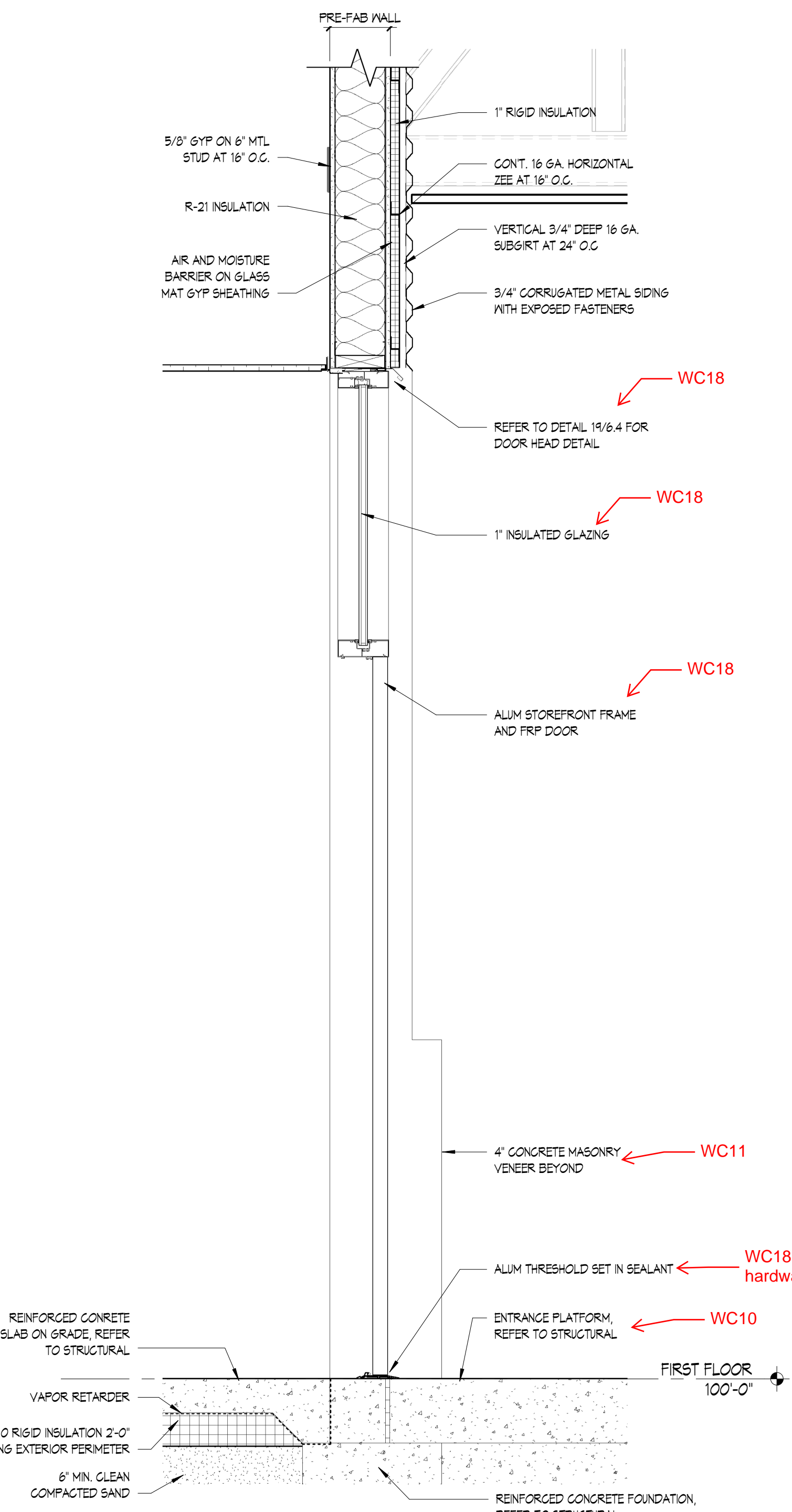
7 PANEL TYPE "G" - CLERESTORY
1" = 1'-0" REFER TO 1 / D1.12



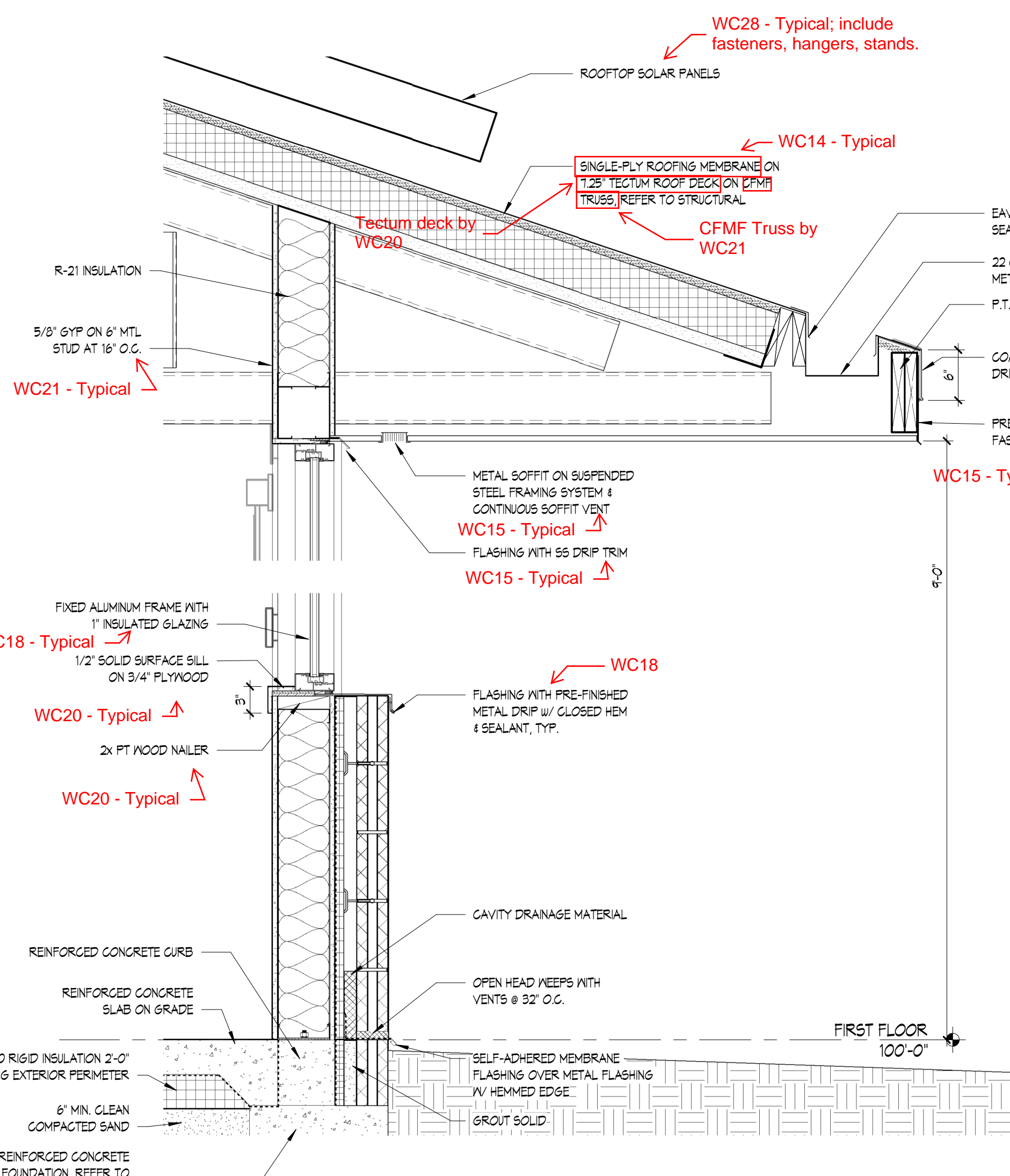
6 PANEL TYPE "F"
1" = 1'-0" REFER TO 1 / D1.12



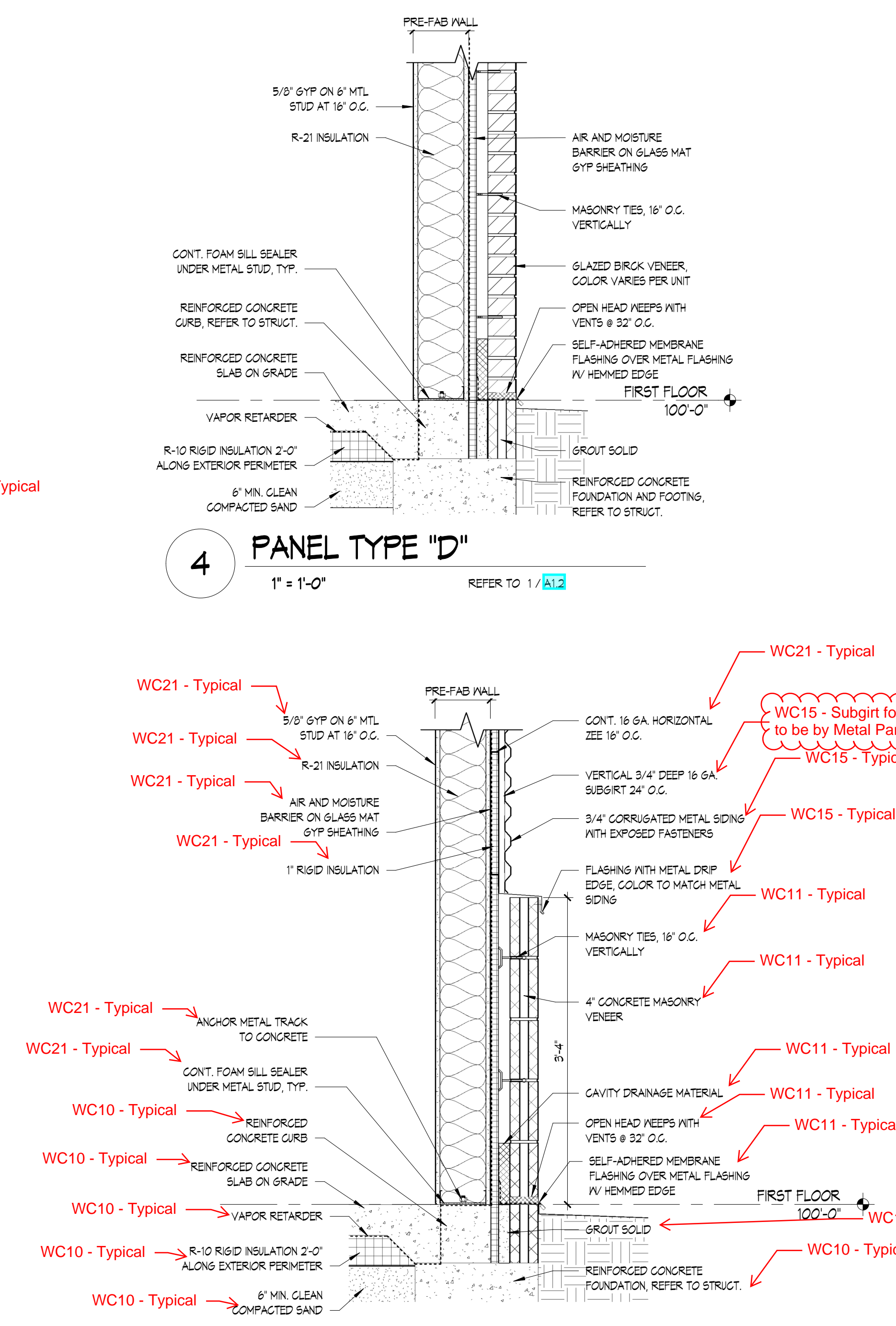
5 PANEL TYPE "E" - LOUVER
1" = 1'-0" REFER TO 1 / A1.13



3 PANEL TYPE "C" - DOOR AT CORRUGATED METAL PANEL
1" = 1'-0" REFER TO 1 / A1.14



2 PANEL TYPE "B" - WINDOW
1" = 1'-0" REFER TO 1 / A1.14



1 PANEL TYPE "A"
1" = 1'-0" REFER TO 1 / A1.12

ISSUANCES	DATE
Bid and Construction	01/28/2024

LSJ NO. SB-0059
JOB NO. 2616.01A
SHEET TITLE
WALL SECTIONS

SHEET NO.
A4.1
KINGSCOTT ASSOCIATES INC. KALAMAZOO, MICHIGAN

TRADE CONTRACT PROPOSAL FORM

WORK CATEGORY NO. 00 and _____

Date: _____

TO: The Christman Company
208 N. Capitol Avenue
Lansing, Michigan, 48933-1357

Re: Willow School
1012 W Willow St,
Lansing, MI 48915

Ladies & Gentlemen:

Having carefully examined General Conditions, Supplementary Conditions, General Requirements, Advertisement for Bids, Instructions to Bidders, Proposal Section, Specifications, Drawings, all Addenda issued, Work Category Descriptions, and understanding the scope of work involved in this Work Category (ies) and those that interface with it (them), the undersigned does hereby propose to furnish all labor, materials, insurances, taxes, tools, equipment and services to complete all work required for the Work Category(ies) indicated in accordance with the Work Category Description and the Contract Documents prepared by _____.

BASE PROPOSAL SUM:

_____ (\$ _____)

PERFORMANCE & PAYMENT BOND: The Trade Contractor may be required to furnish a Co-Obligee Labor & Material Payment & Performance Bonds for the full contract amount.

The name of the Bonding Company is: _____.

The sum of (\$ _____) to cover cost of furnishing these bonds is **added to** the base bid.

EXPERIENCE MODIFICATION RATING (EMR):

List the EMR for your firm as determined by your insurance carrier for the past three (3) years.

2023 _____ 2022 _____ 2021 _____

ADDENDA: The following Addenda have been received, are hereby acknowledged, and their execution is included in Bid Sums listed herein.

No _____ Dated _____ No _____ Dated _____ No. _____ Dated _____

TIME AND MATERIAL RATES: Provide labor rates below for all onsite labor.

Labor rates listed below include the following:

Cost of labor including Michigan Single Business Tax, Social Security and Medicare, Federal and State Unemployment Tax, and Fringe Benefits Under Collective Bargaining Agreements, and Worker's Compensation Insurance. The rates listed below do not include overhead and/or profit. These rates are only for additions and/or deletions to the contract that could not have been anticipated at the time of the bid.

TRADE CONTRACT PROPOSAL FORM

WORK CATEGORY NO. 00 and _____

Date: _____

	TRADE	STRAIGHT TIME	SHIFT TIME	1 1/2 TIME	DOUBLE TIME
1					
2					
3					
4					
5					
6					

OVERHEAD AND PROFIT(FOR FUTURE CHANGES): Overhead and Profit shall include the following: Supervision, Superintendents, Commercial General Liability and Umbrella Insurances, Wage of Time Keepers, Watchmen and Clerks, Small tools with material value of less than \$1,500.00. Incidentals, General Office Expense, and all other expenses not included in Labor Rates as listed above. The percentage fee for Overhead and Profit on the Contractor's own work shall be 15% of net cost. The percentage fee for Overhead and Profit on Subcontractor's work shall be 5% (see log).

MANDATORY ALTERNATES:

Reference Specification Section 012300 for alternate descriptions.

Alternate #1 (Standard Exterior Wall Construction in lieu of Prefab)	Add/Deduct \$ _____
Alternate #2 (Decorative Black Metal Picket Fence)	Add/Deduct \$ _____
Alternate #3 (KEE Roofing in lieu of EPDM)	Add/Deduct \$ _____
Alternate #4 (Concrete Finish at Entire Service Yard)	Add/Deduct \$ _____
Alternate #5 (Polished Concrete with Level 1 and 3 in lieu of 2)	Add/Deduct \$ _____
Alternate #6 (Solid Surface Countertops in lieu of paperstone)	Add/Deduct \$ _____

UNIT PRICES:

WC 02 – Snow Removal (parking lots, drives, laydown area, walkway to main entrance)	\$ _____/Hour
WC 02 – Street Sweeping	\$ _____/Event
WC 02 – Excavation & Removal of Unsuitable Soils (Off-Site)	\$ _____/cy (truck)
WC 02 – Engineered Fill (Sand) Compacted in Place	\$ _____/cy (truck)
WC 02 – Engineered Fill (21AA) Compacted in Place	\$ _____/cy (truck)
WC 02 – Amount Included for Temporary Drives & Laydown Area	\$ _____
WC 05 – Typical Curb & Gutter	\$ _____/sf
WC 05 – Typical 4" Sidewalk	\$ _____/sf
WC 05 – Heavy Duty Concrete Pavement	\$ _____/sf
WC 06 – Standard Duty Asphalt	\$ _____/sf
WC 10 – Amount to add Barrier One style admixture to slabs	\$ _____/sf
WC 20 – Amount included for temporary windows & doors	\$ _____
WC 22 & 23 – Amount included for temporary flooring protection	\$ _____

TRADE CONTRACT PROPOSAL FORM

WORK CATEGORY NO. 00 and _____

Date: _____

WC 23 – Amount to add vapor barrier at all flooring not passing moisture tests \$ _____/sf

WC 13 – Total Cost for Air & Vapor Barrier on Exterior of Building Walls \$ _____

VOLUNTARY ALTERNATIVES (Variations From Materials Specified):

Undersigned proposes the following voluntary alternates for materials and/or equipment specified, it being understood that, should any voluntary alternate(s) be accepted by the Owner, applicable amount(s) hereinafter listed will be added to or deducted from the Base Bid. (No voluntary alternates are required)

1. Install Air & Vapor Barrier in Pre-Fabricated Assembly \$ _____ (Add/Deduct)
2. _____ \$ _____ (Add/Deduct)
3. _____ \$ _____ (Add/Deduct)

SCHEDULE:

The undersigned if awarded a Contract, agrees to work concurrently with the work of other Trade Contractors and the Construction Manager, according to the "Approved Construction Schedule."

BIDDER'S CERTIFICATE:

I hereby certify that all statements herein are made on behalf of

(Name of Corporation, Partnership or Person Submitting a Bid)

A Corporation organized and existing under the laws of the State of _____

An individual doing business as _____

Signature:

Title:

Address:

Phone:

Fax:

Email: