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ADDENDA

ADDENDUM NUMBER 03

DATE: January 31, 2024

PROJECT: Cass District Library Edwardsburg, MI

PROJECT NUMBER: 22-1836

OWNER: Cass District Library

ARCHITECT: Abonmarche
315 W. Jefferson Blvd.
South Bend, IN 46601

TO: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the Bidding Documents dated December 20, 2023, with addendum number 001 issued January 12, 2024, addendum number 002 issued January 19, 2024, and addendum #2 revised issued on January 24, 2024, with amendments and additions noted below.

Acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to do so may disqualify the Bidder.

This Addendum consists of 38 pages and the following Drawings:

No.	Drawing Title	Issue Date
C6.0	Landscape Plan	01/31/2024
C6.1	Landscape Plan	01/31/2024
A1.1	First Floor Plan	01/31/2024
A2.1	First Floor – Reflected Ceiling Plan	01/31/2024
A5.1	Wall Sections	01/31/2024
A5.4	Wall Sections	01/31/2024

A6.0	Enlarged Floor Plans & Elevations	01/31/2024
A7.4	Details	01/31/2024
A8.3	Storefront Elevations	01/31/2024
A8.4	Storefront Elevations	01/31/2024
A9.1	Furniture Plan	01/31/2024
M0.1	Mechanical Schedules	01/31/2024
M5.2	Mezzanine HVAC Plan	01/31/2024
P3.0	Underground Plumbing Plan	01/31/2024
P3.1	First Floor Plumbing Plan	01/31/2024
P3.2	Mezzanine Plumbing Plan	01/31/2024
E0.1	Electrical Cover	01/31/2024

GENERAL INFORMATION

1. **REVISE** Bid Schedule
 - a. Bid due date will be due at 5:30 pm on February 7th, 2024, not 6:00 pm.
2. **ADD** Voluntary Alternates
 - a. All Voluntary Alternates shall be provided on the contractor's letterhead and shall identify this project by name and number.
3. **REVISE** Structural revisions shall be provided in ADD #4 on February 01, 2024.
4. **ADD** Appendix #3.3 T&G CEILING DETAIL for Alternate #11.

CHANGES TO THE PROJECT MANUAL

SECTION 074113.16 – STANDING SEAM METAL ROOF PANELS (Re-Issue)

5. **REVISE** Entire Section (Attached)

SECTION 283101 – ADDRESSABLE FIRE ALARM AND DETECTION SYSTEMS (Re-Issue)

6. **REVISE** Section 1.7 (Attached)
7. **ADD** Section 2.1 & 2.2 (Attached)

SECTION 323113 – WOVEN WIRE FENCES AND GATES (Re-Issue)

8. **REVISE** Entire Section (Attached)

CHANGES TO THE DRAWINGS

DRAWING C6.0 – LANDSCAPE PLAN (Re-Issued)

9. **REVISE** Plant quantities and locations

DRAWING C6.1 – LANDSCAPE PLAN (Re-Issued)

10. **REVISE** Plant Schedule List with Changes shall Be Coordinated With Landscape Plan

DRAWING A1.1 – FIRST FLOOR PLAN (Re-Issued)

11. **REVISE** Line weights and types to show owner provided items.

DRAWING A2.1 – FIRST FLOOR REFLECTED CEILING PLAN (Re-Issued)

12. **REVISE** Dimensions and ceiling finish materials for clarity.

DRAWING A5.1 – WALL SECTIONS (Re-Issued)

13. **REVISE** Overlapping keynotes

DRAWING A5.4 – WALL SECTIONS (Re-Issued)

14. **REVISE** Keynoting & Details For Clarity

DRAWING A6.0 – ENLARGED FLOOR PLANS AND ELEVATIONS (Re-Issued)

15. **REVISE** Library bookshelves to show mechanical venting grills and clarify keynoting.

DRAWING A7.4 – DETAILS (Re-Issued)

16. **REVISE** Library bookshelves to show mechanical venting grills and clarify keynoting.

DRAWING A8.3 – STOREFRONT ELEVATIONS (Re-Issued)

17. **ADD** Dimensions and details.

DRAWING A8.4 – STOREFRONT ELEVATIONS (Re-Issued)

18. **ADD** Dimensions and details.

DRAWING A9.1 – FURNITURE PLAN (Re-Issued)

19. **REVISE** Line weights and types to show owner provided items.

DRAWING M0.1 – MECHANICAL SCHEDULES (Re-Issued)

- 20. **ADD** HW GPM, FLC columns to Air Handling Units Schedule, and add remark #3 to AHU-1.
- 21. **ADD** FLA, MCA, MOCPC columns to Condensing Units schedule.
- 22. **REVISE** Plumbing Equipment List to show correct water softener information, WS-1 will be a single tank Peerless 210 TCCM unit.
- 23. **REVISE** Plumbing Fixture Schedule to show Hose Bibb Mark as “NFHW-1.”
- 24. **REVISE** V/P column in Air Handling Units Schedule and Exhaust Fans Schedule to reflect the correct electrical data for all rows.
- 25. **REVISE** remarks for Air Handler Units Schedule to call for Seven Day Programmable Thermostats, NOT temperature controlled.

DRAWING M5.2 – MEZZANINE HVAC PLAN (Re-Issued)

- 26. **REVISE** Note on drawing to say “Fire Damper” instead of “Smoke Damper”
- 27. **ADD** symbol for Fire Damper in Vertical to Supply Duct out of AHU-1

DRAWING P3.0 – UNDERGROUND PLUMBING PLAN (Re-Issued)

- 28. **ADD** Sanitary and Vent Pipe for BF-1 underground and tie into sanitary main.

DRAWING P3.1 – FIRST FLOOR PLUMBING PLAN (Re-Issued)

- 29. **ADD** Note to clarify sanitary down through wall between bathrooms.
- 30. **ADD** pipe size tags in hallway and bathroom entryways.
- 31. **ADD** vent pipe up from underground for BF-1 and tie into vent system.

DRAWING P3.2 – MEZZANINE PLUMBING PLAN (Re-Issued)

- 32. **REVISE** CW, HW, and HWR pipes in mechanical mezzanine to ensure all domestic water is softened.

QUESTIONS AND ANSWERS

- 33. Is Contractors responsible for all utilities cost, fees, etc.
 - a. Owner shall provide the following:
 - 1. Relocate existing low voltage wires at US 12
 - 2. Provide new electrical service to new transformer at site.
 - 3. Provide Sewer tap fees.
 - 4. Provide Water service tap fees.
 - 5. Provide new Gas service to new gas meter at property.
 - 6. Provide new telephone cable service to property.
- 34. Sheet C5.0 note 15. Please confirm the separated “service” noted in this directive means a

- separate irrigation meter?
- a. The irrigation will stub off the main service line after the main building meter. If irrigation is provided at a later point and time, the owner will supply the submeter (if desired) for the irrigation. (Irrigation currently is not included in the bid documents)
35. Please confirm who supplies the water meters.
- a. The Village of Edwardsburg will supply the meters. Contractors shall reach out to the Village of Edwardsburg for meter fees.
36. Are the one- and two-year construction warranties intended to include the OWNERS POST CONSTRUCTION MAINTENANCE PROCEDURES for the storm water system detailed on sheet C.1?
- a. Contractor shall maintain post construction maintenance items for one calendar year. Warranty for construction materials and workmanship shall be 2 years.
37. Page C6.1 references a detail on C9.1 for the stone apron and pipe end section, there is currently no C9.1. Is this sheet going to be issued or is that detail on another sheet?
- a. This is a typo. Please refer to sheet C8.0 for stone apron and pipe end sections.
38. There is a mix of info on farm fence and references to chain link, but I did not see firm info on chain link specs. Can you please confirm which styles they would like quoted?
- a. Please see revised specifications **323113 – WOVEN WIRE FENCES & GATES** for requirements.
39. Please clarify site plan breakdown for grading, seeding, and sod.
- a. Please see **Appendix #3.1** for clarification.
40. Please clarify quantities of River Birch, Ozark Witch hazel, and Happy Returns Daylily.
- a. Please see revised sheet C6.0 LANDSCAPE PLAN & C6.1 LANDSCAPE PLAN for quantities.
41. Spec section 074113.16-4 Standing seam metal roof calls for PAC Clad Snap on Panel, but sheet A2.2 calls for a Tite-Loc Panel. Please clarify.
- a. Please see revised sheet **A2.2 – ROOF PLAN**. Standing seam metal roof to be PAC CLAD Snap on Panel System.
42. Who is responsible for elevation 10/A6.0? Please clarify.
- a. Cabinetry in multi-purpose room to be provided by owner.
43. Who is responsible for the bookcase shown on 2,3/A6.0? The section view 4/A6.0 does not offer much clarification.
- a. GC shall be responsible for bookcases on 2,3/A6.0. Please see revised details **1,2 & 3/A6.0**.
44. What are the intended finish edges of the laminate panels? How do they terminate into ceilings, outside corners, inside corners, door frame?

- a. Please see **Appendix #3.2** for laminate panel details.
- 45. Section 10/7.4 & 5/A6.0 show plastic laminate paneling. Are laminate panels shown on ceiling, and do they intend to fit around sliding door frame?
 - a. Laminate panels shall extend from frame of door to hallway for continuous finish. Refer to renderings for reference.
- 46. Please clarify where finish carpentry is in the specification book. Sections 064300 & 064023 are mentioned in the drawings, but don't exist in the specification book. Please clarify.
 - a. Please refer to specification section **066400-1 PLASTIC PANEL**. Please see revised keynotes on sheets **A6.0** through **A6.5**.
- 47. Alternate #6 asks for 8" SIPS, however S0.1 calls for 10 1/4" SIPs. Please clarify.
 - a. GC shall verify that SIP panel thickness complies with roof Energy code requirement. See T1.1 for code requirements.
- 48. The specifications for vinyl wall covering print are to be determined. Please provide an allowance.
 - a. Vinyl wall covering shall have unit cost of \$22/ Per Sq. Ft. Installation and special requirements are subject to additional costs.
- 49. Is 3/4" plywood sheathing shown on details A5.1, A5.2, & A5.3 now eliminated and replaced with 1/A7.3?
 - a. Detail 1/A7.3 shows blocking detail for installing T1-11 finish boards located at vaulted ceiling locations.
- 50. 11/6.0 and A8.4; please confirm what all the boxes shown on this wall represent and provide pertinent details of how these should be constructed.
 - a. Wall openings shall have custom framed observation windows and decorative elements. Details TBD by owner.
- 51. Will the interior vestibule 101B & 103B have 1" insulated or 1/4" tempered glass. If the glass is insulated, will it have the same specifications as the exterior insulated glass?
 - a. Interior vestibule shall have 1" insulated glass at vestibule 101B & 103B.
- 52. For hardware group #20; are the sliding doors manual operation or automatic? Is there a bottom track to keep the door in place?
 - a. Sliding doors are manual operation and have bottom floor guide but no bottom track.
- 53. Do library bookshelves require wall blocking?
 - a. Library bookshelves shall require wall blocking.
- 54. Does wall and T1-11 blocking have to be fire retardant?
 - a. Blocking at roofing does not need to be fire retardant.
- 55. Are the library bookcases to be custom from casework provider? What materials are required? Adjustable or fixed shelving?

- a. Library bookcases to be provided by owner.
56. Are all countertops to be Corian Antarctica?
- a. Yes, all countertops to be Corian Antarctica.
57. Is there a furniture breakdown to determine what is considered furniture verses custom?
- a. Please see revised sheet A1.1 - FIRST FLOOR PLAN, & A9.1 – FURNITURE PLAN for more information.
58. What is the half circle desk shown in Library 113? It is not detailed, and it's not listed on the furniture drawings.
- a. Half circle desk shown in Library 113 to be furniture piece provided by owner.
59. What is the northeast corner of the multipurpose room? It is shown on detail 1-/A6.0, but it is not called out, nor is it shown in elevation. Is this millwork?
- a. Millwork in the multi-purpose room to be provided by owner.
60. Do we provide the custom fabric cushions in 2, 3, & 13/A6.4? If so, we need some specifications for the fabric and foam.
- a. Custom fabric to be Ultrafabrics Brisa in Hazey 553-5360. Cushions to be high density foam.
61. What does the wavy pattern on the wall in elevations 5/A6.5 represent? Is this PLAM?
- a. The wavy pattern on the wall in elevation on sheet **5/A6.5 – ENLARGED FLOOR PLANS AND ELEVATIONS**, represents accent tile at Cafe 104. Tile to be Wow Tile, Stripes Sky & Transition 3x12 tile.
62. How do we know the extent of the PLAM-2 wall panels noted in the finish plan on A8.1 when the areas aren't shown in elevations? For instance, the finish plan shows PLAM-2 at the fireplace, but it is not noted in the fireplace details on A6.4. The finish plan also shows PLAM-2 all around the library shelf room, but the enlarged floor plan on A6.0 doesn't show it at all.
- a. Please see revised sheet A2.1 FIRST FLOOR REFLECTED CEILING PLAN for details.
63. Opening 109-B has missing hardware set?
- a. Please refer to section 087100-31 – DOOR HARDWARE, for door 109B with revised hardware set #14.
64. Opening 125-b has missing hardware set?
- a. Please refer to section 087100-32 – DOOR HARDWARE, for door 125B with revised hardware set #15.
65. Opening 117-A & 117-B are assigned to hardware set 04. These wood doors are gates at Reception room 117 (3-31/4" x 3-3 1/2") Hardware set 04 is for a full-size door. Please provide correct hardware set for opening 117-A & 117-B.
- a. Please refer to section 087100-25 – DOOR HARDWARE, for door 117A & 117B with revised hardware set #1.

66. Opening 112-A is assigned to hardware set 07. Opening 112-A is located at Storage Room 112 and appears to be a standard swinging wood door. Hardware sets 07 is noted "All door hardware by door manufacturer" which appears to be incorrect. Please provide correct and complete hardware set for opening 112-A.
- a. Please refer to section 087100-27 – DOOR HARDWARE, for door 112A with revised door hardware set #08.
67. Opening 113-A is assigned to hardware set 08. Opening 113-A is located at Library 113 but is an aluminum bi-parting door. Hardware set 08 is not correct for this opening. Please provide correct and complete hardware sets for opening 113-A.
- a. Please refer to section 087100-33 – DOOR HARDWARE, for door 113A with revised hardware set #16.
68. Is the ceramic tile on the floors and wall (12x24) polished or matt finish?
- a. Ceramic tile on the walls and floor at toilet rooms is matt finish. Ceramic tile at CAFÉ 104 backsplash is also matt finish.
69. Are stair treads and risers 1-piece units? Johnsonite or Roppe? What profile do you want for the stair treads, hammered, or raised round?
- a. Stair treads and risers shall be individual rubber units with raised round profile. Stair treads and riser shall be Johnsonite solid dark gray or Roppe dark gray.
70. Do we provide rubber tile on the landing to match the stair treads?
- a. Yes, please provide rubber tile to match the stair treads at stair landing.
71. Sheet A5.4 details 2 & 3 do not indicate soffit or ceiling types. Detail 3 exterior references division 09?
- a. Please see revised details 2.3/A5.4. Exterior Soffit to be USG Paraline Plus Linear Metal Ceiling. Please refer to revised sheet A2.1 FIRST FLOOR REFLECTED CEILING PLAN for interior ceiling materials.
72. Please review exterior elevations A3.2 with a cut 2/A4.2 and further detailed 2/A5.3. Is the area above the lower storefront additional storefront and metal siding (1/A1.1) or cement board and fixed louver shown on A5.3?
- a. Lower storefront at 2/A4.2 & 2/A5.3 to be Mapes insulated storefront metal panel system. Area above storefront at louver to be LP smart siding.
73. Please provide manufacturer for metal chimney flue, cap, and strap listed on A7.3.
- a. Chimney flue pipe, cap, and strap shall have black finish. Chimney reinforcing strap shall be located every 6'. Chimney pipe shall be single wall piping.
74. On sheet A7.3 detail 1/A5.1 shows fascia shall be .080" aluminum but specification 076200 calls for 0.032" welded. The specification thickness cannot be welded. Please advise on how the fascia and gutter are to be fastened to the building as cement board and ½" plywood on the zip panel will not be adequate.

- a. All fascia shall be Vesta steel trim coil stock in Autumn Thistle.
- 75. On sheet A5.1, specification 061600.2.4 calls for 3/4" plywood roof sheathing or T&G. Specification 061600.2.1 calls for zip R-6 insulated wall & roof sheathing and weather barrier system by Huber Engineering woods. Please clarify if you are using zip roof sheathing which comes in 5/8" thickness only.
 - a. Roof sheathing shall be 5/8" thick zip roof sheathing system by Huber Engineering. Wall sheathing to be R-6 insulated wall zip sheathing system.
- 76. On sheet A3.2- South Elevation, there is section 9/A7.4 (shown near the bump out for the fireplace). When you reference on sheet A7.4 the detail is showing "Sign B".
 - a. Section 9/A7.4 referencing interior signage section. Please disregard reference on sheet A3.2 South Elevation.
- 77. Specification calls for snap seam panel system while drawings mention a double fold mechanical seam panel. Please clarify.
 - a. Metal roofing panel shall be snap seam panel system not mechanical seam panel.
- 78. Drawings have spec call out 074624 for smart siding, but is not in spec. Spec 074613 for engineered wood siding is in book, no call out on drawings. Please clarify.
 - a. Please see revised keynotes on A3.1 & A3.2. Engineered wood siding to be LP Smart siding. See 074643.13-4 for more information.
- 79. What is the extent of the SIP framing area provided under Alt #6? Typically, any finished wood ceiling is field applied to SIP panels.
 - a. Sip panel alternate shall have T1-11 finish face at vaulted ceiling locations. If SIP panel manufacturer is unable to provide finish face, General contractor shall provide and install T1-11 finish boards. T1-11 boards shall be installed with 2x4 blocking 16" o.c. with #10 Tek screws. See Detail 1/A7.3 for more information.
- 80. Please clarify specification section 061200 for electrical chases. Please provide necessary details if chases are to be provided in the SIP panels.
 - a. Any chases will be limited to electrical conduit for lighting.
- 81. Will Sip Panel alternate cover roof areas "A" and "C"?
 - a. If SIP alternate is accepted, it will include roof "A" & "C"
- 82. Are you able to confirm if softener should be a single or duplex? The schedule says, "each tank" while the spec says, "single unit on skids." We typically don't put a single unit on a skid.
 - a. Water softener is a single unit. Please see sheet M0.1 for details.
- 83. Operation of sequence is in Section 2300993-1 through 2300992-4. Please confirm this is the sequence we are to follow. Sheet M0.1 has (14) baseboard heaters and 230093 sequence in spec states we are to use fin tube heaters. Please clarify.

- a. Please use baseboard heaters specified on M0.1 NOT fin tube heaters.
- 84. There is no chemical feeder shown on the boiler schematic on sheet M8.0. Is chemical feeder required?
 - a. No chemical feeder is required, but can be recommended dependent on boiler manufacturer.
- 85. Alt. 2B – Are the fixture designations as indicated on the revised plans in Addendum #1 mis-marked?
 - a. See addendum #2; No fixtures for Alt 2B.
- 86. Alt 3B – No fixture designation for this alt. Please advise.
 - a. See addendum #2, (4) short poles for Alt #3B
- 87. The AHU's and EF#3 are listed as 480 Volt-3 phase. There are only 240-volt 1 phase available. Please advise.
 - a. AHU and EF-3 to be 280V, 3 phase. Please see revised schedules on sheet
- 88. Drawings for fire alarm system, specification 283101 calls out for the expansion of existing game wall system, but this is new construction. Drawing 3.1 does not show fire alarm devices. Please clarify.
 - a. System to be all new, specification will be revised. Siemens is an approved equal. See sheet 3.1 for fire alarm layout.
- 89. E3.1 shows access control only on east and west doors. Please confirm that no other locations are to be included. No specifications provided for access control. Please confirm specifications.
 - a. Only door access are in those two locations at the owner's request.
- 90. Bid documents do not show video surveillance system application, please confirm if video surveillance is included in the bid process. If so, please provide information.
 - a. Owner to utilize existing surveillance provider for this scope and will be handling video surveillance outside of the bid contract.
- 91. On sheet E3.1 the data symbols don't have any details associated with them. Please verify the following: Manufacturer of face plates, keystone jacks, color of faceplates, number of keystone jacks, special labeling if required of each data location.
 - a. Abonmarche only to specify conduit and box locations.
- 92. Can specs for floor boxes please be provided? There is no reference to what type is needed and is not clear if these need to be able to support data as well as power. Please clarify.
 - a. Please see attached appendix #
- 93. Is Gamewell manufactured to meet spec, or is the intent for this to be an open spec which will need to meet spec requirements?
 - a. The intent is for approval of open spec.

APPROVAL OF ADDITIONAL PRODUCTS/SYSTEMS

1.Include the following acceptable manufacturers in sections indicated:

Section	Acceptable Manufacturers
283101	Siemans - www.siemens.com – (800-333-7421)

END OF DOCUMENT

SECTION 074113.16 - STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Vertical-rib, snap-joint, standing-seam metal roof panels.
2. Roof insulation.

B. Related Requirements:

1. Section 061600 "Sheathing" for roof sheathing.
2. Section 077100 "Roof Specialties" for gutters and downspouts.
3. Section 077253 "Snow Guards" for prefabricated devices designed to hold snow on the roof surface, allowing it to melt and drain off slowly.

1.2 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

1.3 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed in accordance with manufacturers' written installation instructions and warranty requirements.

1.4 COORDINATION

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

- B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.5 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metal and other materials beyond normal weathering.
 - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.
- C. Special Weathertightness Warranty: Manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.
 - 1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing in accordance with ASTM E1592:
 - 1. Wind Loads: As indicated on Drawings.
 - 2. Deflection Limits: For wind loads, no greater than 1/240 of the span.
- B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested in accordance with ASTM E1680 or ASTM E283/E283M at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.
- C. Water Penetration under Static Pressure: No water penetration when tested in accordance with ASTM E1646 or ASTM E331 at the following test-pressure difference:
 1. Test-Pressure Difference: 6.24 lbf/sq. ft.
- D. Watertightness: No water penetration when tested in accordance with ASTM E2140 for hydrostatic-head resistance.
- E. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
 1. Uplift Rating: UL 90.
- F. FM Approvals Listing: Provide metal roof panels and component materials that comply with requirements in FM Approvals 4471 as part of a panel roofing system and that are listed in FM's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals markings.
- G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 STANDING-SEAM METAL ROOF PANELS, GENERAL

- A. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed fasteners in side laps. Include all accessories required for weathertight installation.
 1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.

2.3 VERTICAL-RIB, SNAP-JOINT, STANDING-SEAM METAL ROOF PANELS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. ATAS International, Inc.
 2. Fabral; a brand of Flack Global Metals.
 3. MBCI; Cornerstone Building Brands.
 4. PAC-CLAD; Petersen; a Carlisle company.
- B. Basis-of-Design Product: PAC-CLAD; Snap-On Standing Seam Panel.

- C. Panels: Formed with vertical ribs at panel edges; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and snapping panels together.
1. Structural Support: Over solid deck.
 2. Material: Metallic-coated steel.
 3. Panel Profile: Intermediate stiffening ribs symmetrically spaced between ribs.
 4. Panel Coverage: 16 inches.
 5. Panel Height: 1.0 inch.
 6. Clips: One piece, fixed, designed to accommodate thermal movement.
 - a. Steel Clips: Manufacturer's recommendation, minimum 0.028-inch-nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.
 - b. Clip Spacing: 24 inches.

2.4 ROOF INSULATION

A. Insulation over Solid Deck:

1. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 3, felt or glass-fiber mat facer on both major surfaces.
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Atlas Polyiso Roof and Wall Insulation.
 - 2) Elevate; Holcim Building Envelope.
 - 3) Hunter Panels; a Carlisle company.
 - 4) Johns Manville; a Berkshire Hathaway company.
 - b. Compressive Strength: 25 psi.
 - c. Size: 48 by 96 inches.
 - d. Thickness:
 - 1) Base Layer: 1-1/2 inches Insert thickness.
 - 2) Upper Layer: Insert thickness.

2.5 PANEL MATERIALS

- A. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with minimum ASTM A653/A653M, G90 coating designation, or aluminum-zinc alloy-coated steel sheet complying with minimum ASTM A792/A792M, Class AZ50 coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
1. Nominal Thickness: 0.028 inch.
 2. Surface: Smooth, flat finish.

2.6 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Subframing and Furring: ASTM C645; cold-formed, metallic-coated steel sheet, minimum ASTM A653/A653M, G90 hot-dip galvanized coating designation or ASTM A792/A792M, Class AZ50 coating designation. Provide manufacturer's standard sections as required for support and alignment of metal panel system.
- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, fasteners, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
 - 1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
 - 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 - 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- D. Panel Fasteners: Self-tapping screws designed to withstand design loads.
- E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
 - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
 - 2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
 - 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.7 FABRICATION

- A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

- B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate in accordance with equipment manufacturer's written instructions and to comply with details shown.
- C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- D. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- E. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations that apply to design, dimensions, metal, and other characteristics of item indicated.
 - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
 - 3. Seams for other than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
 - 4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with manufacturer's recommendations.
 - 5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not permitted on faces of accessories exposed to view.
 - 6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by metal panel manufacturer for application, but not less than thickness of metal being secured.

2.8 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Steel Panels and Accessories:

1. Two-Coat Fluoropolymer: Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
 2. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.
 - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages in accordance with ASTM C754 and metal panel manufacturer's written installation instructions.

3.3 INSTALLATION OF ROOF INSULATION

- A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, in accordance with manufacturer's written installation instructions.
 1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.

2. Tape joints and ruptures in vapor retarder and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.

3.4 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 ft. on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.
- B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.
- C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.
- D. Prepare test and inspection reports.

3.6 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 283101 - ADDRESSABLE FIRE ALARM AND DETECTION SYSTEMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Fire alarm and detection systems.

1.2 RELATED WORK

- A. Section 260553 - Electrical Identification: Refer to electrical identification for color and identification labeling requirements.

1.3 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in smoke detection and fire alarm systems with ten years' experience.
- B. Installer: A factory-authorized Electrical or Security Contractor licensed with the State and local jurisdiction with five years' experience in the design, installation, and maintenance of fire alarm systems by that manufacturer.
- C. Qualifications: The person managing/overseeing the preparation of shop drawings and the system installation/programming/testing shall be trained and certified by the system manufacturer and shall be Fire Alarm Certified by NICET, minimum Level 2. This person's name and certification number shall appear on the start-up and testing reports.

1.4 REFERENCES

- A. ASME A17.1 - Safety Code for Elevators and Escalators
- B. NFPA 20 - Standard for Centrifugal Fire Pumps
- C. NFPA 70 - National Electrical Code (NEC)
- D. NFPA 72 - National Fire Alarm and Signaling Code
- E. NFPA 101 - Life Safety Code
- F. UL 2017 - General Purpose Signaling Devices and Systems
- G. UL 217 / 268 - Standard for Smoke Alarms / Smoke Detectors for Fire Alarm Systems
- H. UL 2572 - Control and Communication Units for Mass Notification Systems

1.5 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 260500 and as noted below.
 - 1. Failure to comply with all the following and all the provisions in 26 05 00 will result in the shop drawing submittal being rejected without review.
 - 2. Failure to submit the fire alarm without all requirements fulfilled in a single comprehensive submittal will be grounds to require a complete resubmittal.
- B. Provide product catalog data sheets as shop drawings.
 - 1. Provide a product catalog data sheet for each item shown on the Electrical Symbols List and for each piece of equipment that is not shown on the drawings, but required for the operation of the system.
 - 2. Where a particular Electrical Symbols List item has one or more variations (such as those denoted by subscripts, etc.) a separate additional product catalog data sheet shall be provided for each variation that requires a different part number to be ordered. The corresponding Electrical Symbols List symbol shall be shown on the top of each sheet.
 - 3. Where multiple items and options are shown on one data sheet, the part number and options of the item to be used shall be clearly denoted.
- C. Submit CAD Floor Plans as Shop Drawings:
 - 1. The complete layout of the entire system, device addresses, auxiliary equipment, and manufacturer's wiring requirements shall be shown.
 - 2. A legend or key shall be provided to show which symbols shown on the submittal floor plans correspond with symbols shown on the Contract Documents.

1.6 REGULATORY REQUIREMENTS

- A. System: UL listed.
- B. Conform to requirements of NFPA 101.
- C. Conform to requirements of Americans with Disabilities Act (ADA).
- D. Conform to UL 864 Fire Alarm, UL 1076 Security, UL2017 General Signaling, and UL 2572 Mass Notification Communications.

1.7 SYSTEM DESCRIPTION

- A. Performance Statement: This specification section and the accompanying fire alarm specific design documents describe the minimum material quality, required features, and operational requirements of the system. These documents do not convey every wire that must be installed and every equipment connection that must be made. Based on the equipment described and the performance required of the system, as presented in these documents, the Vendor and the Contractor are solely responsible for determining all wiring, programming and miscellaneous equipment required for a complete and operational system.
- B. This section of the specifications includes the furnishing, installation and connection of the microprocessor controlled, intelligent reporting, fire alarm equipment required to form a complete coordinated system that is ready for operation. It shall include, but is not limited to, alarm initiating devices, control panels, auxiliary control devices, annunciators, power supplies, and wiring as indicated on the drawings and specified herein.
- C. Extending the Existing Fire Alarm System: Provide all items, components, devices, hardware, software, programming, expansion components, conduit, wiring etc. needed to extend fire alarm system. This includes, but is not limited to, additional power supplies, initiating devices and circuits, signaling devices and circuits, monitoring devices and circuits, auxiliary control and related devices such as, door holders and their control, smoke damper control, fan shutdown, etc. The existing fire alarm system shall be extended such that the existing fire alarm system's functionality, integrity and annunciation shall be equivalent to pre-construction conditions, unless noted otherwise. The functionality and integrity shall be maintained during construction. The entire system shall be able to be completely reset from any single reset location point. The entire system shall be annunciated at any annunciation location.
- D. Extending the Existing Gamewell FCI 7100 Fire Alarm System: The existing control panel shall remain and shall be operational throughout construction. The system shall only be disabled to make new connections and to modify the programming. A fire watch shall be provided for all areas affected during outages. All system outages must be scheduled with the Owner at least one week prior. Individual devices may be disabled as needed based on construction activities to reduce the potential for false alarms, but all devices must be operational when the Contractor is not physically on site. New initiating devices may be connected to the existing signaling line circuits where capacity is available. Provide additional signaling line circuits as needed based on existing and new device quantity, including replacement of existing panel components. Provide new notification circuits to serve the new devices, including all necessary power supplies, amplifiers, batteries, and 120-volt input circuits. All new devices shall be programmed to provide the same sequence of operation as the existing devices of the same type, unless noted otherwise.
- E. Fire Alarm System: NFPA 72; Automatic and manual fire alarm system, non-coded, analog-addressable with automatic sensitivity control of certain detectors, multiplexed signal transmission.

- F. System Supervision: Provide electrically supervised system, with supervised Signal Line Circuit (SLC) and Notification Appliance Circuit (NAC). Occurrence of single ground or open condition in initiating or signaling circuit places circuit in TROUBLE mode. Component or power supply failure places system in TROUBLE mode.
- G. Drawings: Only device layouts and some equipment have been shown on the contract drawings. Wiring and additional equipment to make a complete and functioning system has not been shown, but shall be submitted on the shop drawings.

1.8 OPERATION AND MAINTENANCE DATA

- A. Include operating instructions, and maintenance and repair procedures.
- B. Include the CAD floor plan drawings.
- C. Include shop drawings as reviewed by the Architect/Engineer and the local Authority Having Jurisdiction.

PART 2 - PRODUCTS

2.1 SIGNALING LINE CIRCUIT DEVICES

- A. Combination Devices: Subscripts identify combination type devices when applicable. Contractor shall provide the combination device or provide multiple device(s) to meet the functionality when the manufacturer does not offer the required functionality with a single device.
- B. Signal Line Device(s):
 - 1. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
 - a. Device type as follows:
 - 1) W = Weather Proof
 - 2) Candela Ratings:
 - a) ## = 15 Candela, 30 Candela; 75 Candela; 110 Candela; 177 Candela
 - b) CD = NICET designer shall select Candela rating as required to provide full coverage of the space.
 - b. Sequence of operation as follows:
 - 1) D = HVAC Control
- C. FA-120; Smoke Detectors:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
 - a. Device types as follows:
 - 1) Blank = Photoelectric
2. (BLANK) Analog Photoelectric Type Sensor: Shall use the photoelectric principle to measure smoke density and send data to the control panel representing the analog level of smoke density measured.
3. Each smoke detector shall connect directly to an SLC loop, unless listed as stand alone.
4. Each detector shall be mounted, where shown on the drawings, on a twist-lock base with all mounting hardware provided. Provide a two-piece head/base design.
5. Each detector shall have a manual switching means to set the internal identifying code (address) of that detector, which the control panel shall use to identify its address with the type of sensor connected.
6. Dual alarm and power indicators shall be provided that flash under normal conditions and remain continuous under alarm or trouble conditions. Remote indicator terminals shall be provided. Provide a remote LED indicator device if detector is not visible from a floor standing position.
7. A test means shall be provided to simulate an alarm condition.
8. Where operation is noted as required below 32°F and/or above 120°F, a conventional device shall be installed with a unique monitor module located in the nearest available location with maintained temperatures between 32°F and 120°F.

D. FA-122; Duct Smoke Detectors, Sampling Tube Type:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
 - a. Duct-type smoke detectors shall use the same analog photoelectric sensor technology, with the same features specified for standard smoke detectors, except with additional features as specified below.
 - b. Provide sampling tubes and mounting hardware to match the duct to which it is attached. Where the detector housing is larger than the duct height, Contractor shall fabricate a mounting bracket for the detector and attach according to the fire alarm manufacturer's recommendations.
 - c. Provide a remote alarm LED indicator device (FA-241) or (FA-242) if detector is not visible from a floor-standing position. If detector is located above a suspended ceiling, mount remote indicator in ceiling directly below detector with a white single-gang faceplate labeled: Duct Smoke Detector.

E. FA-130; Manual Pull Stations:

1. Manual pull station, addressable, double action, reset key lock, semi-flush mount, red high abuse plastic or cast metal construction with white lettering. Provided with all necessary mounting hardware.
2. Manual stations shall connect directly to an SLC loop. Stations shall provide address setting means using rotary decimal or DIP switches.
3. Where operation is noted as required below 32°F and/or above 120°F, a conventional device shall be installed with a unique monitor module located in the nearest available location, with maintained temperatures between 32°F and 120°F.

F. FA-160; Monitor Modules:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
2. Monitor Module shall connect directly to an SLC loop and receive power from a separate 24 VDC circuit. It shall interface initiating devices with the control panel using Style D or Style B circuits. Contractor Option: Use an interface module (2-wire operation) for Style B circuits connected to normally-open dry contacts, such as a flow switch.
3. The module shall be mounted in an enclosure located in an accessible service location as near as possible to the device(s) being monitored, or where shown on the drawings. All mounting hardware shall be provided.
4. The module shall supply the required power to operate the monitored device(s).
5. The module shall provide address setting means using rotary decimal or DIP switches.

2.2 NOTIFICATION APPLIANCE DEVICES

A. Combination Devices: Subscripts identify combination type devices when applicable. Contractor shall provide the combination device or provide multiple device(s) to meet the functionality when the manufacturer does not offer the required functionality with a single device.

B. Notification Appliance Device(s):

1. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
 - a. Device types as follows:
 - 1) W = Weather Proof
 - 2) Candela Ratings:
 - a) ## = 15 Candela; 30 Candela; 75 Candela; 110 Candela; 177 Candela
 - b) CD = NICET designer shall select Candela rating as required to provide full coverage of the space.

C. Notification Device(s):

1. Wall Mounted: Red housing with white lettering or pictogram.

D. FA-200; Visual Alarm Devices:

1. Wall or ceiling mounted, refer to plans.
2. High intensity (Candela rating as scheduled on the drawings) xenon strobe or equivalent under a lens. Candela rating shall be visible from exterior of the device.
3. The maximum pulse duration shall be 0.2 seconds with a maximum duty cycle of 40%. The flash rate shall be 1 Hz. Where more than two strobes are visible from any one location, the fire alarm visual devices shall be synchronized.
4. Device, housing, and backbox shall be UL listed for fire alarm/emergency applications.
5. (W) Weatherproof Visual Notification Device: High intensity strobe, square housing, 75 Candela rating, suitable for wet locations. Provide with weatherproof back box.
 - a. Mounting: Semi-flush wall.
 - b. Conduit shall not be exposed.

E. FA-210; Audio Horn Alarm Devices:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
2. Wall or ceiling mounted, refer to plans.
3. Sound Rating: 85 dB at 10 feet. Sound levels for alarm signals shall not exceed 120 dBA in the occupied area.
4. Device shall be capable of a high and low dB level setting. Unless noted otherwise, the device shall be set to the high setting at building completion.
5. Device, housing, and backbox shall be UL listed for fire alarm/emergency applications.

F. FA-211; Combination Audio Horn and Visual Alarm Device:

1. Wall or ceiling mounted, refer to plans.
2. Combine audio and visual components into a single device. Refer to the corresponding paragraphs above for requirements of each component.
3. (W) Weatherproof Audio/Visual Notification Device: Electronic horn with high intensity strobe, square housing, 75 Candela, suitable for wet locations. Provide with weatherproof back box.
 - a. Mounting: Semi-flush wall.
 - b. Conduit shall not be exposed.

2.3 NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC)

- A. As shown on the plans or as a Contractor's option if not shown, furnish and install NAC extender panels as necessary to provide remote power supply for notification appliance circuits (NAC). Contractor shall indicate quantity and locations of each NAC on the shop drawing submittals.
- B. Each NAC shall be self-contained remote power supply with batteries, and battery charger mounted in a surface lockable cabinet. Battery capacity shall be sufficient for operation for 24 hours in a non-alarm state followed by alarm for 15 minutes, plus 25% spare capacity for future devices. Each NAC provides a minimum of up to 4 outputs, 2A continuous, or 6A full load total capacity.
- C. Power for each NAC shall be from a local 120 VAC circuit. Provide two #12 conductors and one #12 ground in 1/2" conduit to each NAC from a dedicated 20A/1P circuit breaker with a red handle and a manufacturer's standard handle lock-on device. Coordinate panel and circuit number with the Architect/Engineer prior to installation.
- D. Mounting: Surface.

2.4 WIRING

- A. Fire alarm wiring/cabling shall be furnished and installed by the Contractor in accordance with the manufacturer's recommendations and pursuant to National Fire Codes. Cabling shall be UL listed and labeled as complying with the Electrical Code for power-limited fire alarm signal service.

PART 3 - EXECUTION

3.1 SEQUENCES OF FIRE ALARM OPERATION

- A. Panel/Annunciator Alarm, Trouble, Supervisory Indication:
 - 1. Appropriate system Alarm, Trouble, or Supervisory LED shall flash at the control panel, transponder, and annunciator locations.
 - 2. The LCD display shall indicate all information associated with the condition, including the name of the item, type of device and its location within the protected premises.
 - 3. Transmit the appropriate signal (supervisory, trouble, alarm) to the central station via the digital communicator.
- B. Audible Alarms Sequence:
 - 1. Audible alarms throughout the building shall sound.
- C. Visual Alarms Sequence:

1. Visual alarms throughout the building shall flash.

D. AHU and Mechanical Fan Shutdown Sequence:

1. The fire alarm system shall utilize addressable relays to de-energize all AHU motor controllers and mechanical fans. Coordinate other requirements with HVAC installer.
2. The fire alarm system shall directly shut down the AHU or mechanical fan through the local HVAC control device (i.e., variable frequency drive or motor starter).
3. Where a facility has more than one AHU or mechanical fan, each shall be shutdown individually based on input from initiation devices in the area served by the unit or designated for each air distribution system.
4. All AHUs and mechanical fans shall be shutdown simultaneously throughout the building.

3.2 INSTALLATION

A. Install system in accordance with manufacturer's instructions and referenced codes.

B. Devices:

1. General:
 - a. All ceiling-mounted devices shall be located where shown on the reflected ceiling and floor plans. If not shown on the reflected ceiling or reflected floor drawings, the devices shall be installed in the relative locations shown on the floor drawings in a neat and uniform pattern.
 - b. All devices shall be coordinated with luminaires, diffusers, sprinkler heads, piping and other obstructions to maintain a neat and operable installation. Mounting locations and spacing shall not exceed the requirements of NFPA 72.
 - c. Where the devices are to be installed in a grid type ceiling system, the detectors shall be centered in the ceiling tile.
 - d. The location of all fire alarm devices shall be coordinated with other devices mounted in the proximity. Where a conflict arises with other items or with architectural elements that will not allow the device to be mounted at the location or height shown, the Contractor shall notify the Architect/Engineer to coordinate a different acceptable location.
2. Per the requirements of NFPA, detector heads shall not be installed until after the final construction cleaning unless required by the local Authority Having Jurisdiction (AHJ). If detector heads must be installed prior to final cleaning (for partial occupancy, to monitor finished areas or as otherwise required by the AHJ), they shall not be installed until after the fire alarm panel is installed, with wires terminated, ready for operation. Any detector head installed prior to the final construction cleaning shall be removed and cleaned prior to closeout.
3. Protection of Fire Alarm System:

- a. A smoke detector shall be installed within the vicinity of the main fire alarm panel and every NAC extender panel per NFPA 72. A heat detector may be substituted when a smoke detector is not appropriate for the environment of installation.
4. Duct-type Analog Smoke Detectors:
 - a. Duct-type analog smoke detectors shall be installed on the duct where shown on the drawings and details. The sampling tubes shall be installed in the respective duct at the approximate location where shown on the electrical drawings to meet the operation requirements of the system.
 - b. All detectors shall be accessible.
 - c. Duct-type detectors shall be installed according to the manufacturer's instructions.
5. Manual Pull Stations:
 - a. Stations shall be located where shown and at the height noted on the drawings.
6. Addressable Relays and Monitor Modules:
 - a. Modules shall be located as near to the respective monitor or control devices as possible, unless otherwise indicated on the drawings.
 - b. All modules shall be mounted in or on a junction box in an accessible location.
 - c. Where not visible from a floor standing position, a remote indicator shall be installed to allow inspection of the device status from a local floor standing location.
7. Notification Appliance Devices:
 - a. Devices shall be located where shown on the drawings.
 - b. Wall-mounted audio, visual and audio/visual alarm devices shall be mounted as denoted on the drawings.
 - c. Where ceiling mounted visual alarm devices or combination audio/visual alarm devices are shown where the ceiling is greater than 30'-0" high, they shall be stem mounted so that the entire unit is below 30'-0". This does not apply to audio-only alarm devices.

C. Wiring:

1. Fire alarm wiring/cabling shall be provided by the Contractor in accordance with the manufacturer's recommendations and pursuant to National Fire Codes.
2. Wiring shall be installed in conduit from device to above accessible ceilings. Exposed plenum-rated cable (FPLP) shall be used above accessible ceilings supported every 4 feet or run in cable trays (if applicable) maintaining a minimum of 5-inches clearance from all lighting ballasts. Fire alarm cabling shall not be installed in the same bridge rings or cable trays designated for the cabling of other systems.

3. Notification Appliance Circuits shall provide the features listed below. These requirements may require separate circuits for visual and audible devices.
 - a. Fire alarm temporal audible notification for all audio appliances.
 - b. Synchronization of all visual devices where two or more devices are visible from the same location.
 - c. Ability to silence audible alarm while maintaining visual device operation.
 - d. Emergency communication alert and textual visible appliance notification.
 4. Notification Appliance Circuits shall not span floors.
 5. Signal line circuits connecting devices shall not span floors or 2-hour smoke compartments.
 6. No wiring other than that directly associated with fire alarm detection, alarm or auxiliary fire protection functions shall be in fire alarm conduits. Wiring splices shall be avoided to the extent possible, and if needed, they shall be made only in junction boxes, and enclosed by plastic wire nut type connectors. Transposing or changing color coding of wires shall not be permitted. All conductors in conduit containing more than one wire shall be labeled on each end, in all junction boxes, and at each device with "E-Z Markers" or equivalent. Conductors in cabinets shall be carefully formed and harnessed so that each drops off directly opposite to its terminal. Cabinet terminals shall be numbered and coded, and no unterminated conductors are permitted in cabinets or control panels. All controls, function switches, etc. shall be clearly labeled on all equipment panels.
- D. Devices surface mounted in finished areas shall be mounted on surface backboxes furnished by fire alarm equipment supplier. Backboxes shall be painted to match device, shall be the same shape and size as the device shall not have visible knockouts.
- E. Make conduit and wiring connections to door release devices, sprinkler flow and pressure switches, sprinkler valve monitor switches, fire suppression system control panels, duct analog smoke detectors and all other system devices shown or noted on the Contract Documents or required in the manufacturer's product data and shop drawings.
- 3.3 MANUFACTURER'S FIELD SERVICES
- A. Include services of certified technician to supervise installation, adjustments, final connections, and system testing.
- B. Note that room numbers depicted on the architectural/engineering drawings will not necessarily reflect the actual room (signage) numbers that the Owner selects. Contractor and fire alarm manufacturer shall coordinate the actual room numbers as the Owner directs to identify each device. This list shall be a part of the floor plan record drawing to be turned in at the project closeout.

END OF SECTION

SECTION 323113 - WOVEN WIRE FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. MDOT Woven Wire Fence.

1.2 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design fence and gate frameworks.
- B. Structural Performance: Fence and gate frameworks shall withstand the design wind loads and stresses for fence height(s) and under exposure conditions indicated according to ASCE/SEI 7.
1. Design Wind Load: 85 mph wind speed.
 - a. Minimum Post Size: Determine according to ASTM F 1043 for post spacing not to exceed 12 feet.
 - b. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified.
- C. Lightning Protection System: Maximum resistance-to-ground value of 25 ohms at each grounding location along fence under normal dry conditions.

2.2 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
1. Fabric Height: As indicated on drawings.

- B. Fabric: Steel woven wire fabric must be zinc coated .
1. Zinc Coated: Zinc coated fabric must meet the requirements of ASTM A116, Design N011047-6-11, for Grade 60, Class 1 zinc coating.
- C. Smooth Line Wire: Smooth line wire must be No. 9 gauge coated steel wire meeting the requirements of ASTM A116, for Grade 60, Class 1 zinc-coated smooth line wire or ASTM A584, for aluminum-coated smooth line wire.
- D. Steel Posts: After fabrication, galvanize steel fence posts, braces, and fitting in accordance with ASTM A123 and this subsection:
1. The weight of zinc coating per square foot of surface on posts and braces must average at least 2.00 ounces and no individual specimen may have less than 1.80 ounces of zinc coating per square foot, regardless of metal thickness. The Department will include the weight of zinc coating in the weights specified for posts and braces, but will deduct the weight of galvanizing greater than 4.00 ounces per square foot of surface from the post weight.
 2. The Department will allow an alternate zinc and clear coat system for pipe sections. The exterior surface of the pipe section must have 0.90 ounce per square foot of zinc coating and a clear acrylic coating at least 0.30 mil thick. The interior surface of the pipe section must have 0.35 ounce per square foot of zinc coating or 0.30 mil zinc-rich organic coating and a zinc powder loading of at least 91 percent by weight.
 3. Zinc coating must be applied in accordance with ASTM A 123. Determine coating weights and thicknesses in accordance with AASHTO M 181.
 4. Line Posts: Steel for line posts must meet the requirements of ASTM A 702, for Type A or Type B. Line posts must be 7 feet long, ± 1 inch, with a nominal weight of 1.12 pounds per foot. Exclusive of the anchor plate, individual line posts must weigh 1.08 pounds per foot. Posts must be notched, studded, or have other Department-approved means of holding the fabric in place on the post. Provide each post with a Department-approved anchor plate and at least seven 11 gauge galvanized or aluminum coated wire clamps.
 5. End, Corner, Gate, Intersection, and Intermediate Braced Posts: Steel angle sections, steel pipe, or steel tubing end, corner, gate, intersection, and intermediate braced posts must have an average weight within 10 percent of the specified weight per foot. Angle sections for posts and braces must meet the physical requirements of ASTM A 36 or ASTM A 702, for Type A or Type B. Provide the required fittings and braces with each post.
 - a. Posts. End, corner, gate, intersection, and intermediate braced posts must be 8 feet long, ± 1 inch. Angle sections must be nominal $2\frac{1}{2}$ inch by $2\frac{1}{2}$ inch by $\frac{1}{2}$ inch. Pipe or tubing must be nominal 2-inch, (2.375 inch OD), weighing 3.650 pounds per foot.

- b. Braces. Angle section braces must be nominal 1¾ inch by 1¾ inch by ¼ inch (2 inch by 2 inch by 3/16 inch). Steel pipe braces must be nominal 1½ inch, (1.900 inch OD), weighing 2.72 pounds per foot. Steel tubing braces must be nominal 1.750 inch OD weighing 3.13 pounds per foot. Braces must be long enough to support the posts. Provide at least one brace with each end post or gate posts. Provide at least two braces with each corner post and each intermediate braced post. Provide at least three braces with each intersection post.
 - 6. Posts for Fence and Gates. Fence posts and gate posts for fence must be metallic coated steel meeting the requirements of Table 907-2.
 - 7. The average weight per foot of metallic coated fence posts must be within ±10 percent of the required weight per foot. Posts must be at least 32 inches longer than the height of the fence fabric.
 - 8. Steel posts for fence must be coated with zinc inside and outside in accordance with the following method.
 - a. Zinc Coating. Apply zinc coating meeting the requirements of ASTM A 123 or ASTM A 653. Use the alternate zinc and clear coat system described in subsection 907.03.D for pipe sections only. The weight of zinc coating on pipe sections must average at least 1.80 ounces per square foot of surface and at least 1.60 ounces per square foot of surface per specimen when tested in accordance with ASTM A 90. For posts, other than pipe sections, the weight of zinc coating on each post must average at least 2.00 ounces per square foot of surface and at least 1.80 ounces per square foot of surface per specimen when tested in accordance with ASTM A 90.
- E. Fence Fittings and Hardware: Provide post caps, rail, or brace ends, tie wires and clips, tension and brace bands, tension bars, truss rods, barb arms, and other hardware, meeting the requirements of ASTM F 626 and the exceptions and additions specified in this subsection. Bevel the ends of hog rings for fastening fabric to the tension wire to allow crimping. If using aluminum coated wire ties and clips, ensure the coating weighs at least 0.30 ounces per square foot of surface. The Contractor may use flat aluminum alloy line post bands with an OD from 0.062 inch to 0.375 inch and with self locking ends to fasten fabric to posts with an OD no greater than 2.375 inches. Use double twisted, No. 9 gauge, galvanized steel for fabric fasteners for structure fencing.
- F. High-Tensile Wire Fence:
- 1. Wire: High tensile wire must be 1½ gauge, Grade 200, with Class 3 zinc coating in accordance with ASTM A 854.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 FENCE INSTALLATION

- A. Install woven wire fence fencing according to MDOT or ASTM F 567 and more stringent requirements specified.
- B. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Exposed Concrete: Extend 2 inches above grade; shape and smooth to shed water.
 - b. Concealed Concrete: Place top of concrete 3 inches below grade to allow covering with surface material.
- C. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 30 degrees or more for runs exceeding 500 feet, space pull posts an equal distance between corner or end posts
- D. Line Posts: Space line posts uniformly at 8 feet o.c.
- E. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- F. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side.

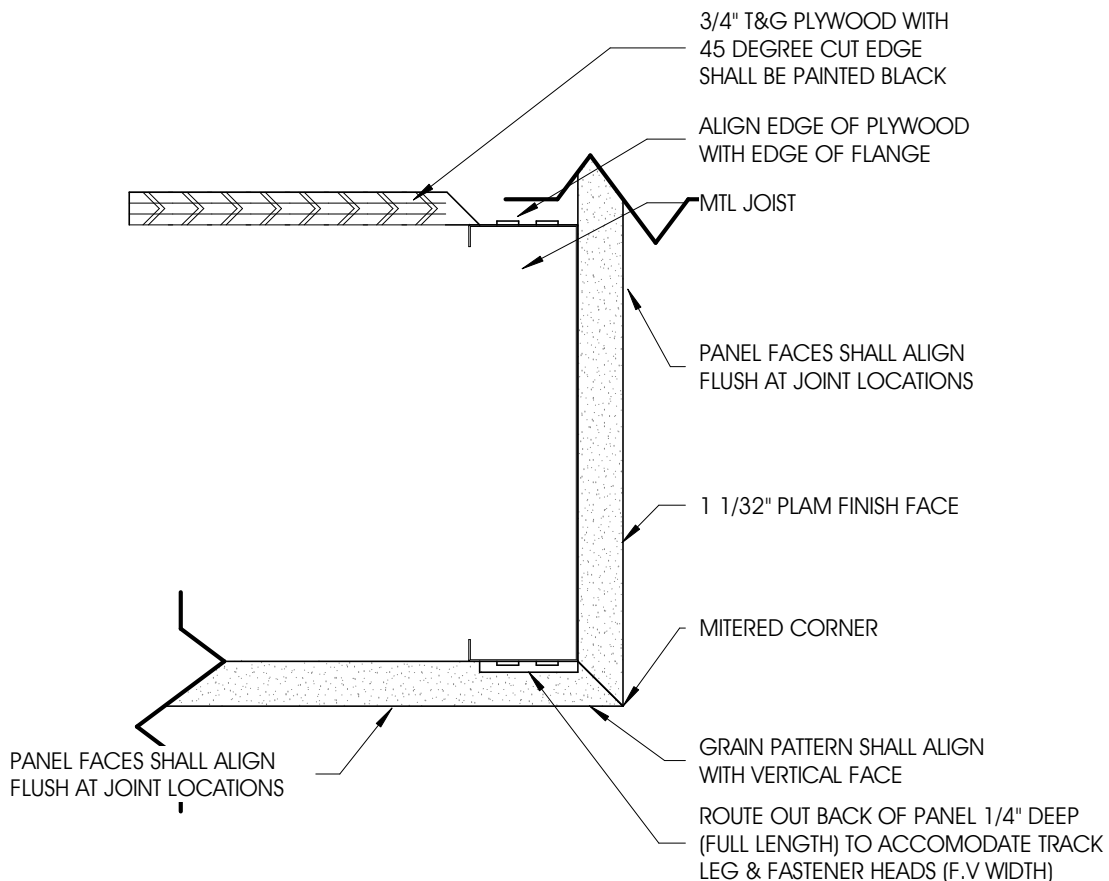
3.4 GROUNDING AND BONDING

- A. Fence and Gate Grounding: Comply with requirements in Section 260526 "Grounding and Bonding for Electrical Systems."
 - 1. Ground for fence and fence posts shall be a separate system from ground for gate and gate posts.
 - 2. Install ground rods and connections at maximum intervals of 300 feet
 - 3. Fences within 100 Feet of Buildings, Structures, Walkways, and Roadways: Ground at maximum intervals of 300 feet.
 - 4. Ground fence on each side of gates and other fence openings.
 - a. Bond metal gates to gate posts.
 - b. Bond across openings, with and without gates, except openings indicated as intentional fence discontinuities. Use No. 2 AWG wire and bury it at least 18 inches below finished grade.
- B. Protection at Crossings of Overhead Electrical Power Lines: Ground fence at location of crossing and at a ground rod located a maximum distance of 150 feet on each side of crossing.
- C. Fences Enclosing Electrical Power Distribution Equipment: Ground according to IEEE C2 unless otherwise indicated.
- D. Grounding Method: At each grounding location, drive a grounding rod vertically until the top is 6 inches below finished grade. Connect rod to fence with No. 6 AWG conductor. Connect conductor to each fence component at grounding location. Retain one or both subparagraphs below if applicable.
- E. Connections:
 - 1. Make connections with clean, bare metal at points of contact.
 - 2. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
 - 3. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
 - 4. Make above-grade ground connections with mechanical fasteners.
 - 5. Make below-grade ground connections with exothermic welds.
 - 6. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
- F. Bonding to Lightning Protection System: Ground fence and bond fence grounding conductor to lightning protection down conductor or lightning protection grounding conductor according to NFPA 780.
- G. Comply with requirements in Section 264113 "Lightning Protection for Structures."

END OF SECTION 323113

NOTE:

1. PLAM PANELS SHALL HAVE DOGBONE CLIPS INSTALLED AT JOINT LOCATIONS. PANELS SHALL BE ATTACHED FROM BEHIND, THROUGH JOISTS. FASTENERS SHALL NOT DAMAGE OR PENETRATE VENEER FINISH.
2. MAXIMIZE PANEL LENGTH TO MINIMIZE JOINTS. JOINTS TO BE EQUALLY SPACED.



1
3.2

DETAIL @ PLAM

3" = 1'-0"



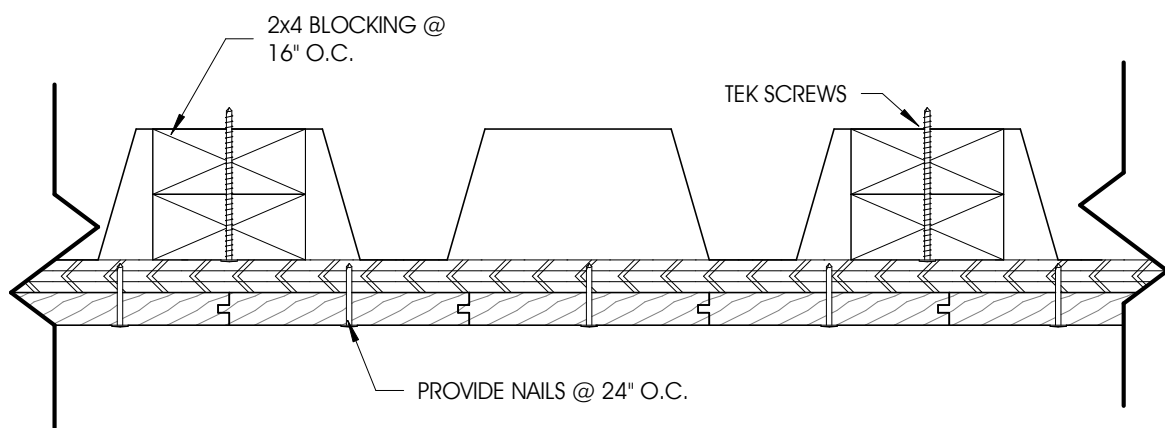
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**CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
DETAIL @ PLAM**

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1
3.3 T&G DETAIL
3" = 1'-0"



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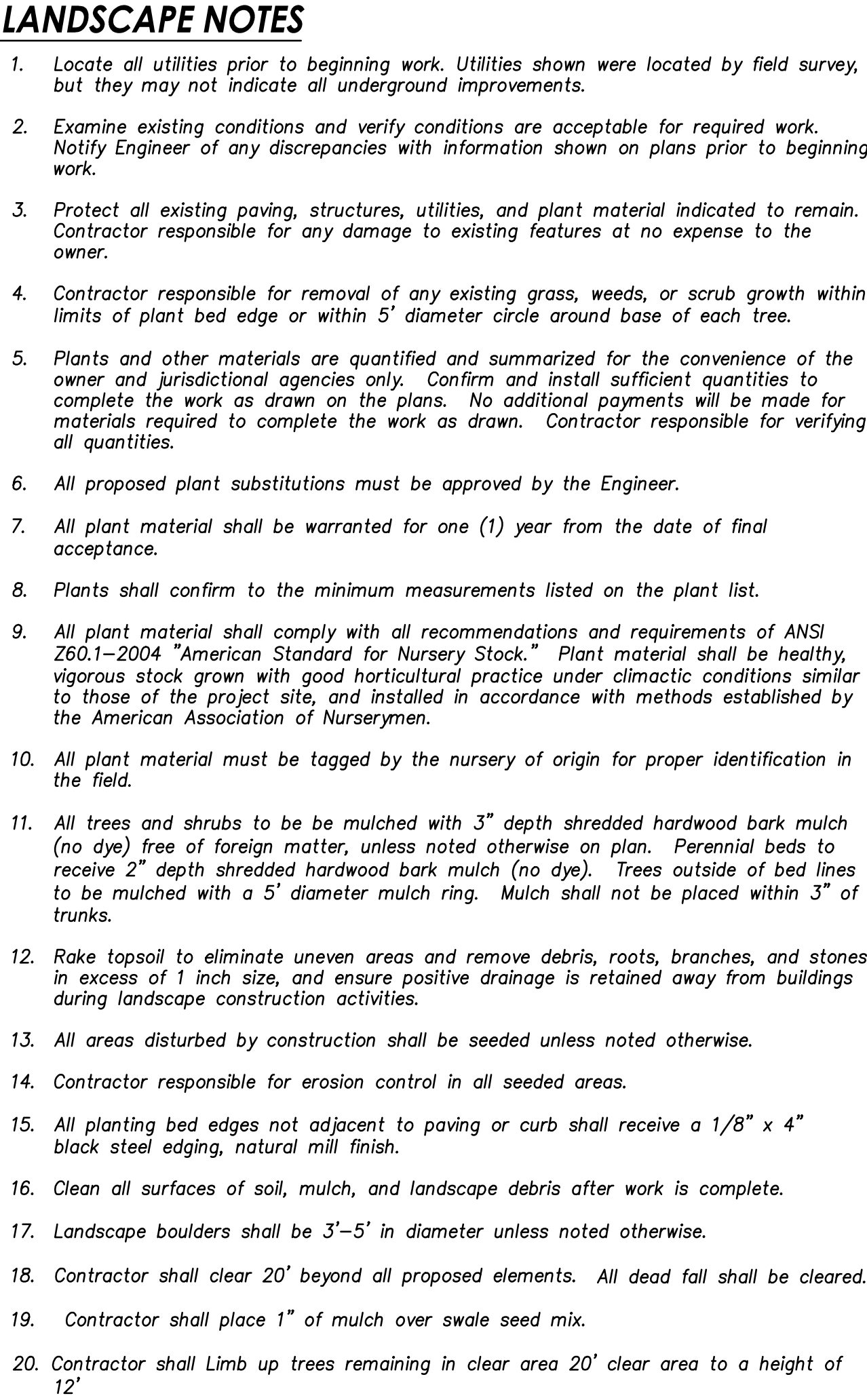
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**CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
T&G CEILING DETAIL**

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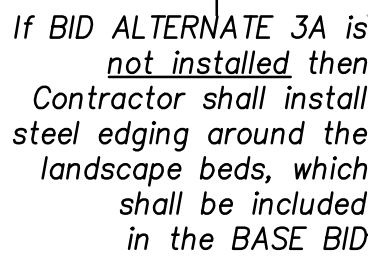
ENGINEERING, ARCHITECTURE, LAND SURVEYING



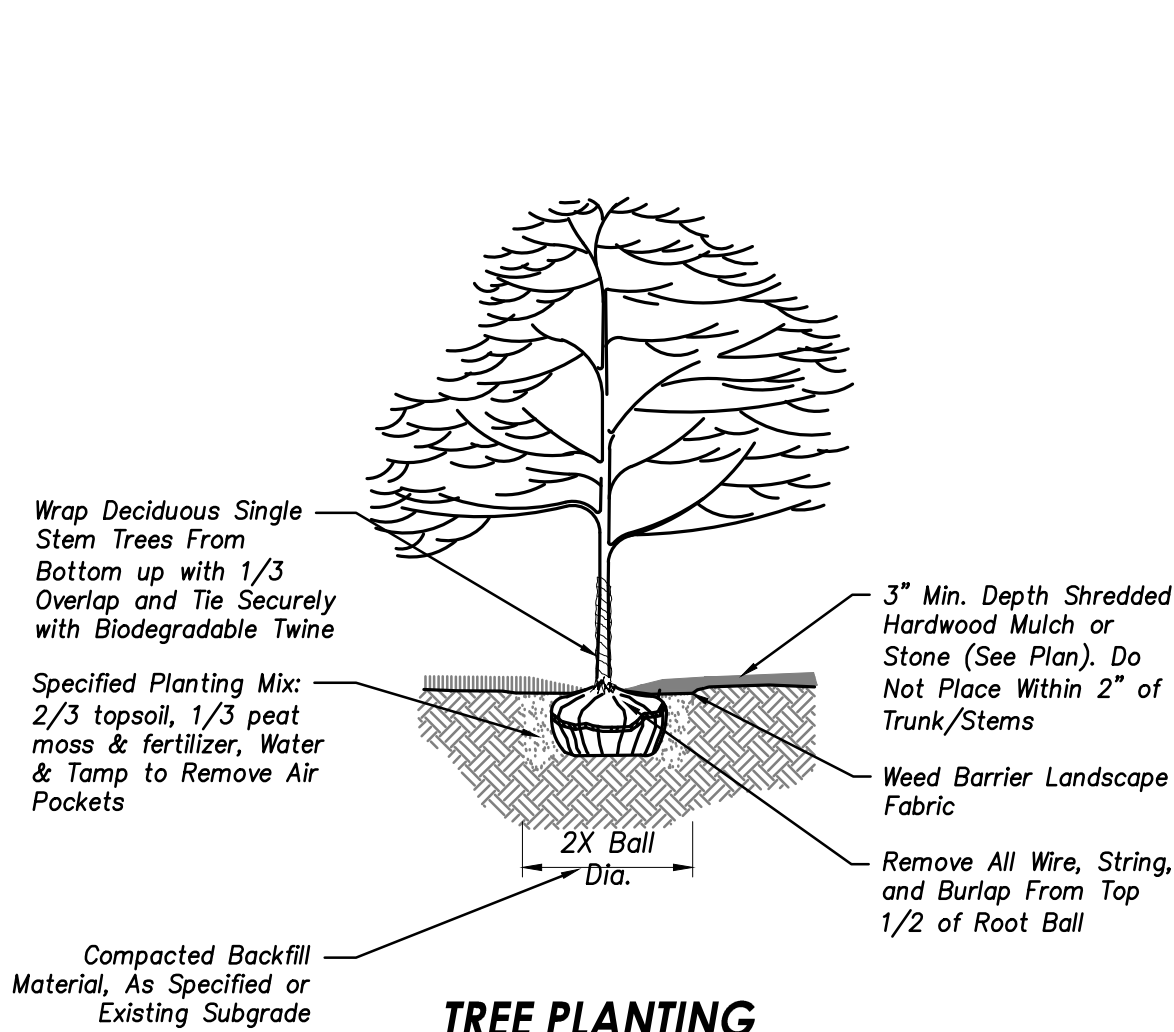
⑥ 4"-6" Glacial Cobble Stone over Non-Woven Geotextile;
6" Cobble @ Pipe End Sections In Accordance w/"Stone
Apron & Pipe End Section Detail", Sheet C9.1

For Boulder/Stone Placement At Basins,
See Detail, Sheet C6.1

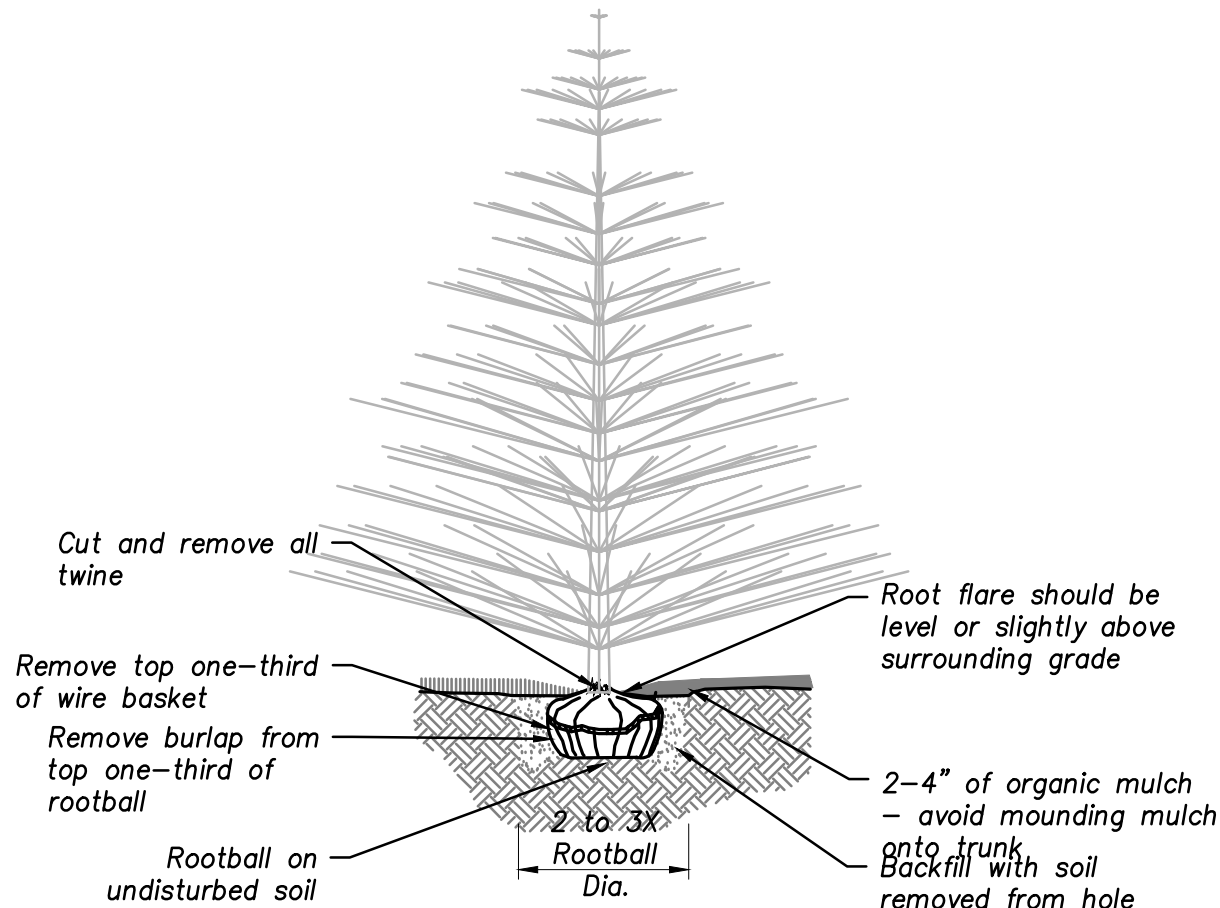
See Sheet C6.1.



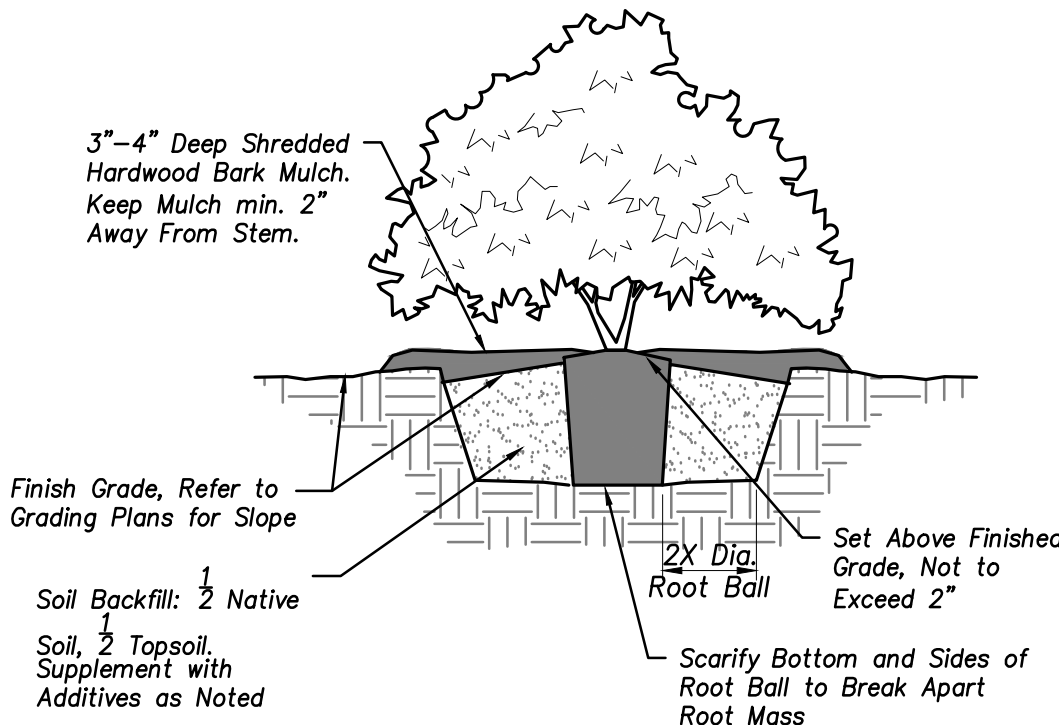
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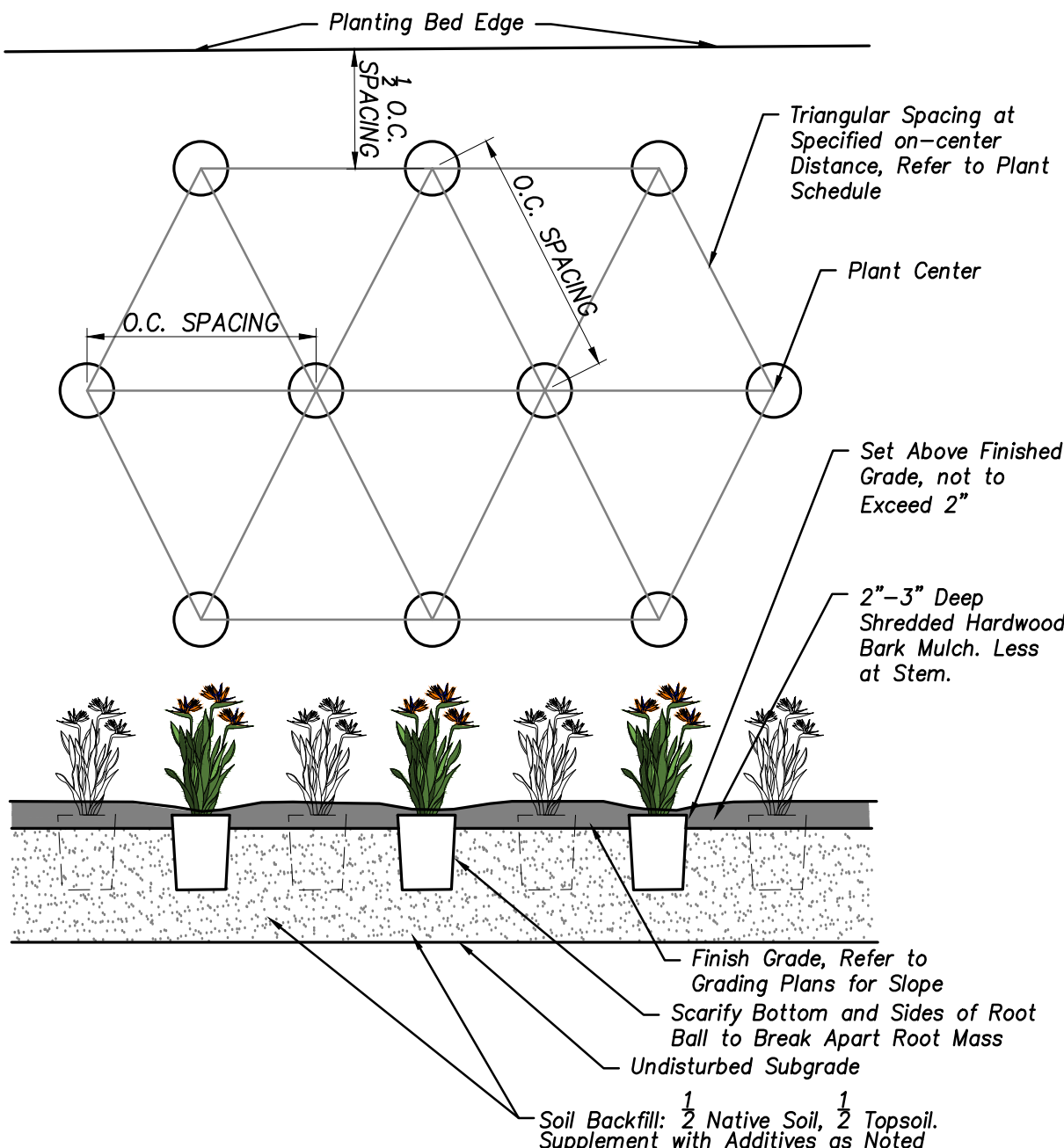
TREE PLANTING



EVERGREEN TREE PLANTING



SHRUB BED PLANTING



PERENNIAL PLANTING

NATIVE WILDFLOWER MIX

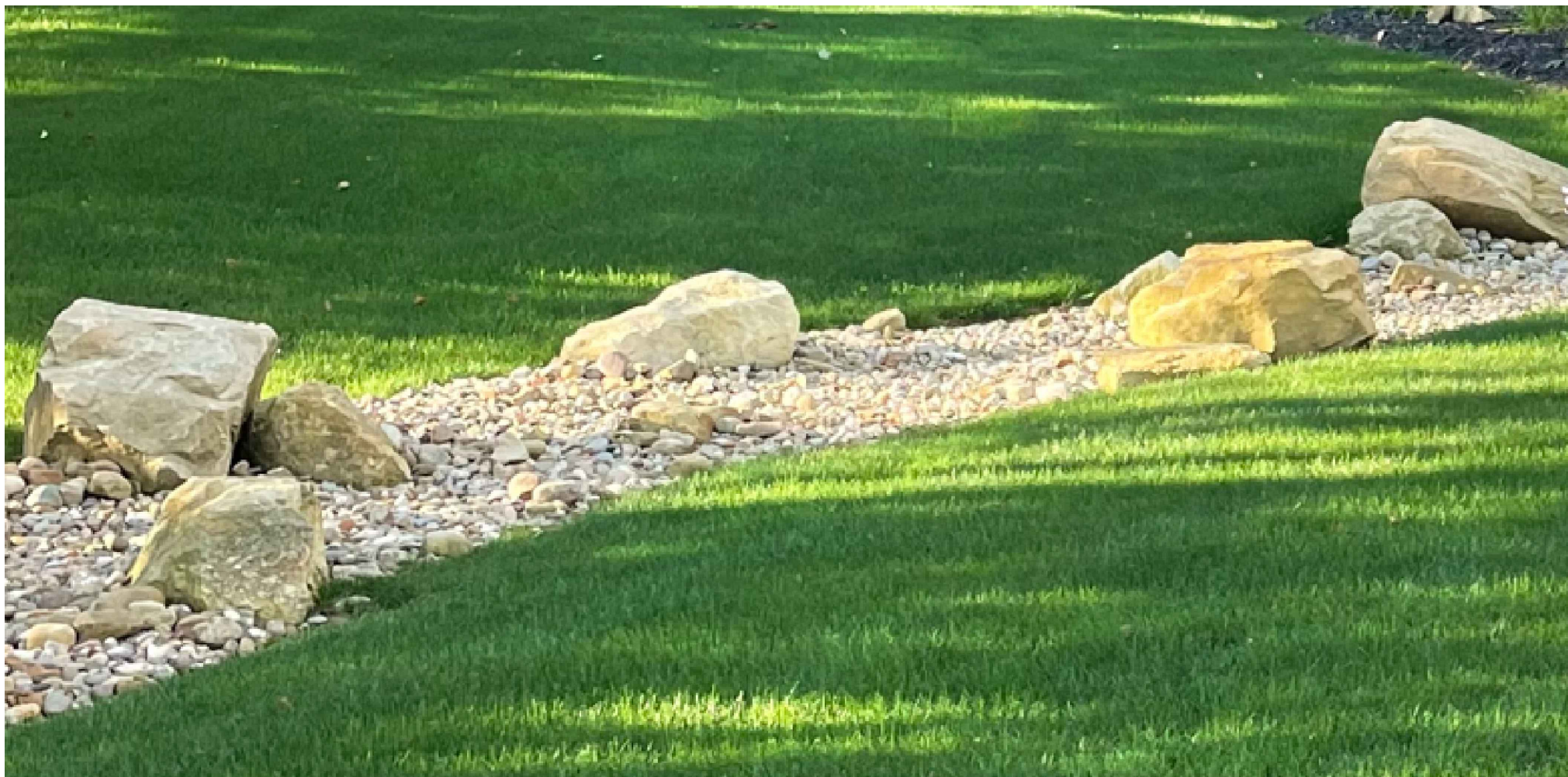
This seed mix includes quick-blooming native wildflowers to provide initial color during native prairie establishment, especially on restoration sites. This mix contains many species beneficial to native bees and pollinators and can be used to supplement other seed mixes or existing natural areas. This seed mix includes at least 10 of 12 native forb species. Apply at 4.63 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Native Species:		
Asclepias syriaca	Common Milkweed	4.00
Chamaenerion fasciculata	Partridge Pea	16.00
Coneopsis lanceolata	Sand Coneopsis	8.00
Desmanthus illinoensis	Illinois Sensitive Plant	12.00
Echinacea purpurea	Broad Leaved Purple Coneflower	12.00
Lupinus perennis n. occidentalis	Wild Lupine	4.00
Monarda fistulosa	Wild Bergamot	1.50
Penstemon digitalis	Forgelove Beard Tongue	1.00
Ranibida pinnata	Yellow Coneflower	4.00
Rudbeckia hirta	Black-Eyed Susan	10.00
Solidago speciosa	Showy Goldenrod	0.50
Symphoricarpon laeve	Smooth Blue Aster	1.00
Total		74.00

Swale

Best suited for drainage swales or depressions, the native plants used in this mix help filter pollutants from lawns and pavement runoff. This seed mix can also be applied to areas that temporarily retain water after a rain event or dry-bottomed detention basins. The swale seed mix includes at least 10 of 12 native permanent grass and sedge species and 12 of 17 native forb species to provide diversity for establishment. Apply at 37.00 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
Andropogon gerardi	Big Bluestem	4.00
Carex cristatella	Crested Oval Sedge	0.50
Carex lurida	Butterbrush Sedge	3.00
Carex spp.	Prairie Sedge Species	8.00
Carex vulpinoidea	Brown Fox Sedge	3.00
Elymus canadensis	Canada Wild Rye	16.00
Elymus virginicus	Virginia Wild Rye	16.00
Juncus canadensis	Canadian Rush	1.00
Panicum virginum	Switch Grass	3.00
Scirpus atrovirens	Dark Green Rush	2.00
Scirpus cyperus	Wool Grass	0.50
Sparganium pectinatum	Prairie Cord Grass	3.00
Total		60.00
Temporary Cover		
Avena sativa	Common Oat	\$12.00
Total		\$12.00
Forbs		
Alisma subcordatum	Common Water Plantain	1.00
Asclepias incarnata	Swamp Milkweed	2.00
Coneopsis triptera	Tall Coneopsis	1.00
Euthamia graminifolia	Common Grass-Leaved Goldenrod	0.50
Eutrochium maculatum	Spotted Joe-Pye Weed	1.00
Iris virginica v. strepera	Blue Flag	4.00
Liatris spicata	Kudlak-Blazing Star	1.00
Lycopus americanus	Common Water Horehound	0.50
Mimulus ringens	Monkey Flower	0.50
Pentstemon sedifolius	Catch Stonecrop	1.00
Pycnanthemum virginianum	Common Mountain Mint	0.50
Rudbeckia triloba	Brown-Eyed Susan	1.00
Senna hebecarpa	Wild Senna	1.00
Stachys tenuiflorum	Prairie Dock	1.00
Symphoricarpon racem-angulm	New England Aster	0.50
Verbena hastata	Blue Vervain	1.50
Zizia aurea	Golden Alexanders	2.00
Total		20.00



ROCK AREAS AT BASINS

Contractor shall use 4–6" cobblestone in rock areas. Boulders shall be 4–6".

PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING
TREES						
AB2	1	Acer buergerianum	Trident Maple	2.5" Cal		
AG	1	Acer griseum	Paperbark Maple	2.5" Cal	B&B	
BN	2	Betula nigra	River Birch Multi-Trunk	8"-10" HT	B&B	40' O.C.
LSR	2	Liquidambar styraciflua 'Rotundiloba'	Round-Label Sweet Gum	2.5" Cal	B&B	40' O.C.
EVERGREEN TREES						
AB2	1	Abies balsamea	Balsam Fir	10'-12' HT		
AC	3	Abies concolor	White Fir	10'-12' HT		
CN	2	Callitropsis nootkatensis 'Pendula'	Weeping Nootka False Cypress	6'-8' HT		
TA	10	Thuja occidentalis 'Art Boe'	North Pole® Arborvitae	6'-8' HT		
TC	3	Tsuga canadensis	Eastern Hemlock	6'-8' HT		
FLOWERING TREES						
AGA	1	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	8'-10' HT	B&B	15' O.C.
CC	3	Cercis canadensis	Eastern Redbud	2" Cal	B&B	25' O.C.
CF	2	Cornus florida 'Cherokee Chief'	Cherokee Chief Dogwood	2" Cal	B&B	As Shown
CK	5	Cornus kousa 'Milky Way'	Milky Way Kousa Dogwood	8'-10" HT	B&B	Multi-Trunk
MR	4	Malus x 'JFS-KWS'	Royal Raindrops® Crabapple	2.5" Cal	B&B	
SHRUBS						
BGV	16	Buxus x 'Green Velvet'	Green Velvet Boxwood	24" HT	Cont.	4' O.C.
DK	15	Diervilla x 'Kodiak Orange'	Kodiak® Orange Diervilla	15" HT	Cont.	4' O.C.
FN	13	Forsythia x 'New Hampshire Gold'	New Hampshire Gold Forsythia	1 Gal		4' O.C.
HS	17	Hamamelis vernalis	Ozark Witchhazel	24" HT		
HN	12	Hydrangea macrophylla 'Nikko Blue'	Nikko Blue Hydrangea	24" HT		
HQ	5	Hydrangea quercifolia 'Brenhill'	Gatsby Gal® Oakleaf Hydrangea	24" HT	Cont.	
RM	17	Rhododendron x 'Mary Fleming'	Mary Fleming Rhododendron	18" HT		
VB	25	Viburnum x 'Burkwoodii'	Burkwood Viburnum	24" HT		
ORNAMENTAL GRASSES						
CK2	12	Calamagrostis x acutiflora 'Karl Foerster'	Karl Foerster Feather Reed Grass	1 Gal		
PERENNIALS						
AM	109	Allium x 'Millenium'	Millenium Ornamental Chive	1 Gal	Pot	16" O.C.
AX	172	Astilbe x 'Versasopberry'	Younique™ Raspberry Astilbe	1 Gal		
ES2	28	Epimedium stellulatum	Bishops Hat	4" POT		
HHR	177	Hemerocallis x 'Happy Returns'	Happy Returns Daylily	1 Gal	Pot	18" O.C.
HB	58	Hemerocallis x 'Little Business'	Little Business Daylily	1 Gal	Pot	18" O.C.
LSS	265	Leucanthemum x superbum 'Snowcap'	Snowcap Shasta Daisy	1 Gal	Pot	16" O.C.
PA	59	Perovskia atriplicifolia 'Little Spire'	Little Spire Russian Sage	1 Gal	Pot	24" O.C.
SC	85	Sedum x 'Carl'	Carl Sedum	1 Gal	Pot	18" O.C.

3	ADDENDUM 3	DEF	01/31/2024
2	ADDENDUM 2	NI	01/23/2024
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LANDSCAPE PLAN

PROJECT:

NEW CONSTRUCTION FOR:
CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
W. MAIN STREET
EDWARDSBURG, MI

SHEET TITLE:

MODELED BY: DEF

DESIGNED BY: SDR/DEF

PM REVIEW: SDR

QA/QC REVIEW: JWJ

DATE: 12/20/2023

SEAL: JOHN W. LINN
ENGINEER
No. 39676

SIGNATURE: [Signature]

DATE: 12/20/2023

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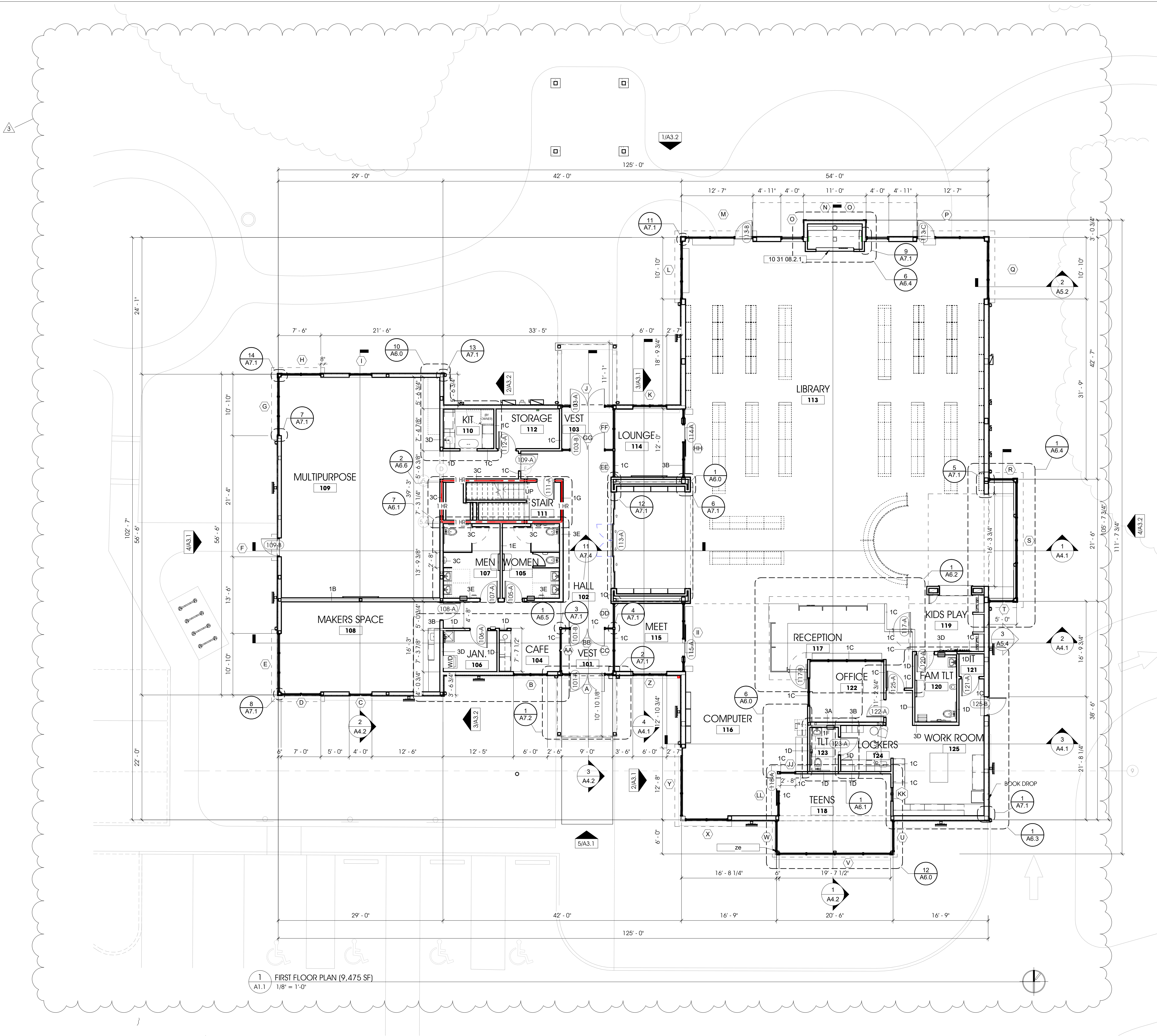
SCALE: 1" = 30'

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ACT JOB # 22-1836

SHEET NO.

C6.1



GENERAL NOTES - FLOOR PLAN

- A. DO NOT SCALE DRAWINGS - USE WRITTEN DIMENSIONS PROVIDED ONLY
- B. ALL SPECIFIED ITEMS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AS COMPLETE SYSTEMS WITH ALL ACCESSORY ITEMS REQUIRED FOR A COMPLETE INSTALLATION. GENERAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ALL TRADES, CONSTRUCTION TYPES, ETC., TO PREVENT EXCLUSION OR DUPLICATION. GENERAL CONTRACTORS BIDS SHALL BE ALL INCLUSIVE.
- C. PROVIDE ARCHITECTURAL CONCRETE FLOOR FINISH AT ROOMS 104, 105, 106, 107, AND 108 - G.C. SHALL ENSURE SURFACE IS CLEAN, DRY, STRUCTURALLY SOUND, AND FREE FROM DIRT, DUST, OIL, GREASE, SOLVENTS, PAINT, WAX, ASPHALT, CONCRETE CURING COMPOUNDS, SEALING COMPOUNDS, SURFACE HARDENERS, BOND BREAKERS, ADHESIVE RESIDUE, AND OTHER SURFACE CONTAMINANTS - G.C. IS RESPONSIBLE FOR USING TEMPORARY FLOOR PROTECTION THROUGHOUT THE PROJECT TO SAFEGUARD THE SURFACE QUALITY OF CONCRETE SLABS BEFORE AND AFTER APPLICATION OF DECORATIVE FINISHES OR INSTALLATIONS OF OTHER MATERIALS - REFER TO SHEET A8.1 AND SPECIFICATION FOR ADDITIONAL REQUIREMENTS
- D. REFER TO SHEET T1.2 FOR WALL TYPES
- E. REFER TO SHEET A8.1 ROOM FINISH SCHEDULE FOR INTERIOR FINISH MATERIALS.
- F. REFER TO SHEET A8.2 FOR DOOR AND FRAME ELEVATIONS.
- G. REFER TO SHEET A8.3 STOREFRONT ELEVATIONS
- H. REFER TO STRUCTURAL DRAWINGS & SPECIFICATIONS FOR ADDITIONAL INFORMATION
- I. REFER TO MEP DRAWING & SPECIFICATIONS FOR ADDITIONAL INFORMATION
- J. PROVIDE FINISHED FACE @ ALL SIDES OF LIBRARY SHELVING
- K. ALL EXTERIOR WALL PENETRATIONS SHALL BE FINISHED TO MATCH ADJACENT WALL COLOR (TYP.)
- L. PROVIDE SEALANT BETWEEN ALL DISSIMILAR MATERIALS (TYP)

KEYNOTE LEGEND

Key Value	Keynote Text
10 31 08.2.1	MANUFACTURED ELECTRIC FIREPLACE



PROJECT:
**NEW CONSTRUCTION FOR:
CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
W. MAIN STREET,
EDWARDSBURG, MI**

FIRST FLOOR PLAN

SHEET TITLE:

MODELED BY: JPA, MHK, AND

DESIGNED BY: ARD

PM REVIEW: ARD, MDN

QA/QC REVIEW: MDN

DATE: 01/31/2024

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SIGNATURE:

DATE:

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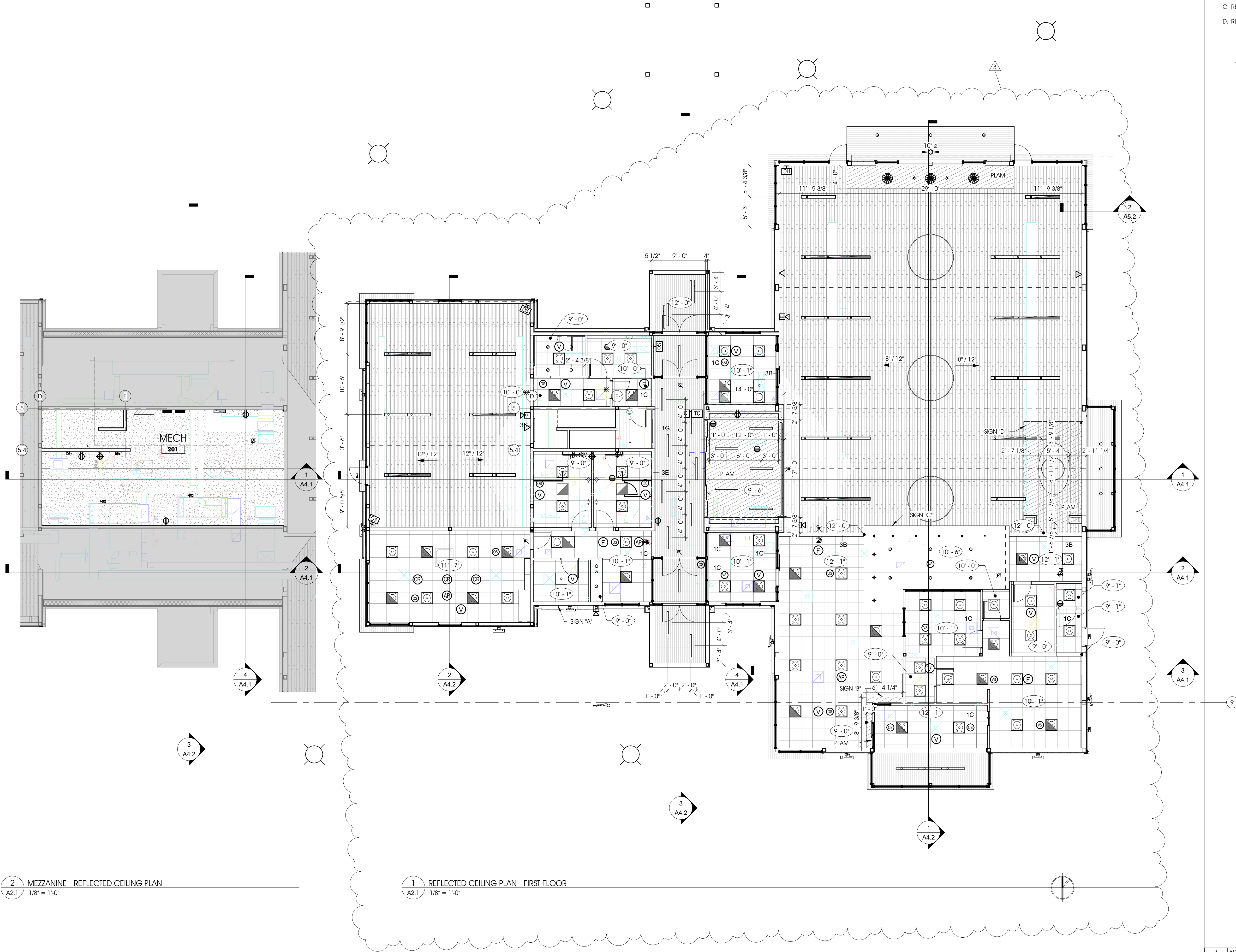
A1.1

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2	ADDENDUM #2	MHK	01/24/2024
NO.	REVISION DESCRIPTION	BY	DATE

O:\Projects\2022\22-1836 CDL Edwardsburg Library\1 Drawing Files\Arch\Revit

2 MEZZANINE - REFLECTED CEILING PLAN
A2.1 1/8" = 1'-0"

1 REFLECTED CEILING PLAN - FIRST FLOOR
A2.1 1/8" = 1'-0"



GENERAL NOTES - REFLECTED CEILING PLAN

- A. REFER TO STRUCTURAL, MECHANICAL, & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- B. REFER TO SHEET A7.4 FOR SIGN DETAILS
- C. REFER TO SHEET E0.1, E2.1, & E2.2 FOR LIGHT FIXTURE LEGEND & LIGHTING PLANS
- D. REFER TO SHEET T1.2 FOR RATED FLOOR/CEILING ASSEMBLY @ MECH ROOM 201.

CEILING FINISHES

- SUSPENDED ACOUSTIC TILE- 24"X24"
- HARD CEILING- 5/8" GYPSUM BOARD
- FLAT CEILING & SOFFIT
- SLOPED CEILING
- P-LAM

SHEET TITLE:

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DESIGNED BY: ARD

PM REVIEW: ARD, MDN

QA/QC REVIEW: MDN

DATE: 01/31/2024

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22-1836

SHEET NO.

A2.1

3	ADDENDUM #3	MHK	01/31/2024
2	ADDENDUM #2	MHK	01/24/2024
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT:
NEW CONSTRUCTION FOR:
CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
W. MAIN STREET,
EDWARDSBURG, MI

FIRST FLOOR - REFLECTED
CEILING PLAN

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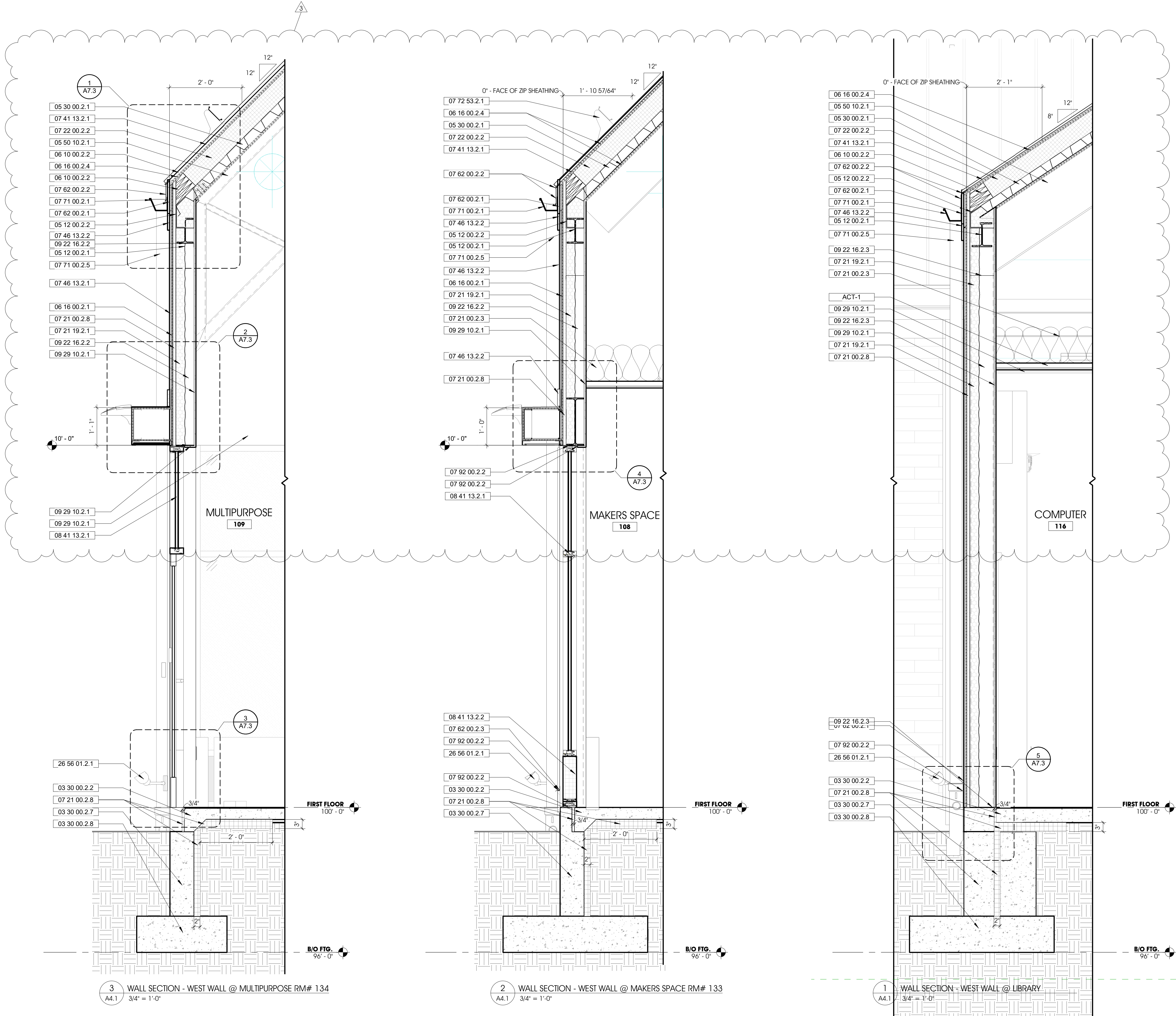
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Engineering Architecture Land Surveying



GENERAL NOTES - WALL SECTIONS

- A. ALL CONTRACTORS ARE RESPONSIBLE FOR PROVIDING COMPLETE INSTALLATION OF ALL COMPONENTS AND SHALL COORDINATE THEIR SCOPE OF WORK WITH ALL OTHER TRADES PRIOR TO SUBMITTING BIDS TO ENSURE THERE ARE NO MISSING OR DUPLICATE COMPONENTS WITH-IN THEIR SCOPE
- B. DO NOT SCALE DRAWINGS. USE INDICATED DIMENSIONS ONLY.
- C. SHOULD A CONTRACTOR FIND DISCREPANCIES OR AMBIGUITIES IN OR OMISSIONS FROM THE DRAWINGS OR SPECIFICATIONS, OR BE IN DOUBT ABOUT THEIR MEANING, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY.
- D. CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE JOB DURING CONSTRUCTION LAYOUT AND ADVISE THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO PERFORMING ANY WORK.
- E. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXISTING CONDITIONS ON-SITE & ADVISING ARCHITECT OF ANY DISCREPANCIES WITH DEMOLITION OR NEW WORK PLANS PRIOR TO PERFORMING ANY WORK.
- F. CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY IF ANY UNFORESEEN STRUCTURAL OR UTILITY RELATED ISSUES ARISE DURING DEMOLITION OR EXCAVATION.
- G. ALL SPECIFIED ITEMS SHALL BE PROVIDED AND INSTALLED PER MANUFACTURERS WRITTEN REQUIREMENTS
- H. WEATHER BARRIER SHALL PROVIDE A CONTINUOUS WEATHER TIGHT ENVELOPE - ALL JOINTS SHALL BE TAPED

KEYNOTE LEGEND

Key Value	Keynote Text
03 30 00.2.2	INTERIOR CONCRETE SLAB OVER CONTINUOUS VAPOR BARRIER AND 6 INCH PROPERLY COMPACTED BASE. PROVIDE CONCRETE DENSIFIER/HARDENER TO SEAL CONCRETE FLOOR - REFER TO STRUCTURAL FOR ADDITIONAL REQUIREMENTS
03 30 00.2.7	CONCRETE FOUNDATION - REFER TO STRUCTURAL
03 30 00.2.8	CONCRETE FOOTING- REFER TO STRUCTURAL
05 12 00.2.1	STEEL BEAM - REFER TO STRUCTURAL
05 12 00.2.2	STEEL CLIP ANGLE - REFER TO STRUCTURAL
05 30 00.2.1	METAL DECK - REFER TO STRUCTURAL
05 50 10.2.1	PREFABRICATED STEEL TRUSS - REFER TO STRUCTURAL
06 10 00.2.2	TREATED WOOD BLOCKING SHALL BE PROVIDED AT ALL LOCATIONS EXPOSED TO MOISTURE, EXTERIOR BUILDING ENVELOPE, ADJACENT TO CONCRETE OR MASONRY AND AS OTHERWISE REQUIRED."
06 16 00.2.1	ZIP R-4 INSULATED WALL SHEATHING AND WEATHER BARRIER SYSTEM. PROVIDE ZIP SYSTEM TAPE AT ALL SEAMS AND BETWEEN ROOF AND WALL SHEATHING (TYP) FOR A COMPLETE WEATHER BARRIER SYSTEM BY HUBER ENGINEERED WOODS, WWW.HUBERWOOD.COM, 1-800-933-9220
06 16 00.2.4	3/4" PLYWOOD ROOF SHEATHING WITH "H" CLIPS OR "T&G"
07 21 00.2.3	R-38 BATT INSULATION
07 21 00.2.8	"XPS RIGID INSULATION" - PROVIDE TYPE IV AT ALL CAVITY WALL LOCATIONS, TYPE VI AT ALL FOUNDATION WALL LOCATIONS, AND TYPE VII AT ALL UNDER SLAB LOCATIONS"
07 21 19.2.1	"3" (MIN) CLOSED CELL SPRAY POLYURETHANE FOAM INSULATION AND VAPOR BARRIER SYSTEM"
07 22 00.2.2	POLYISOCYANURATE INSULATION WITH COVER BOARD AS REQUIRED BY ROOFING MANUFACTURERS WRITTEN REQUIREMENTS
07 41 13.2.1	PAC CLAD SNAP CLAD STANDING SEAM METAL ROOF. COLOR SHALL BE GRAPHITE
07 46 13.2.1	LP SMARTSIDE VERTICAL SIDING BOARD & BATTEN - PANEL SHALL BE SMOOTH - COLOR SHALL BE SHERWIN WILLIAMS SW9685 "AFTER THE STORM"
07 46 13.2.2	LP SMARTSIDE 38 SERIES TRIM 5.5
07 62 00.2.1	"FASCIA, TRIM, COPING, ETC" SHALL BE .080 ALUMINUM. PROVIDE BUTT SEAMS WITH BACK UP PLATES (10 FT MAX LENGTH). CORNERS SHALL BE FULLY WELDED WITH 24" (MIN) RETURN. ALL FASTENERS SHALL BE CONCEALED. COLOR SHALL MATCH ADJACENT WALL FINISH (U.N.O.)."
07 62 00.2.2	STAINLESS STEEL FLASHING
07 62 00.2.3	THROUGH WALL FLASHING
07 71 00.2.1	"ALUMINUM GUTTER SHALL BE HEAVY DUTY. PROVIDE ADDITIONAL 1/8"x1 1/2" SUPPORT BRACKETS AT 36" O.C. GUTTER PROFILE SHALL BE 6"W x 4.5"D STYLE F PER SMACNA ARCHITECTURAL SHEET METAL MANUAL. GUTTER AND SUPPORT BRACKET - COLOR SHALL BE DARK BLACK."
07 71 00.2.5	"ALUMINUM DOWNSPOUT SHALL BE HEAVY DUTY, SMOOTH, 4" x 4" RECTANGULAR SHAPE - COLOR SHALL BE BLACK."
07 72 53.2.1	SNOW GUARDS
07 92 00.2.2	SEALANT AND BACKER ROD SHALL BE PROVIDED BETWEEN ALL DISSIMILAR BUILDING ENVELOPE MATERIALS PER SEALANT MANUFACTURERS WRITTEN REQUIREMENTS. (TYP)
08 41 13.2.1	"ALUMINUM FRAMED STOREFRONTS SHALL BE TUBELITE 14000T SERIES. ALL EXTERIOR LOCATIONS SHALL HAVE THERMALLY BROKEN FRAMES. FRAME AND DOOR COLOR SHALL BE BLACK ANODIZED ALUMINUM. PROVIDE ACTUAL SAMPLE FOR FINAL APPROVAL. EXTERIOR DOORS SHALL BE INSULATED MEDIUM STILE WITH 5" VERTICAL STILES AND TOP RAIL, AND 10" BOTTOM RAIL."
08 41 13.2.2	MAPES (OR EQUAL) CONTINUOUS INSULATED STOREFONT FILLER PANEL WITH ALUMINUM INTERIOR AND EXTERIOR FACES - COLOR/FINISH SHALL MATCH STOREFRONT.
09 22 16.2.2	"6" METAL STUD. BY CLARK DIETRICH BUILDING SYSTEMS (OR EQUAL). PROVIDE COLD FORMED GALVANIZED STEEL PROSTUD C-STUDS, AND PROTRAK RUNNER AND DRYWALL TRACK. PROVIDE SLIP TYPE HEAD JOINT SLOTTED DEFLECTION TRACK AT ALL LOCATIONS (TYP)"
09 22 16.2.3	"8" METAL STUD. BY CLARK DIETRICH BUILDING SYSTEMS (OR EQUAL). PROVIDE COLD FORMED GALVANIZED STEEL PROSTUD C-STUDS, AND PROTRAK RUNNER AND DRYWALL TRACK. PROVIDE SLIP TYPE HEAD JOINT SLOTTED DEFLECTION TRACK AT ALL LOCATIONS (TYP)"
09 29 10.2.1	GYPSUM WALL BOARD SHALL BE 5/8" (TYP). PROVIDE TYPE WR AT ALL TOILET ROOM AND WET WALL LOCATIONS. ALL OTHER LOCATIONS SHALL BE TYPE X (TYP). PROVIDE MULDABLE CORNER BEAD AND J TRIM AT ALL EXPOSED DRYWALL END AND OPENING LOCATIONS. EXPOSED DRYWALL FINISH SHALL BE LEVEL 4 (TYP). PROVIDE CONTROL JOINTS AT 30FT O.C. (MAX) EQUALLY SPACED. PROVIDE CONTROL JOINTS AT ALL DOOR AND WINDOW LOCATIONS.
26 56 01.2.1	EXTERIOR LED UP LIGHT

PROJECT:
**NEW CONSTRUCTION FOR:
CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
W. MAIN STREET,
EDWARDSBURG, MI**

WALL SECTIONS

SHEET TITLE:

MODELED BY:
AND, JCA, MHK

DESIGNED BY:
ARD

PM REVIEW:
ARD, MDN

QA/QC REVIEW:
MDN

DATE:
01/31/2024

SCALE:
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SHEET NO.

NO.

ADDENDUM #3

ADDENDUM #2

REVISION DESCRIPTION

NO.

BY

DATE

DATE

DATE

DATE

DATE



KEYNOTE LEGEND

3	ADDENDUM #3	MHK	01/31/20
2	ADDENDUM #2	MHK	01/24/20
NO.	REVISION DESCRIPTION	BY	DATE

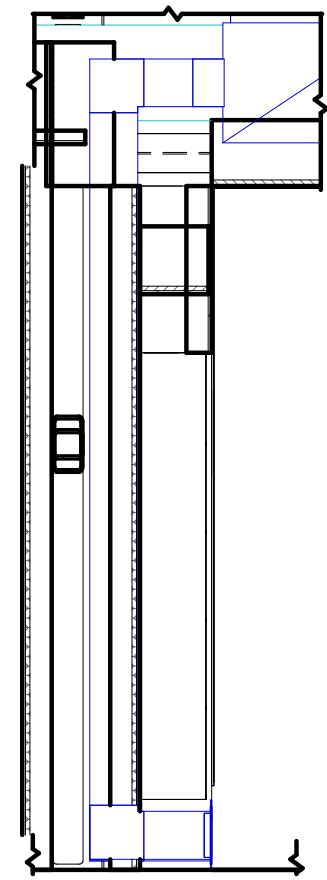
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PROJECT:
NEW CONSTRUCTION FOR:
CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
W. MAIN STREET,
EDWARDSBURG MI

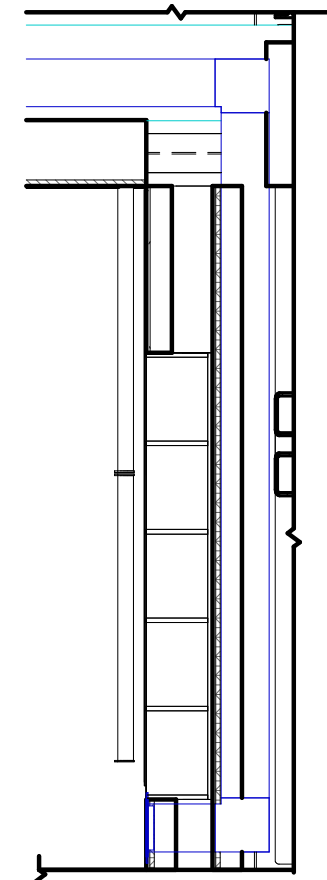
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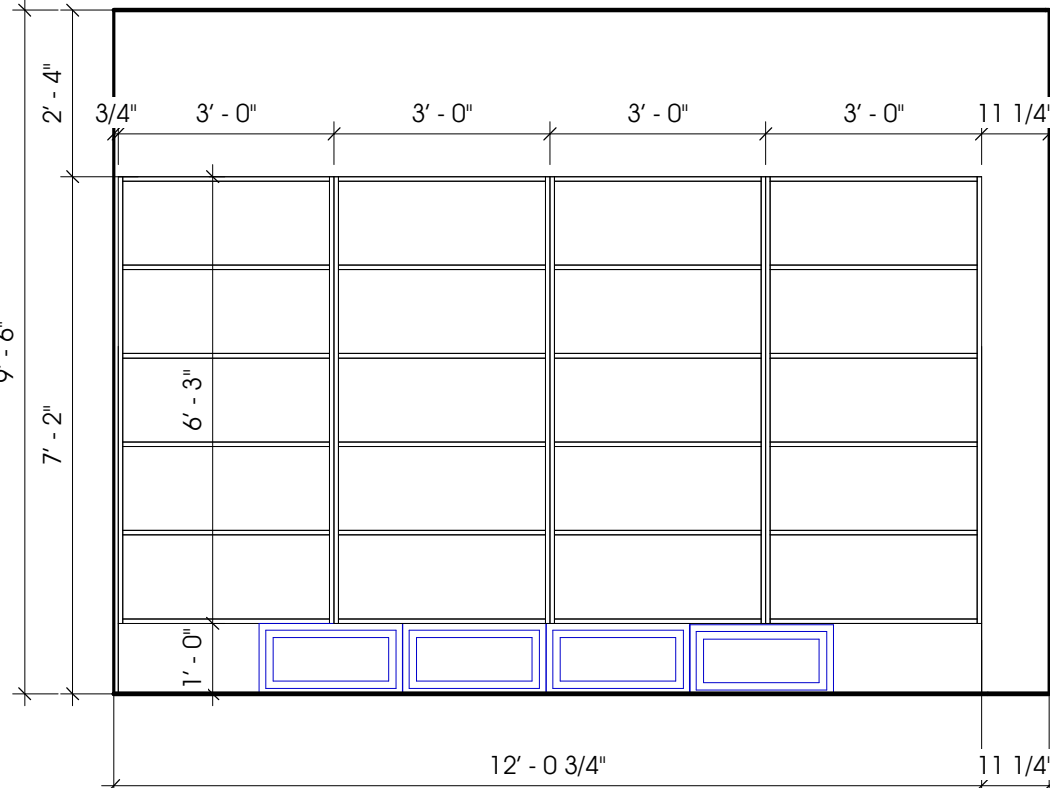
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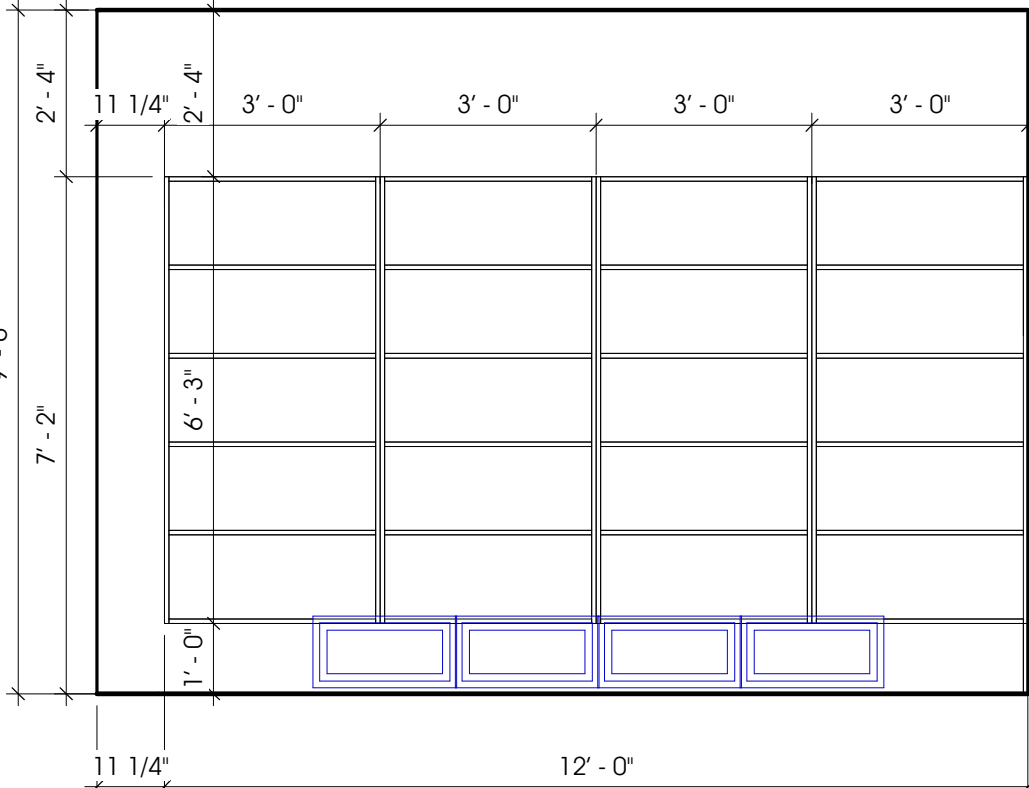
5 SECTION @ BOOKCASE - LEFT
A6.0 3/8" = 1'-0"



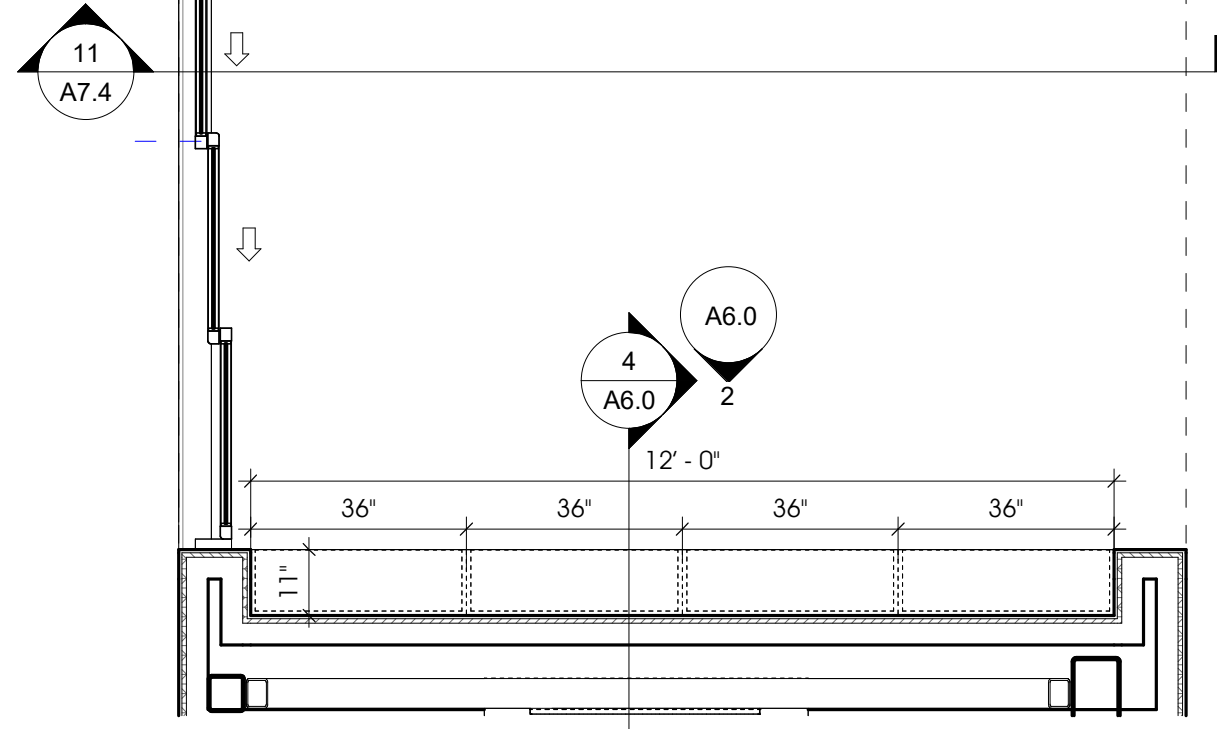
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A6.0 3/8" = 1'-0"



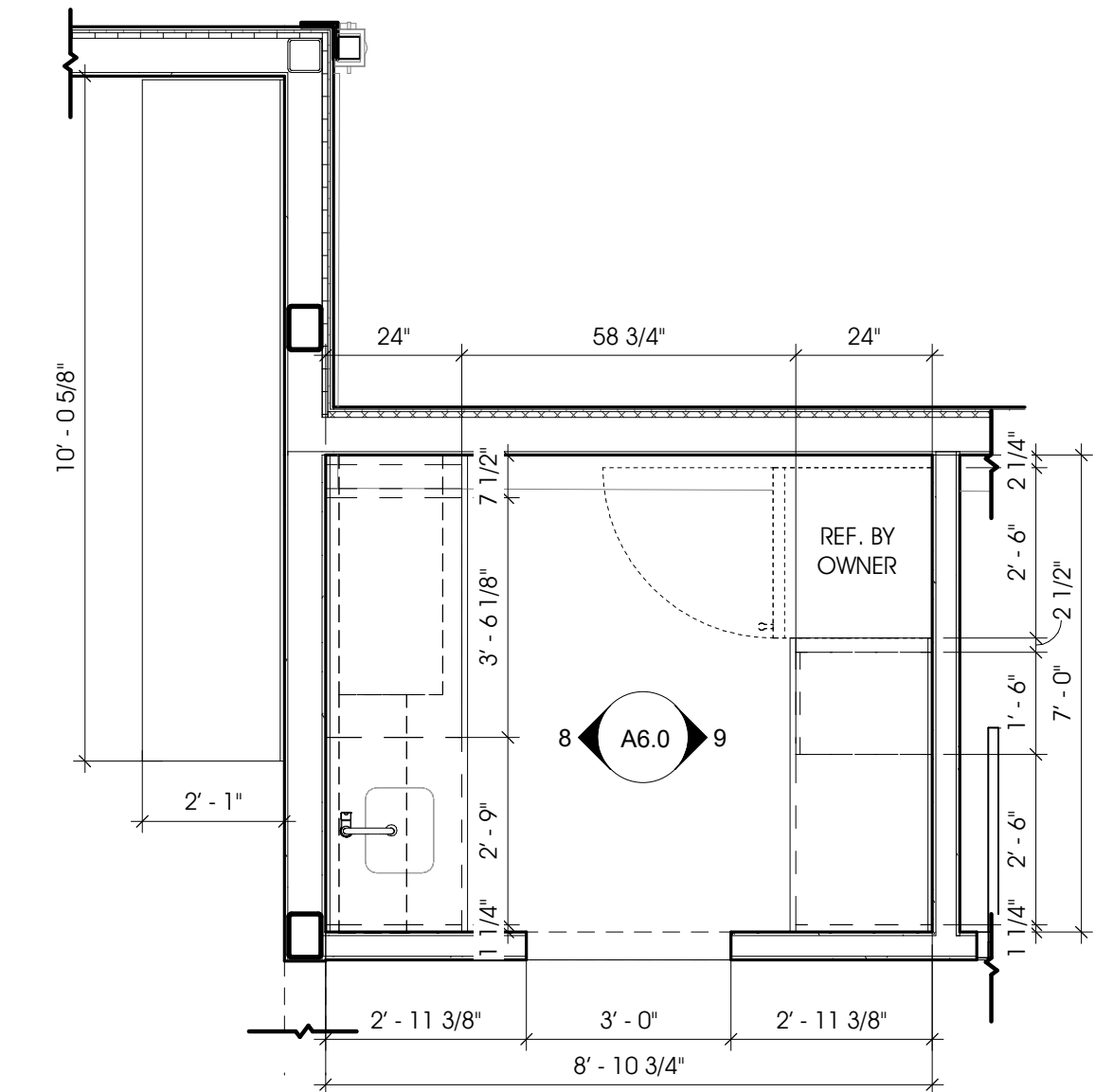
3 LIBRARY BOOKCASE - NORTH
A6.0 3/8" = 1'-0"



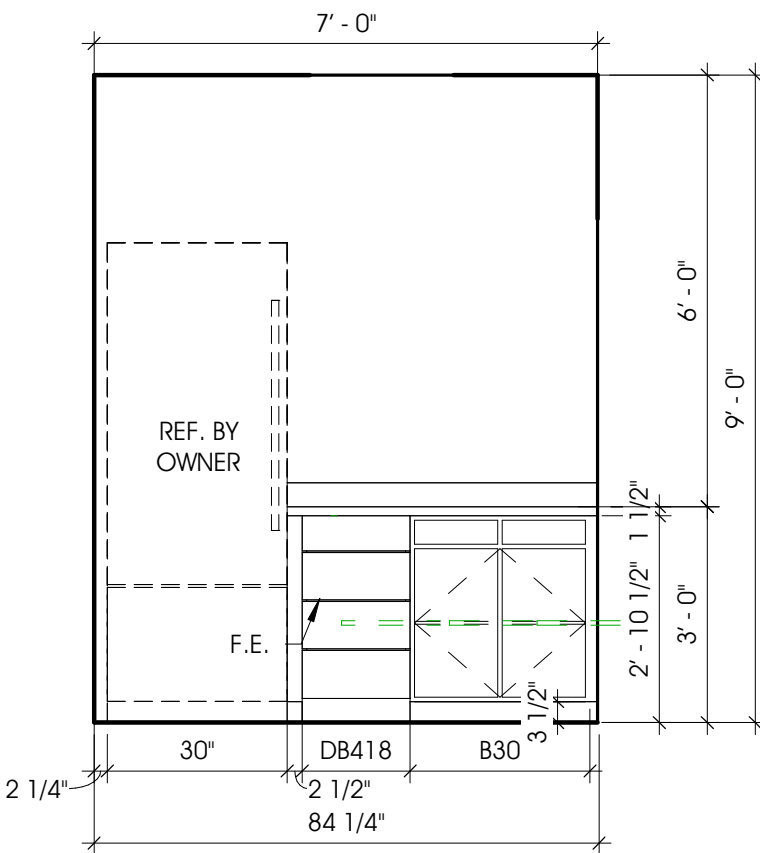
2 LIBRARY BOOKCASE - SOUTH
A6.0 3/8" = 1'-0"



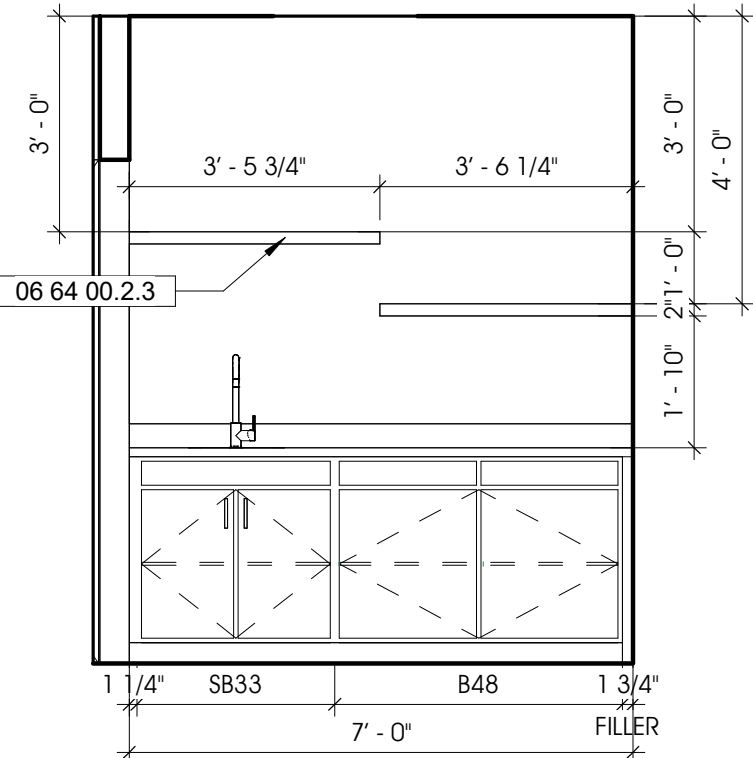
1 ENLARGED FLOOR PLAN - LIBRARY BOOKCASE
A6.0 3/8" = 1'-0"



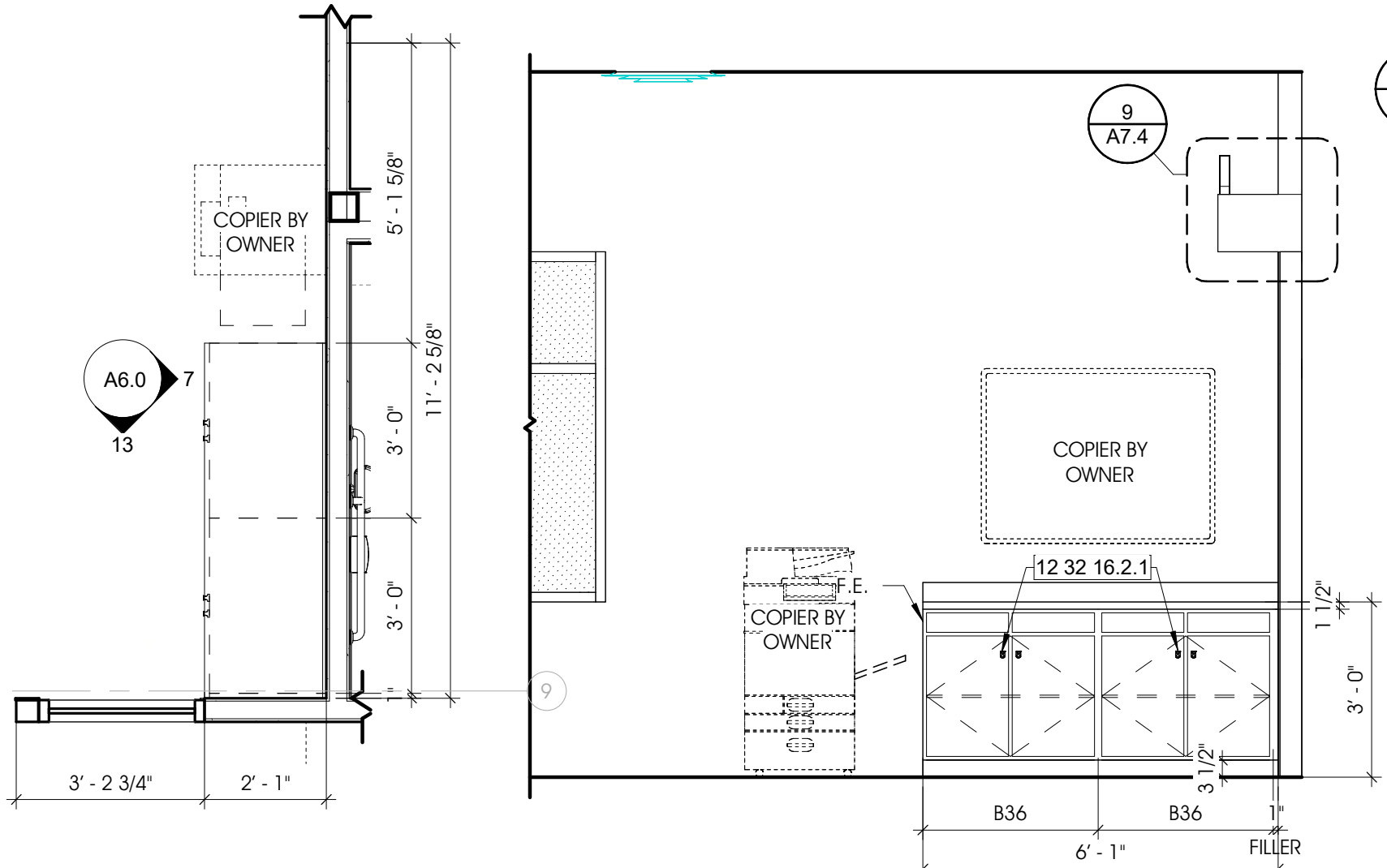
10 ENLARGED FLOOR PLAN - KITCHEN 110
A6.0 3/8" = 1'-0"



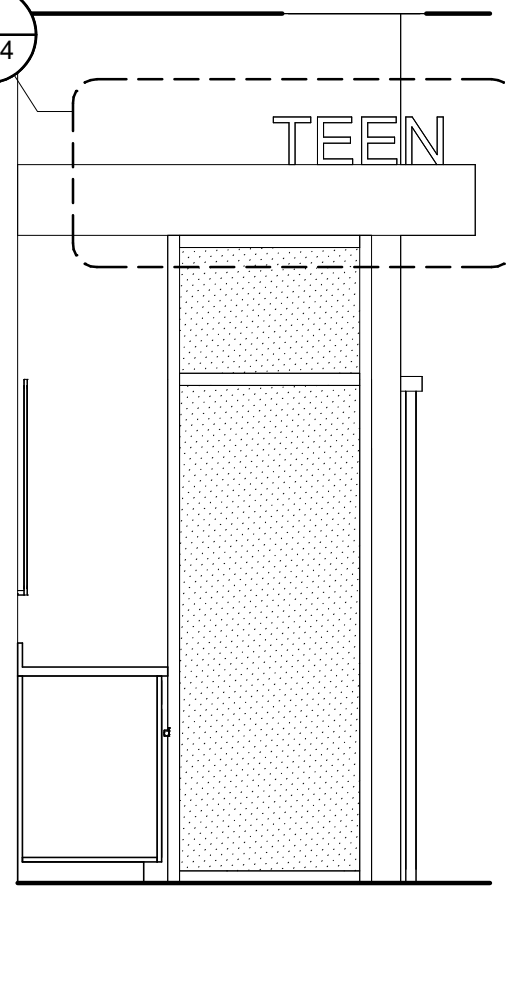
9 KITCHEN 110 - EAST ELEV.
A6.0 3/8" = 1'-0"



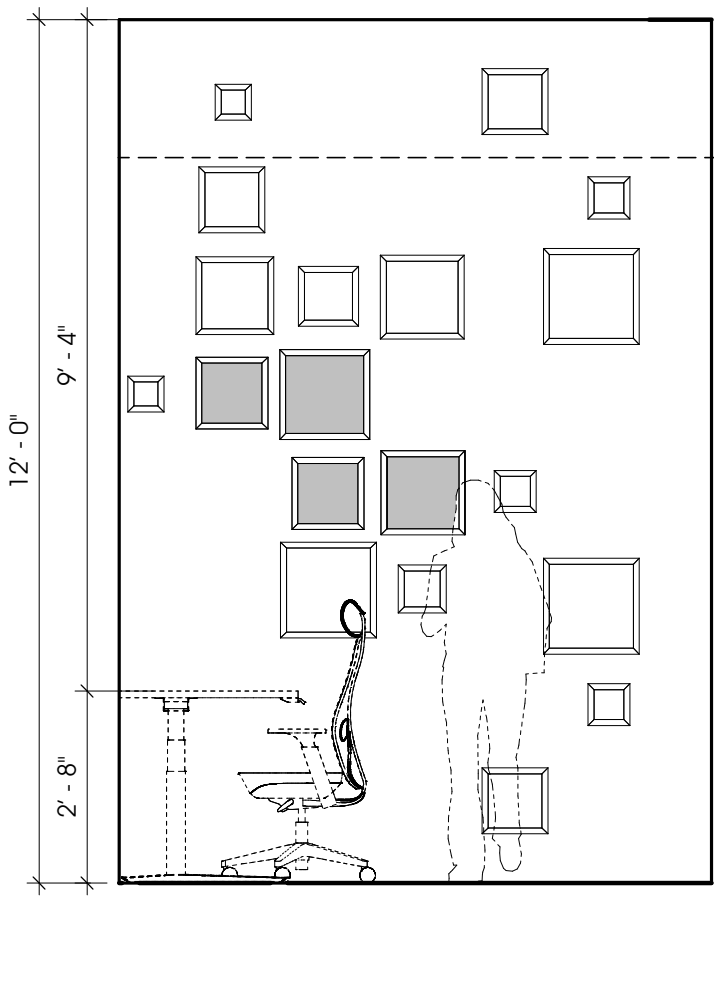
8 KITCHEN 110 - WEST ELEV.
A6.0 3/8" = 1'-0"



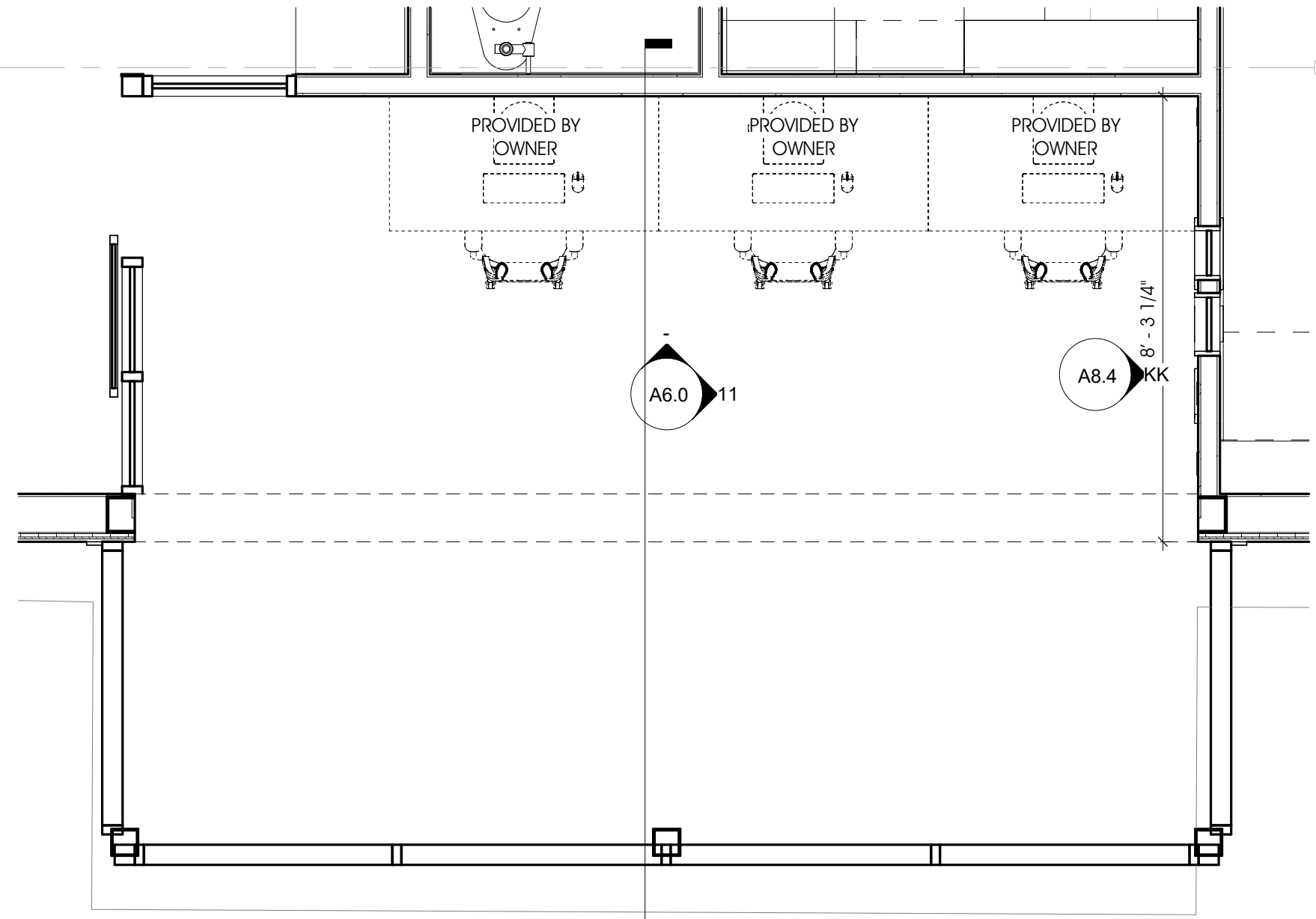
7 COMPUTER 116 - EAST ELEVATION
A6.0 3/8" = 1'-0"



13 Elevation 1 - b
A6.0 3/8" = 1'-0"



11 TEENS 118 - EAST ELEVATION
A6.0 3/8" = 1'-0"



12 ENLARGED FLOOR PLAN - TEENS 118
A1.1 3/8" = 1'-0"

6 ENLARGED FLOOR PLAN - COMPUTER
A6.0 3/8" = 1'-0"

GENERAL NOTES - INTERIOR ELEVATIONS

- A. PROVIDE BLOCKING AT ALL TOILET ACCESSORY LOCATIONS (TYP.)
- B. PROVIDE CLOSURE PLATE ON TOP OF ALL CASEWORK AT FILLER STRIP LOCATIONS
- C. PROVIDE RAWS - INSIDE WALL MOUNT COUNTER SUPPORT BRACKETS EQUALLY SPACED AT ALL SPANS 36" OR MORE. BRACKETS SHALL BE CENTERED IN SPAN AND 36" O.C. (MAX). PROVIDE BLOCKING IN WALLS AS REQUIRED. BRACKET SIZE SHALL BE AS REQUIRED FOR COUNTERTOP DEPTH.
- D. TOP OF ALL WALL MOUNT SINKS SHALL BE 34" A.F.F.
- E. PROVIDE ____ WALL BASE AT ALL TOILET ROOMS (TYP.)
- F. FLOOR AND WALL TILE GROUT LINES SHALL ALIGN (TYP.) CONFIRM w/ ARCHITECT PRIOR TO INSTALLATION.
- G. PROVIDE LOCKS AT ALL CASEWORK DOORS & DRAWERS
- H. GENERAL CONTRACTOR SHALL COORDINATE ALL MEP COMPONENTS AND REQUIREMENTS WITH MEP DRAWINGS AND SPECS.
- I. PROVIDE FINISHED ENDS AT ALL EXPOSED FACES OF CASEWORK (TYP)
- J. PROVIDE WALL LEDGER AT ALL UNSUPPORTED COUNTERTOP ENDWALL LOCATIONS (TYP)
- K. ALL BASE CABINETS SHALL HAVE (1) FIXED SHELF (U.N.O.)
- L. ALL UPPER WALL CABINETS SHALL HAVE (2) FULLY ADJUSTABLE SHELVES (TYP).
- M. ALL FULL HEIGHT CABINETS SHALL HAVE (1) FIXED SHELF AT MID HEIGHT LATCH LOCATION, AND (4) FULLY ADJUSTABLE SHELVES (U.N.O.)
- N. ALL SHELVES INSIDE OF CABINETS SHALL HAVE FLUSH METAL U-CHANNEL EDGES @ MAKER SPACE 108, CIRCULATION DESK 117, AND WORK ROOM 125

KEYNOTE LEGEND

Key Value	Keynote Text
06 64 00.2.3	CUSTOM PLASTIC LAMINATE FLOATING SHELVES - PLAM-2
12 32 16.2.1	MANUFACTURED PLASTIC-LAMINATE-CLAD CASEWORK

PROJECT:
**NEW CONSTRUCTION FOR:
CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
W. MAIN STREET,
EDWARDSBURG, MI**

ENLARGED FLOOR PLANS AND ELEVATIONS

SHEET TITLE:

MODELED BY: **MHK**

DESIGNED BY: **ARD**

PM REVIEW: **ARD, MDN**

QA/QC REVIEW: **MDN**

DATE: **01/31/2024**

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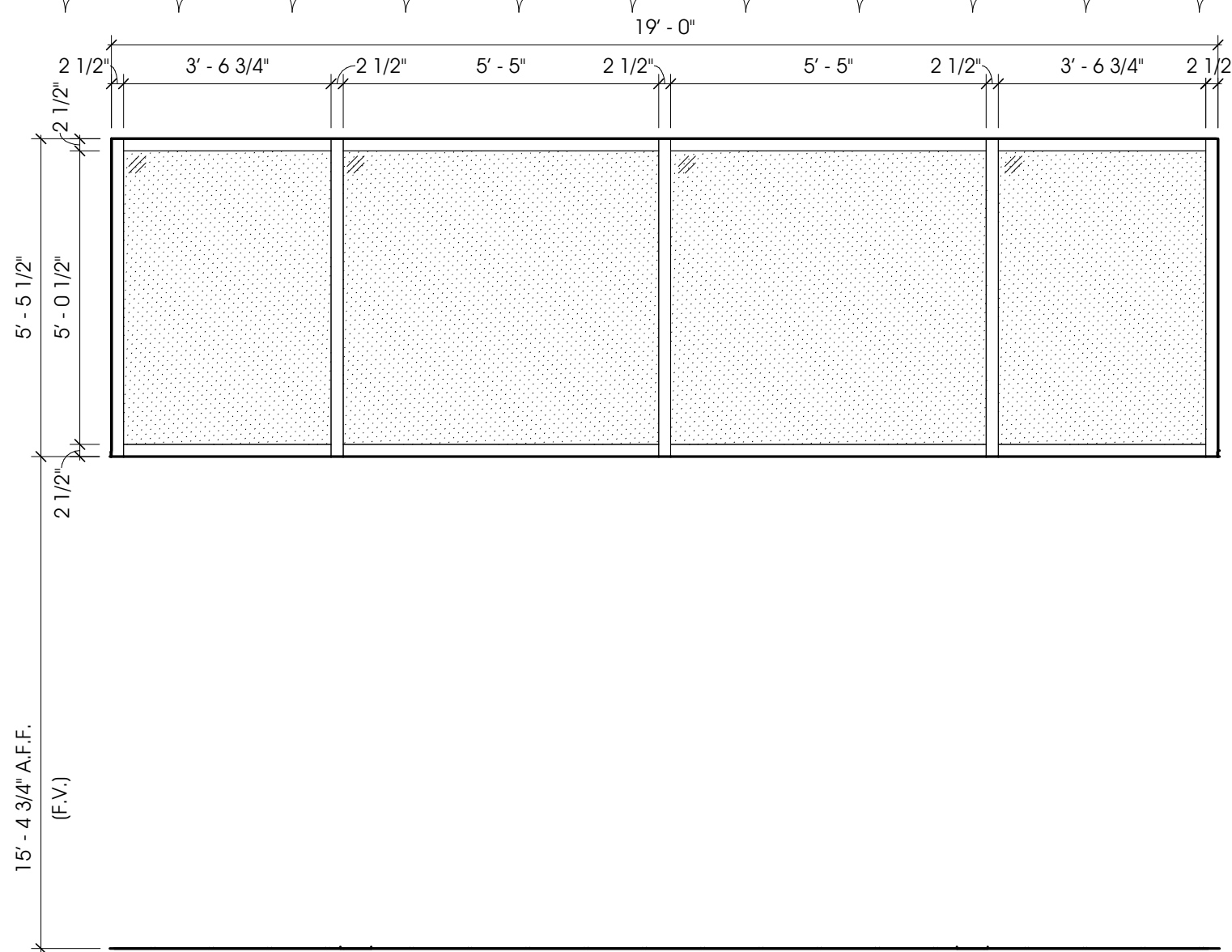
22-1836

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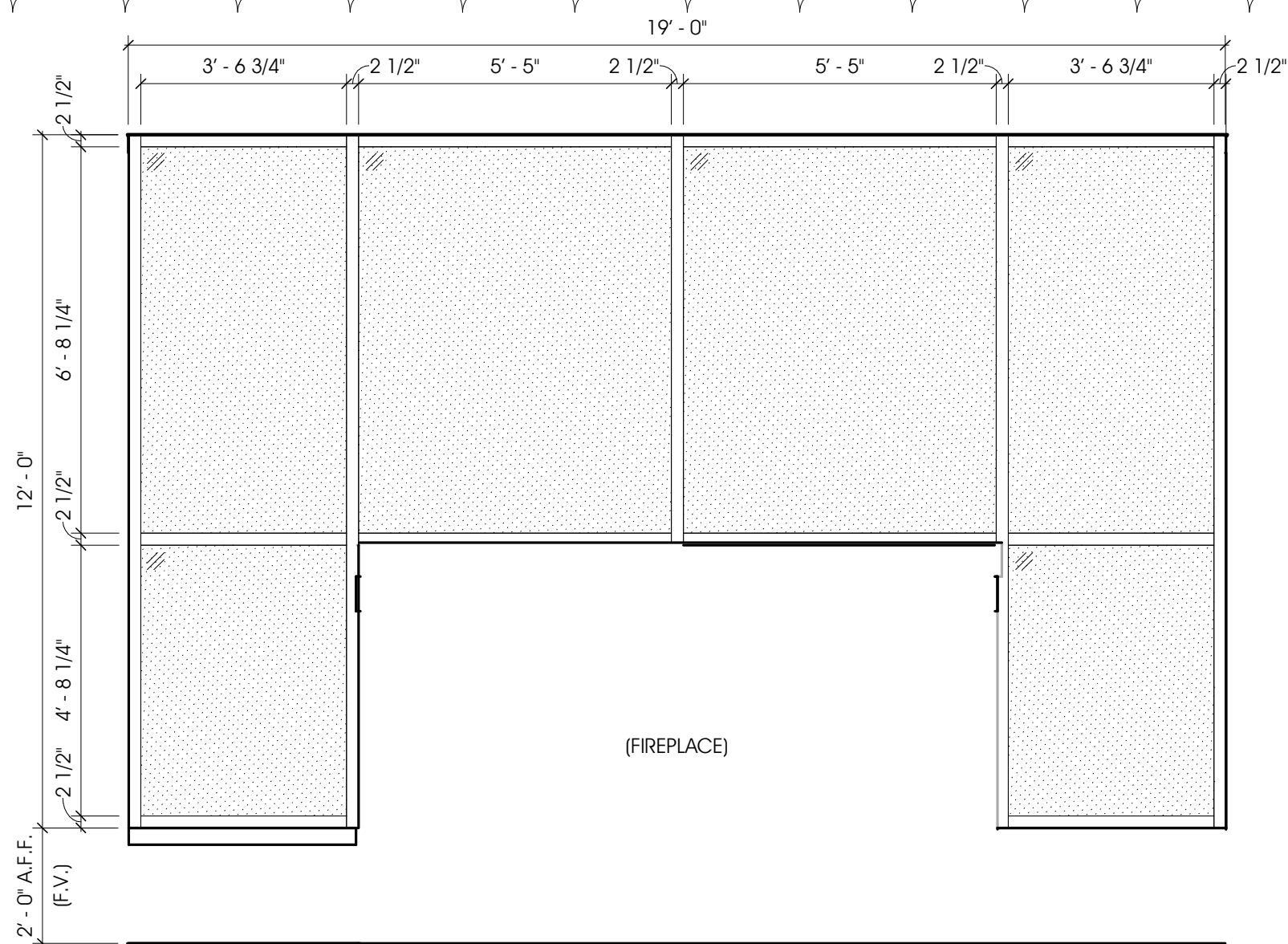
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3	ADDENDUM #3	MHK	01/31/2024
2	ADDENDUM #2	MHK	01/24/2024
NO.	REVISION DESCRIPTION	BY	DATE

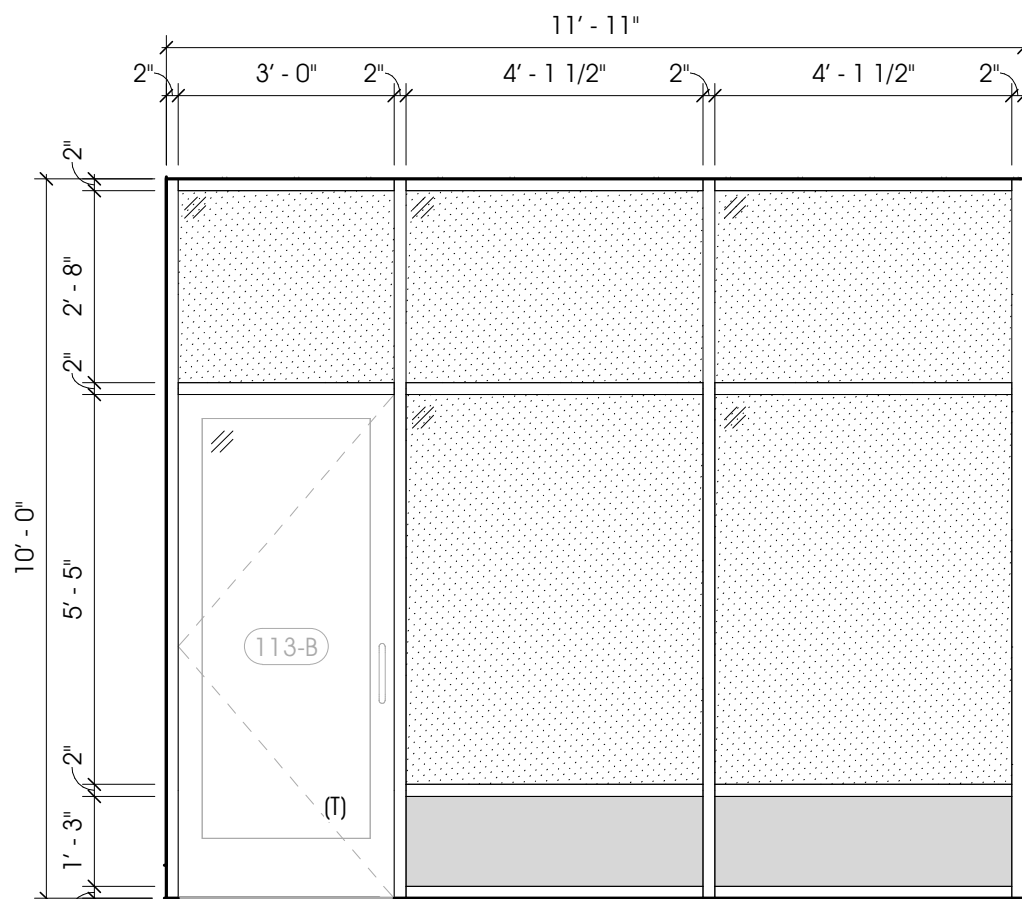
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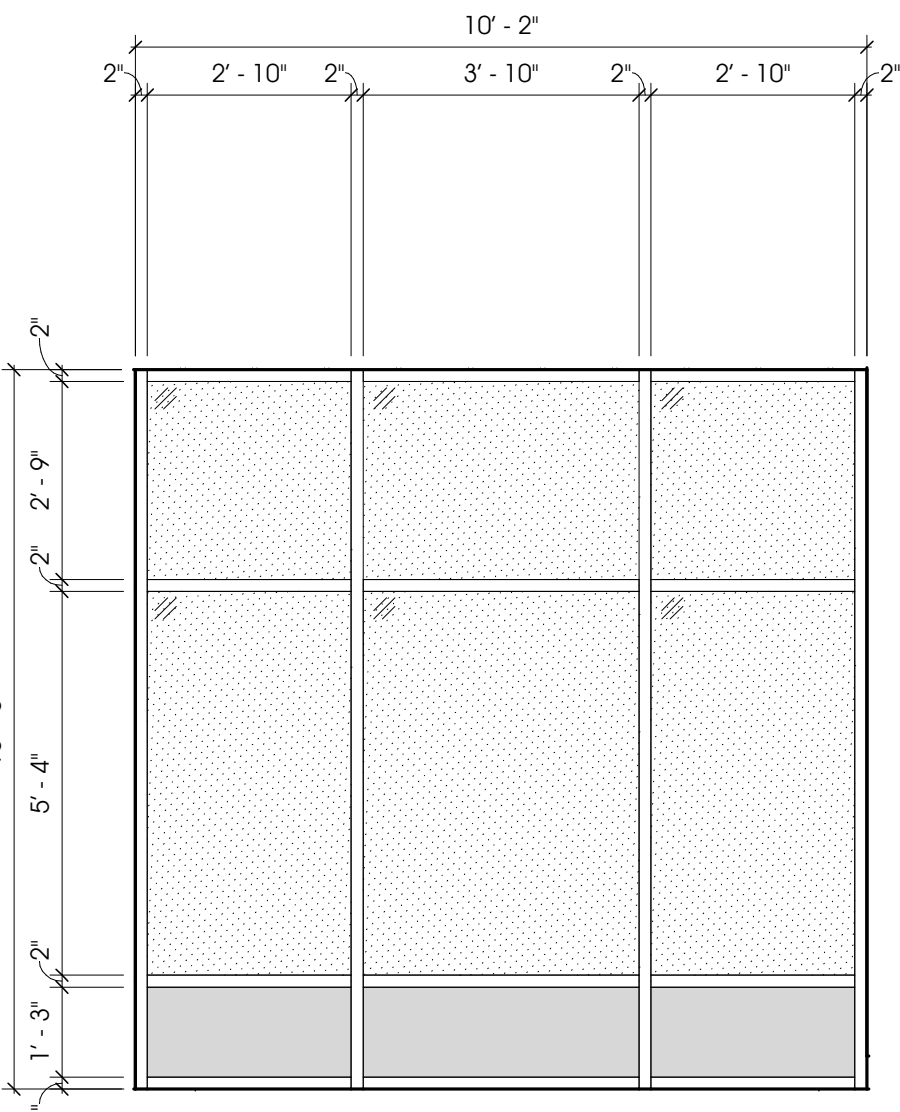
O EXT. CURTAIN WALL ELEV. - O
3/8" = 1'-0"



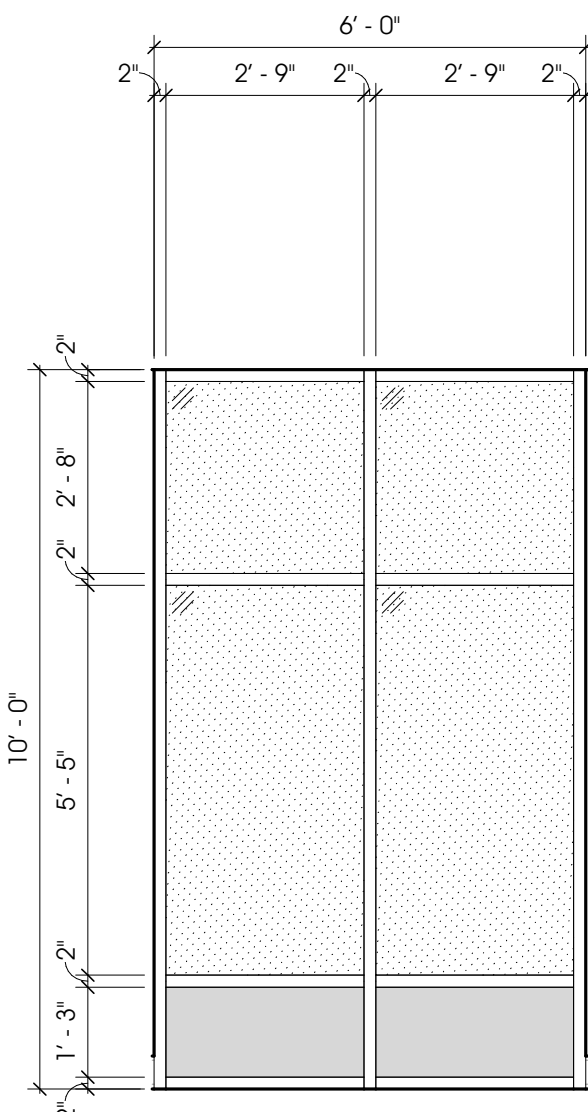
N EXT. CURTAIN WALL ELEV. - N
3/8" = 1'-0"



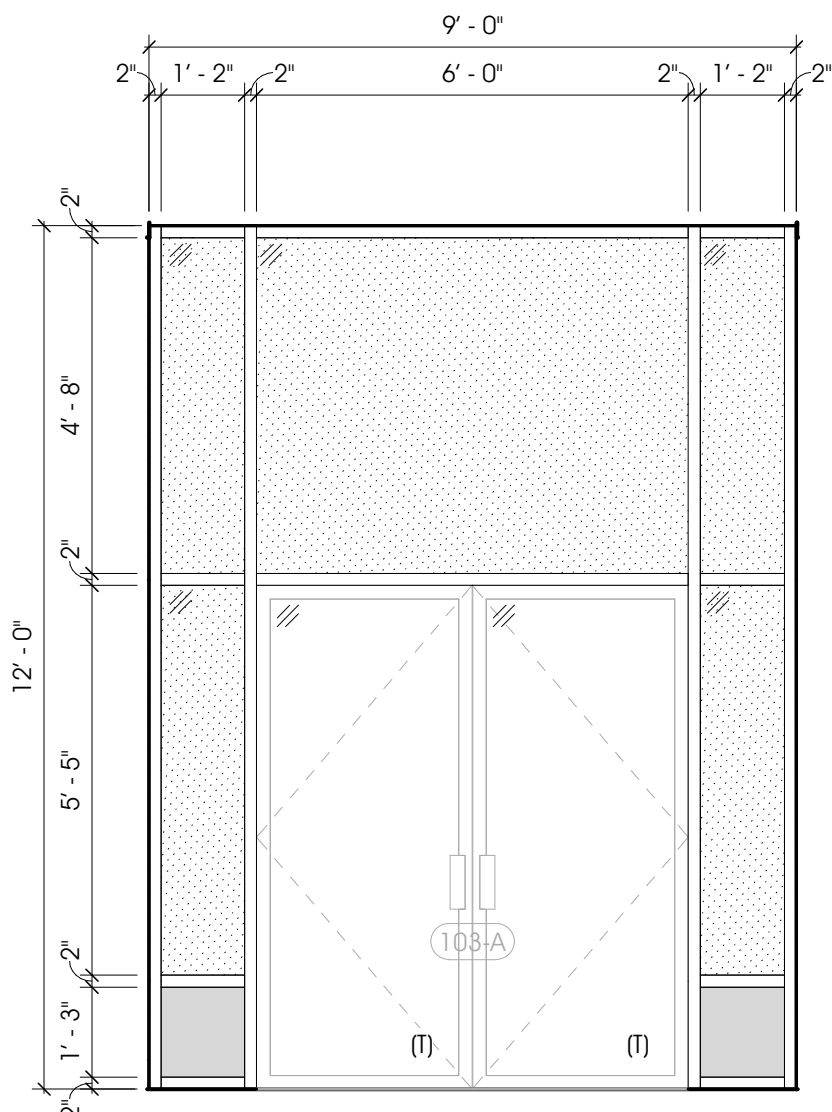
M EXT. STOREFRONT ELEV. - M
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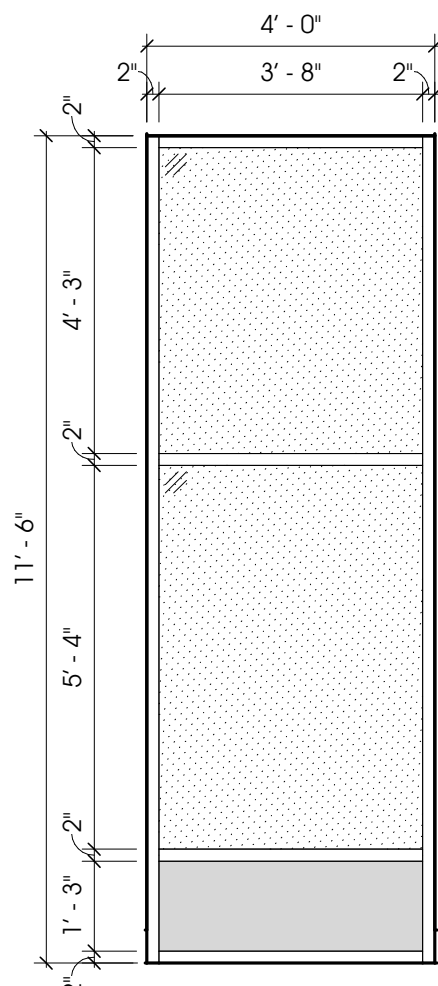
L EXT. STOREFRONT ELEV. - L
3/8" = 1'-0"



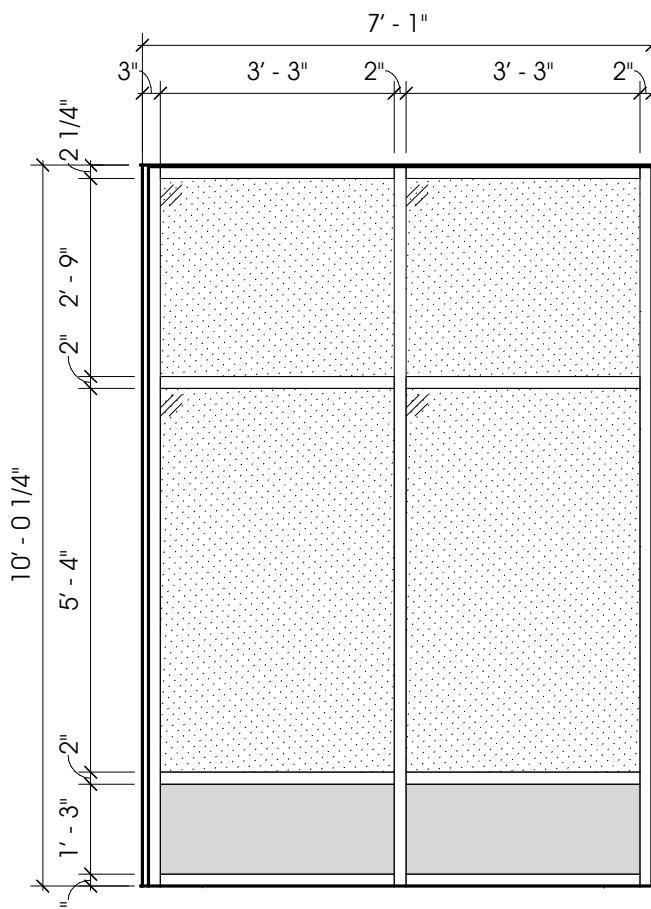
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3/8" = 1'-0"



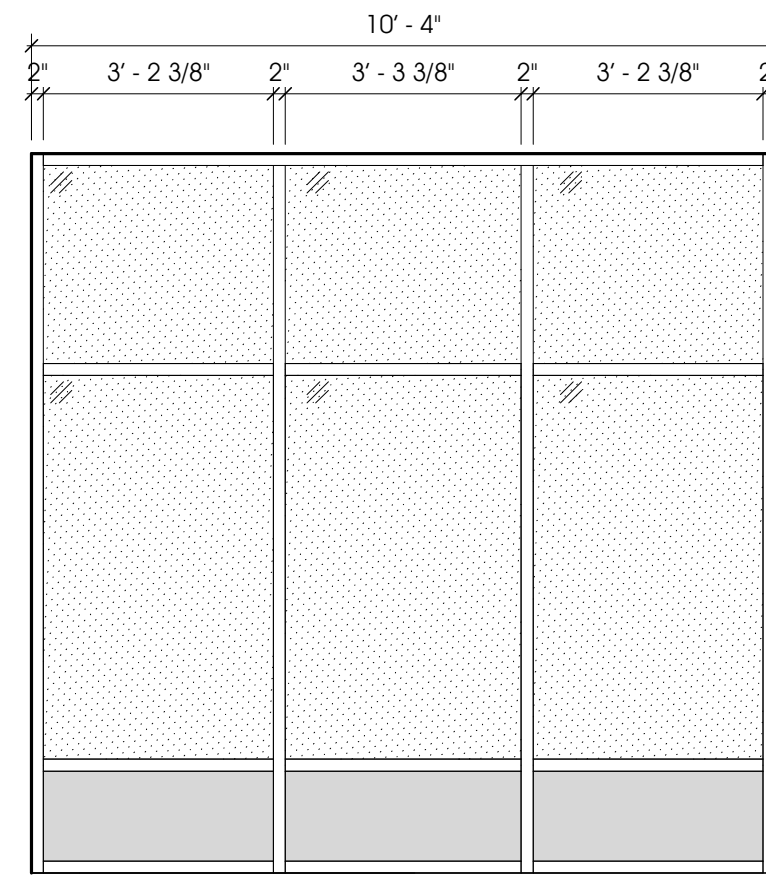
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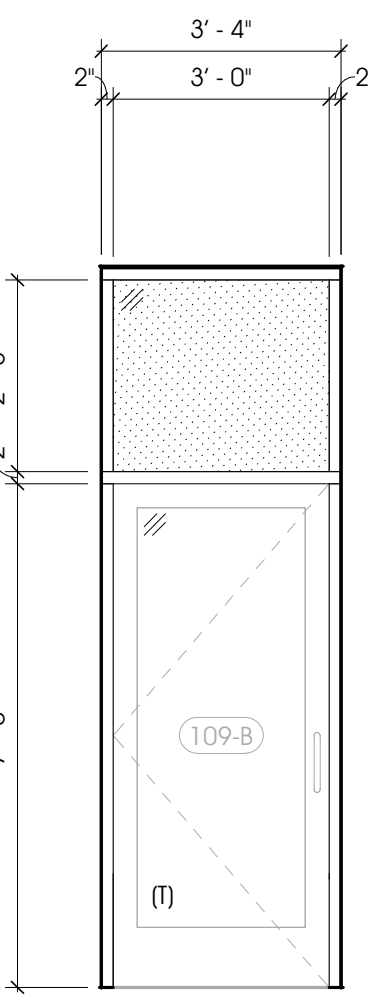
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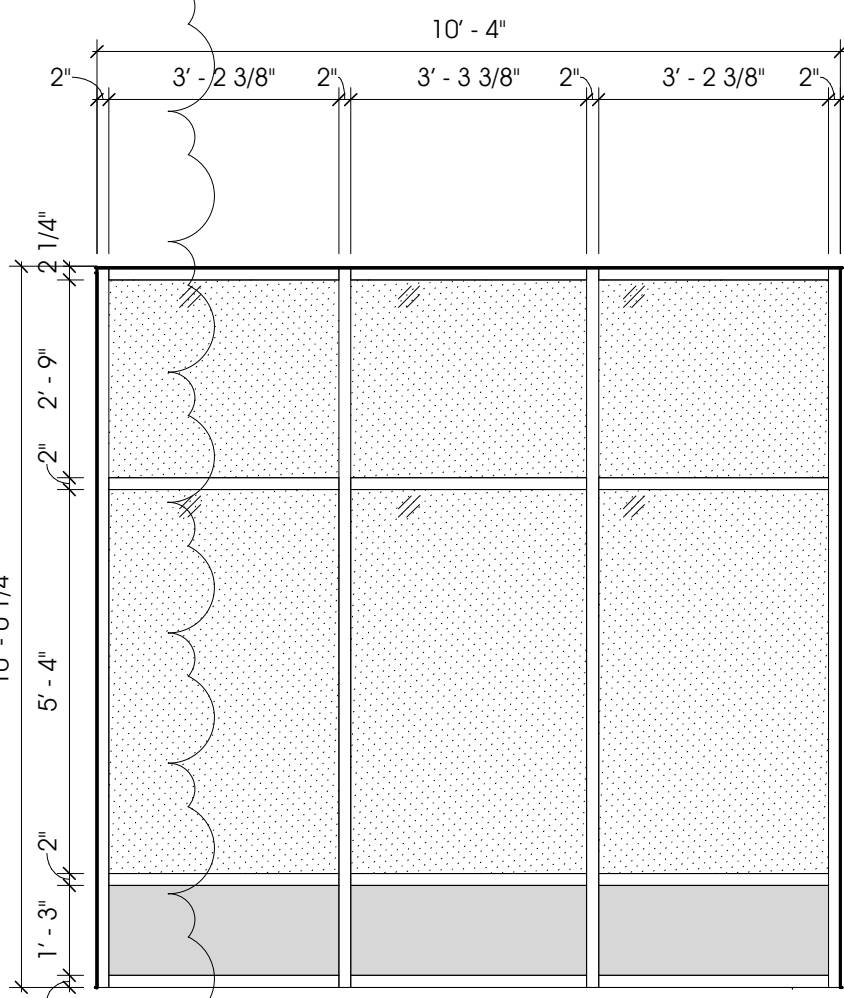
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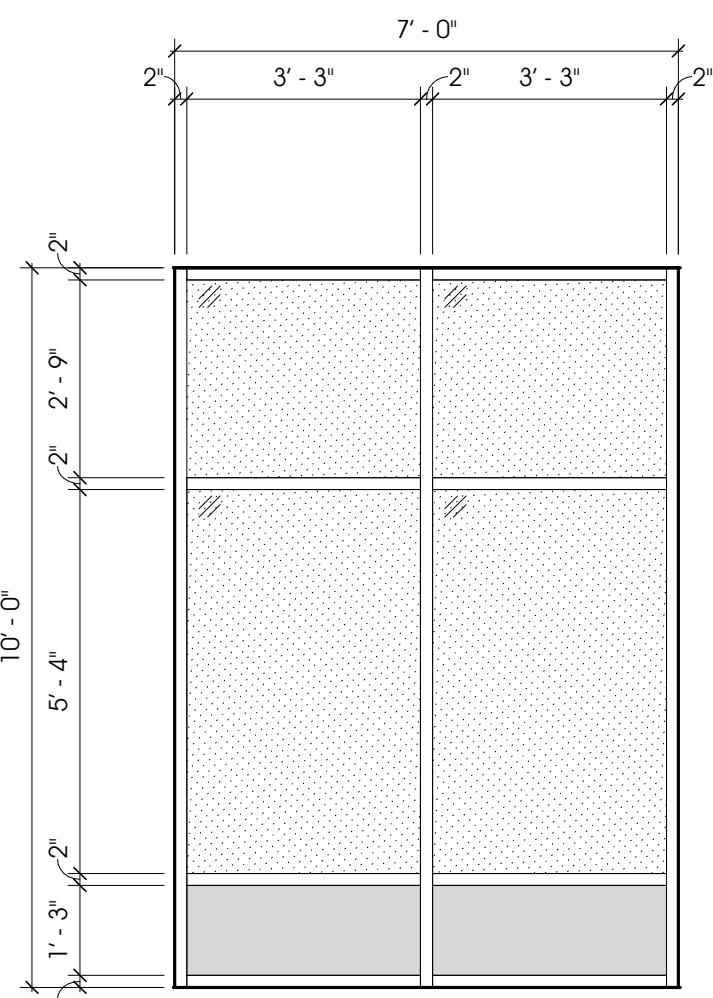
G EXT. STOREFRONT ELEV. - G
3/8" = 1'-0"



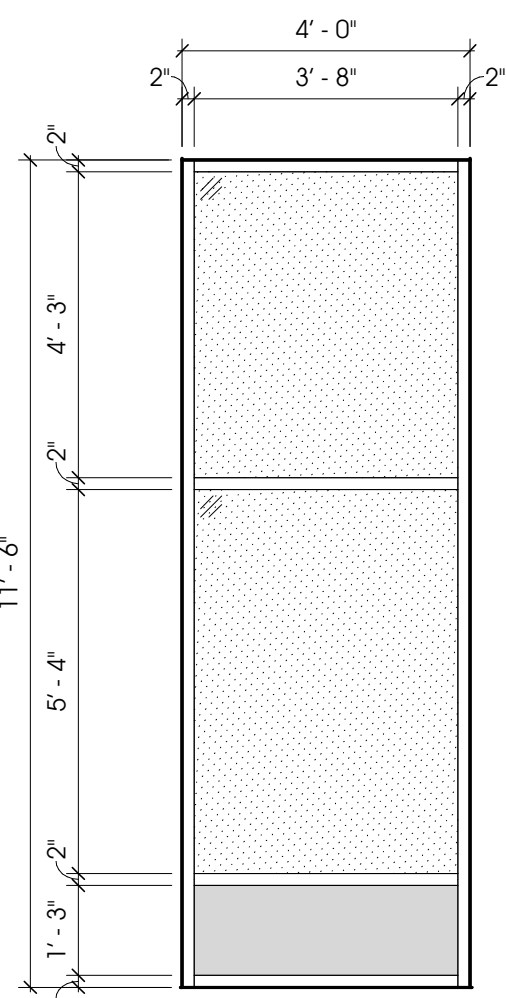
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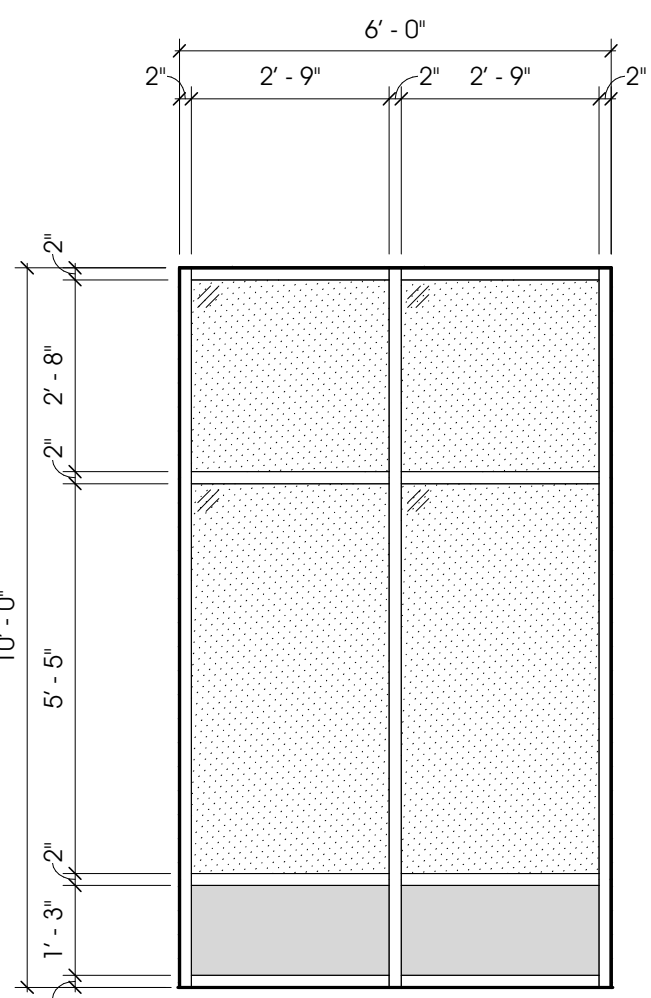
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3/8" = 1'-0"



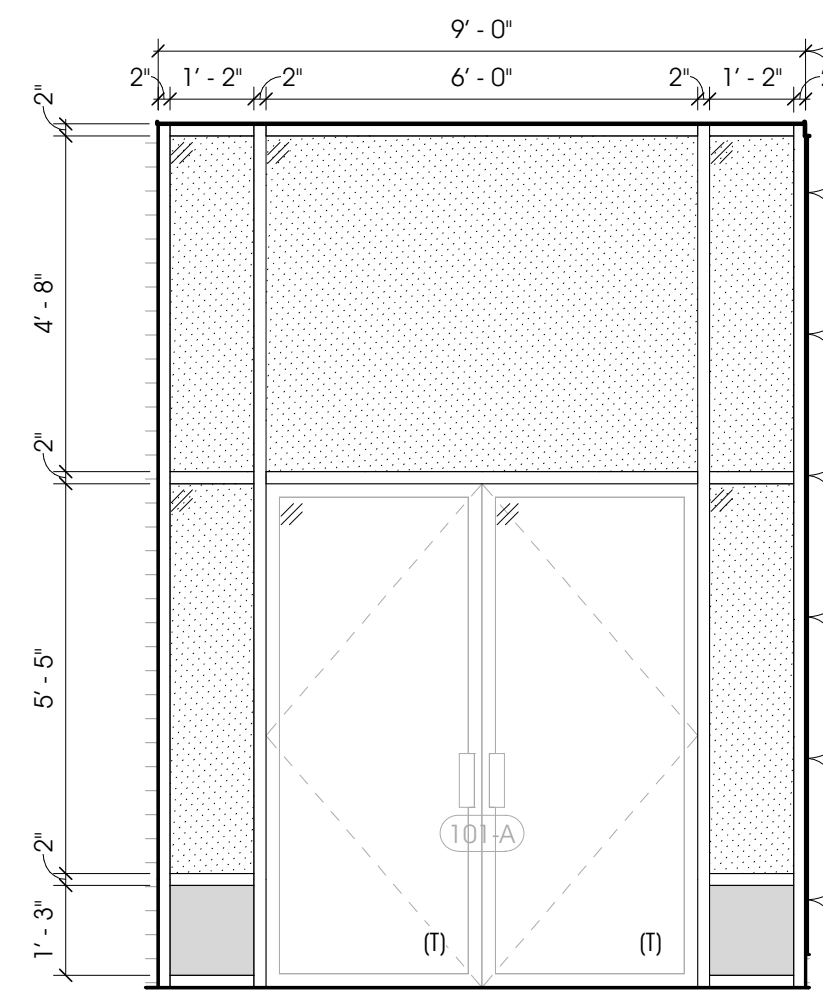
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3/8" = 1'-0"



C EXT. STOREFRONT ELEV. - C
3/8" = 1'-0"



B EXT. STOREFRONT ELEV. - B
3/8" = 1'-0"



A EXT. STOREFRONT ELEV. - A
3/8" = 1'-0"

GENERAL NOTES - STOREFRONT

- A. STOREFRONT SHALL BE TUBELITE T14000, COLOR SHALL BE BLACK ANODIZED FINISH
- EXTERIOR GLAZING SHALL BE 1" INSULATED LOW-E GREY TINTED
- INTERIOR GLAZING SHALL BE 1/4" CLEAR
- ALL GLAZING IN DOORS OR WITHIN 18" A.F.F. SHALL BE TEMPERED (T)
B. PROVIDE SEALANT @ PERIMETER OF ALL STOREFRONT (TYP.)

GLAZING LEGEND

- CLEAR GLASS
(@ ALL INTERIOR STOREFRONT)
 GREY TINTED GLASS
(@ ALL EXTERIOR STOREFRONT)
 MAPES INSULATED INFILL PANEL
(MATCH STOREFRONT DEPTH)
 TEMPERED GLASS

PROJECT:
**NEW CONSTRUCTION FOR:
CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
W. MAIN STREET,
EDWARDSBURG, MI**

STOREFRONT ELEVATIONS

SHEET TITLE:

MODELED BY:
AND, JCA, MHK

DESIGNED BY:
ARD

PM REVIEW:
ARD, MDN

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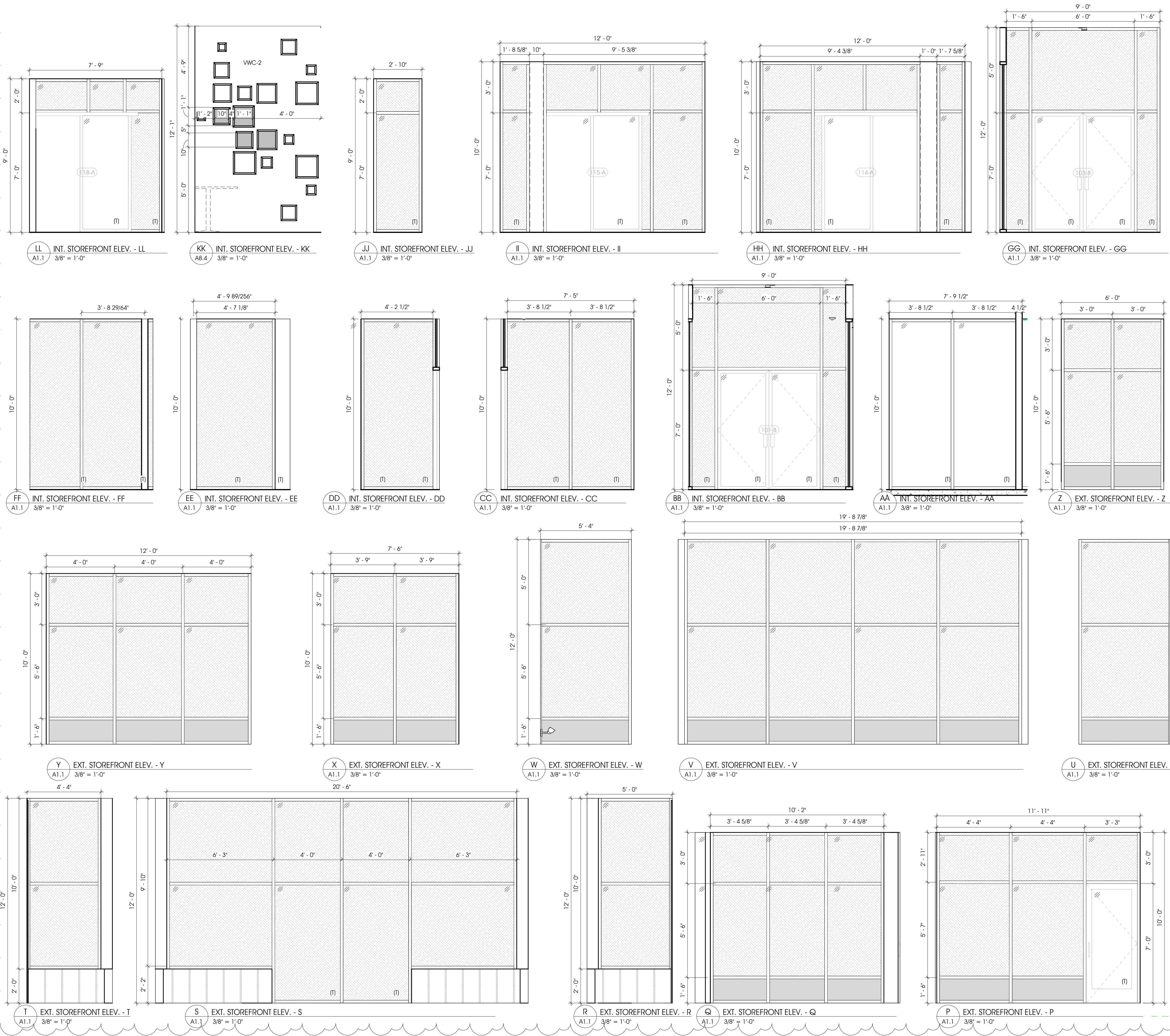
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3	ADDENDUM #3	MHK	01/31/2024
2	ADDENDUM #2	MHK	01/24/2024
1	ADDENDUM #1		01/12/2024
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For Wayne
Lafayette
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Valparaiso
Engineering, Architecture, Land Surveying

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GENERAL NOTES - STOREFRONT

- A. STOREFRONT SHALL BE TUBELITE T14000, COLOR SHALL BE BLACK ANODIZED FINISH
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- ALL GLAZING IN DOORS OR WITHIN 18" A.F.F. SHALL BE TEMPERED (T)
- B. PROVIDE SEALANT @ PERIMETER OF ALL STOREFRONT (TYP.)

KEYNOTE LEGEND

Key Value Keynote Text

SHEET TITLE:

MODELED BY: **AND**

DESIGNED BY: **ARD**

PM REVIEW: **ARD, MDN**

QA/QC REVIEW: **MDN**

DATE: **01/31/2024**

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STOREFRONT ELEVATIONS

PROJECT:
**NEW CONSTRUCTION FOR:
CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
W. MAIN STREET,
EDWARDSBURG, MI**

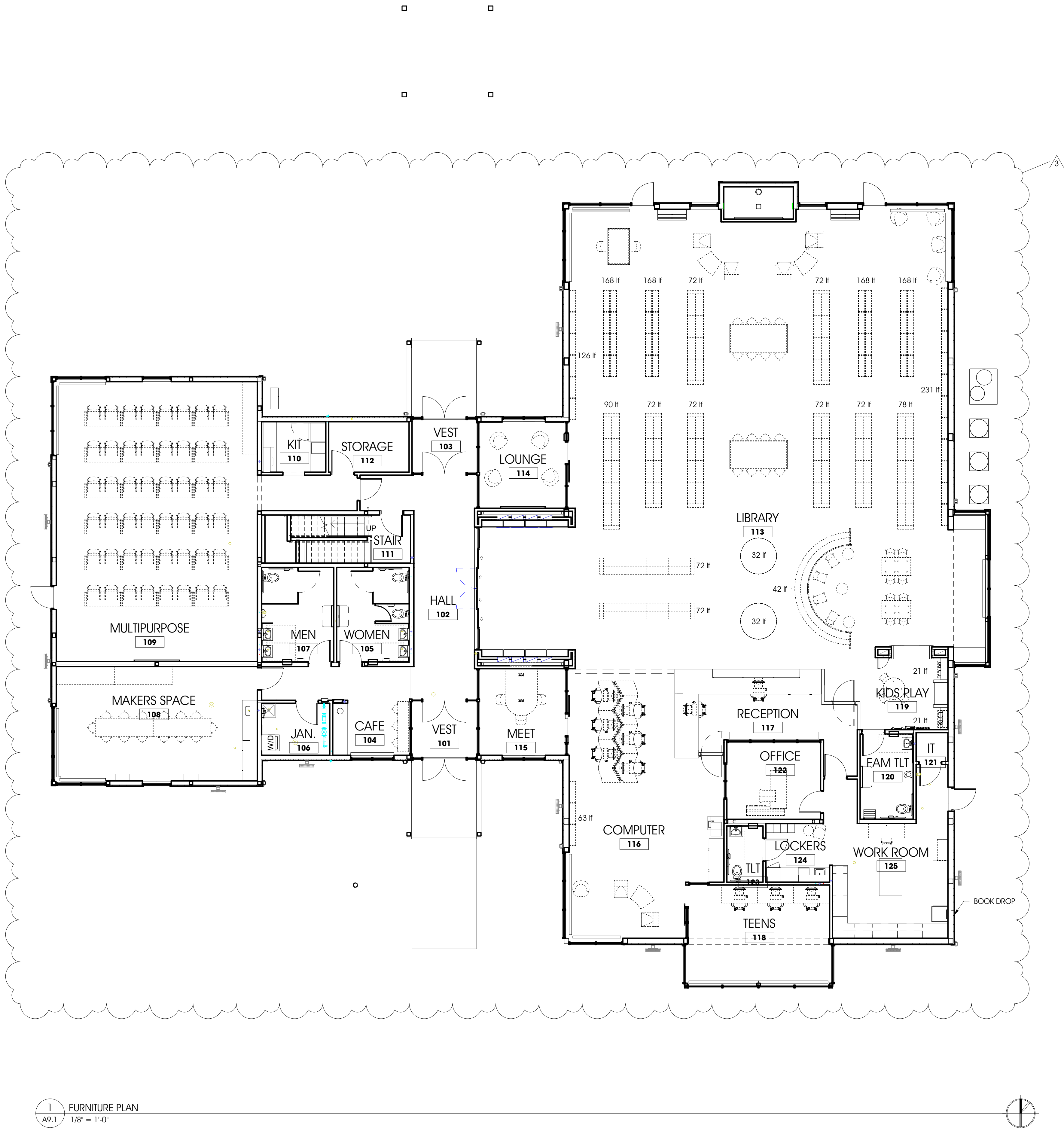


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For Wayne
County Auditor
Kathleen
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1 FURNITURE PLAN
A9.1 1/8" = 1'-0"

GENERAL NOTES - FURNITURE PLAN

- A. FURNITURE BY OWNER
- B. LIBRARY BOOK SHELVES BY OWNER
- C. LIBRARY EQUIPMENT BY OWNER
- D. APPLIANCES BY OWNER

CDL Edwardsburg Library - Shelving		
Required		
Children	147 shelves	441 LF
Young Adult	45 shelves	135 LF
Adult	491 shelves	1,473 LF
Shown		
Children	*	442 LF
Young Adult	45 shelves	135 LF
Adult	525 shelves	1,575 LF

FOR REFERENCE ONLY
FURNITURE PLAN

SHEET TITLE:	
MODELED BY:	JPA
DESIGNED BY:	ARD
PM REVIEW:	ARD, MDN
QA/QC REVIEW:	MDN
DATE:	01/31/2024
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DATE:

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A9.1

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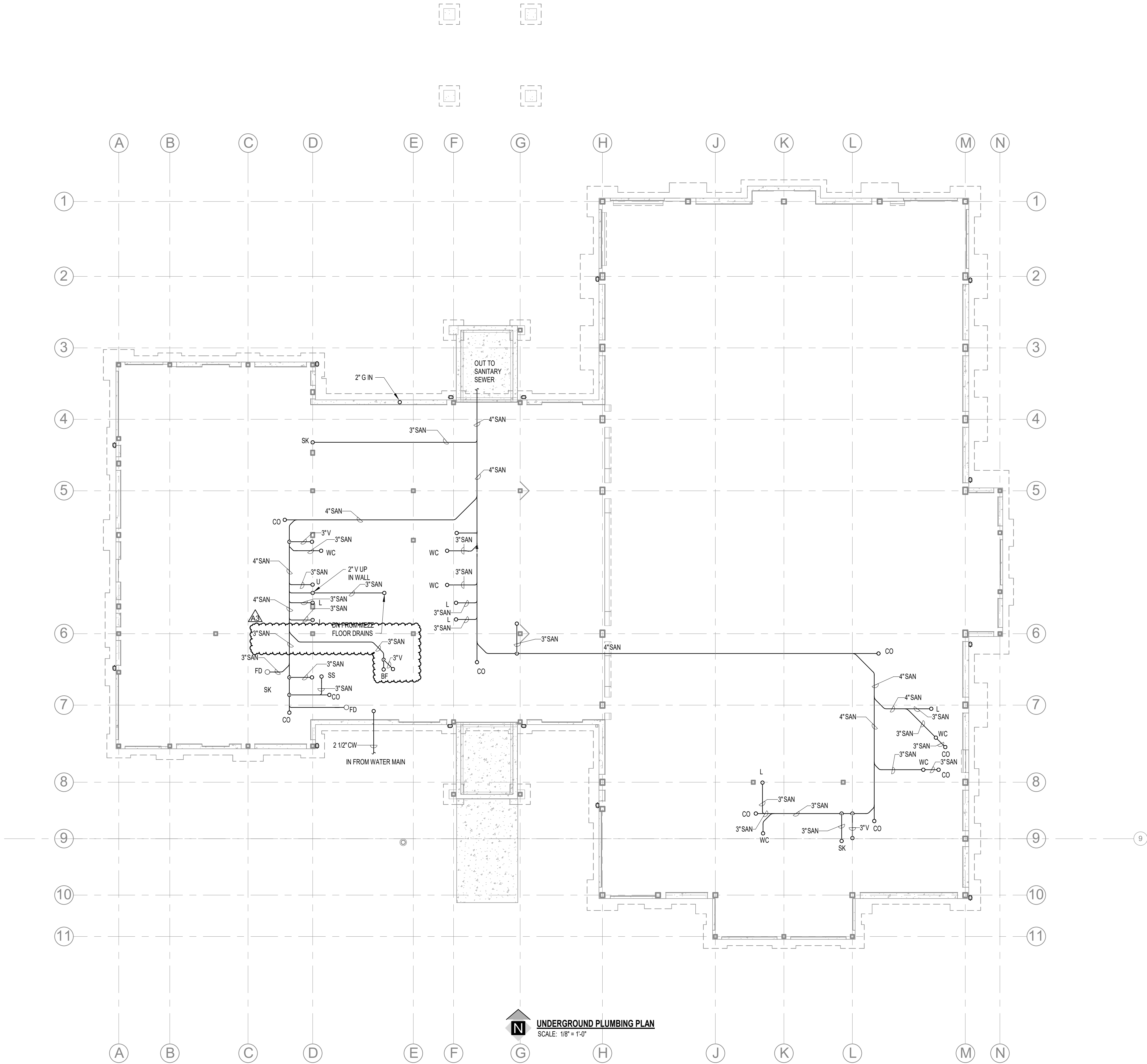
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EDWARDSBURG, MI 48801
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Valparaiso
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South Bend
Valparaiso
Engineering Architecture Land Surveying

PROJECT:
NEW CONSTRUCTION FOR:
CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
W. MAIN STREET,
EDWARDSBURG, MI

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UNDERGROUND PLUMBING PLAN
SCALE: 1/8" = 1'-0"

2	ADDENDUM 3	2024.01.31
1	ADDENDUM 2	2024.01.19
NO.	REVISION DESCRIPTION	BY DATE

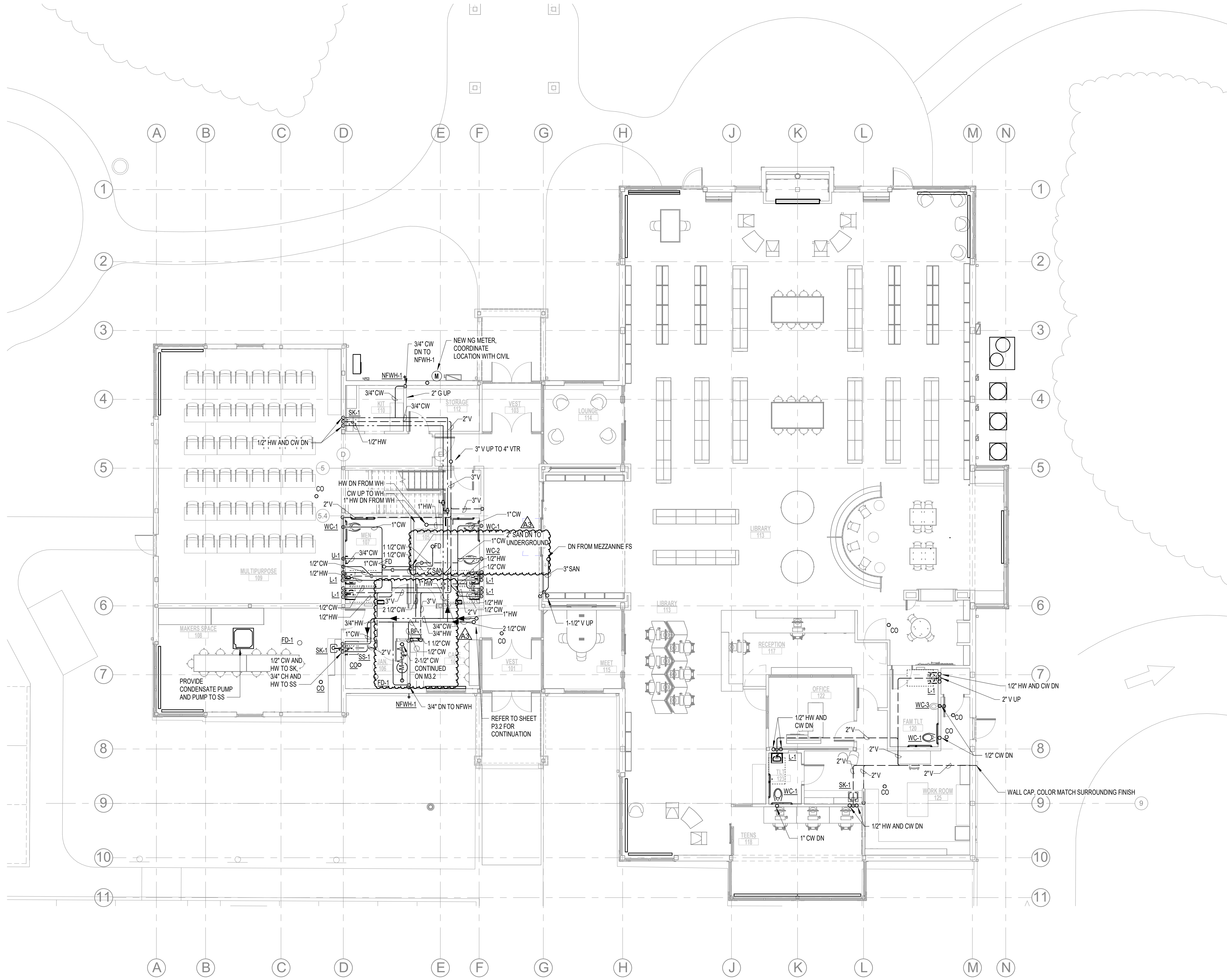
MODELED BY:	Author
DESIGNED BY:	Designer
PM REVIEW:	Approver
QA/QC REVIEW:	Checker
DATE:	12/20/2023
SEAL:	

SIGNATURE: _____
DATE: _____
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22-1836

SHEET NO.

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FIRST FLOOR PLUMBING PLAN
SCALE: 1/8" = 1'-0"

PROJECT:

**CASS DISTRICT LIBRARY
EDWARDSBURG BRANCH
26977 W. MAIN STREET,
EDWARDSBURG, MI**

SHEET TITLE:

FIRST FLOOR PLUMBING PLAN

MODELED BY:

Author

DESIGNED BY:

Designer

PM REVIEW:

Approver

QA/QC REVIEW:

Checker

DATE:

12/20/2023

SEAL:

SIGNATURE:

DATE:

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SCALE:

UNLESS NOTED OTHERWISE

ACI JOB #

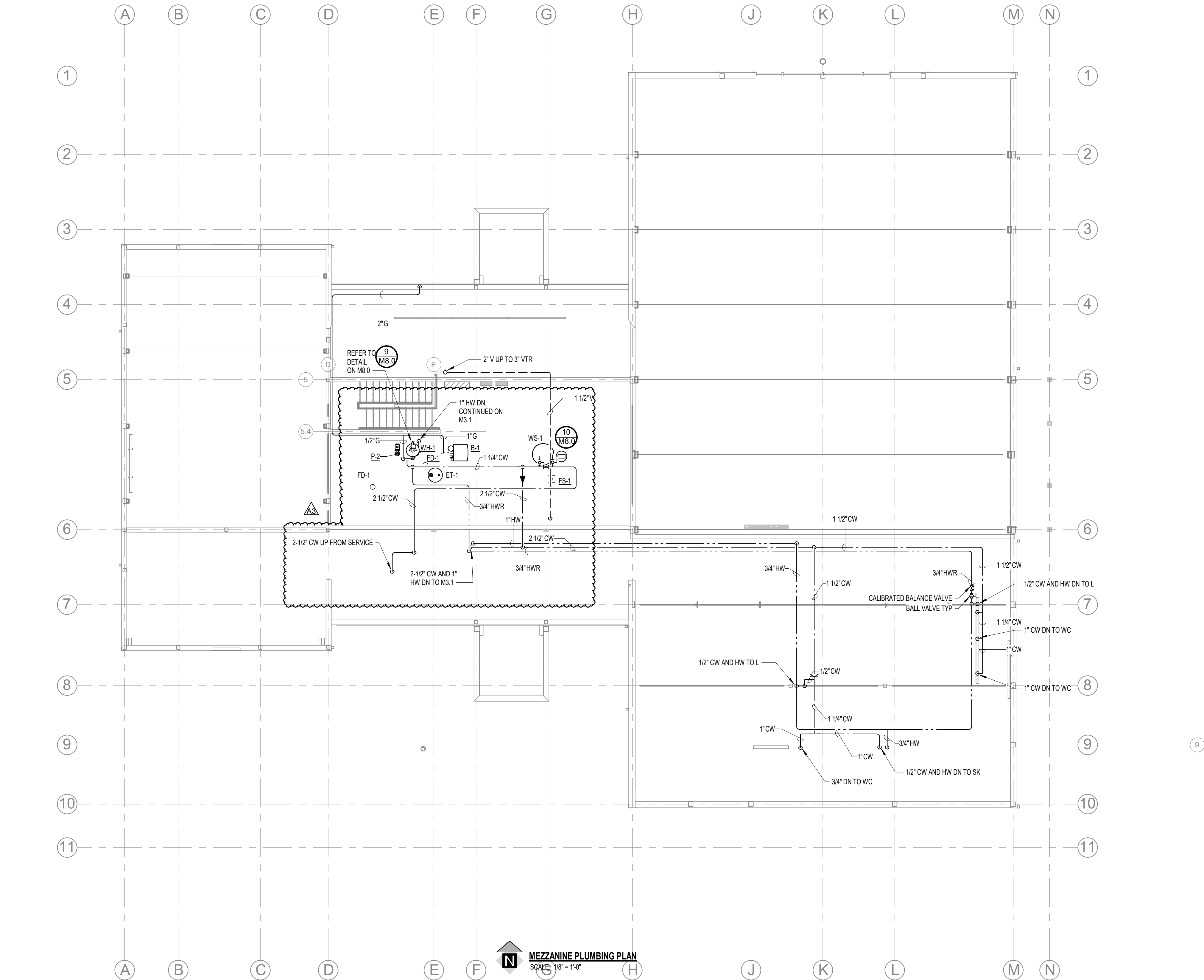
22-1836

SHEET NO.

P3.1

2	ADDENDUM 3	2024.01.31
1	ADDENDUM 2	2024.01.19
NO.	REVISION DESCRIPTION	BY DATE

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LEGEND:

	V	PLUMBING SYSTEM VENT		CAP
	CW	DOMESTIC COLD WATER		DROP
	SCW	SOFT COLD WATER		RISE
	TW	TEPID WATER		REDUCER
	HW	DOMESTIC HOT WATER		UNION
	HWR	DOMESTIC HOT WATER RETURN		THREE-WAY CONTROL VALVE
	SAN	SANITARY SEWER		CONTROL VALVE
	ST	STORM		GATE VALVE
	CA	COMPRESSED AIR		GLOBE VALVE
	DCA	DRY COMPRESSED AIR		BALL VALVE
	G	GAS		CHECK VALVE
	HS	HEATING WATER SUPPLY		CALIBRATED BALANCING VALVE
	HR	HEATING WATER RETURN		BUTTERFLY VALVE
	CS	CHILLED WATER SUPPLY		PLUG VALVE, GAS COCK
	CR	CHILLED WATER RETURN		PRESSURE REDUCING VALVE
	RS	REFRIGERANT SUCTION		RELIEF VALVE
	RL	REFRIGERANT LIQUID		STRAINER WITH FULL SIZE BLOWDOWN VALVE WITH HOSE END AND CAP
		DIRECTION OF FLOW		MANUAL AIR VENT
		DROP TEE IN-LINE		PUMP

DIFFUSER / GRILLE LEGEND:

TAG:	DESCRIPTION:
S-1 (3) 10"3 400	SUPPLY DIFFUSER TYPE (# OF SIMILAR DIFFUSER IN ROOM, ONLY USE IF GREATER THAN 1) NECK SIZE OF SQUZRE CEILING DIFFUSER (TYPICALLY 24"x24" FACE FOR LAY-IN CEILINGS CFM
S-1 (4) 40"x12" 1750 11'-0" AFF 45" DN	SUPPLY DIFFUSER / GRILLE TYPE (# OF SIMILAR DIFFUSER / GRILLE IN ROOM, ONLY USE IF GREATER THAN 1) SIZE OF SUPPLY GRILLE CFM MOUNTING HEIGHT ABOVE FINISHED FLOOR (IF WALL MOUNTED) MOUNTING ANGLE WHEN NEEDED (WHEN MOUNTED ON SPIRAL DUCT)
R-1 (4) 14"x6" 400 11'-0" AFF	RETURN GRILLE TYPE (# OF SIMILAR GRILLE IN ROOM, ONLY USE IF GREATER THAN 1) SIZE OF RETURN GRILLE CFM (NOTE: IF PLENUM RETURN, NO CFM NEEDED) MOUNTING HEIGHT ABOVE FINISHED FLOOR (IF WALL MOUNTED)
E-1 (4) 14"x6" 400 11'-0" AFF	EXHAUST GRILLE TYPE (# OF SIMILAR GRILLE IN ROOM, ONLY USE IF GREATER THAN 1) SIZE OF RETURN GRILLE CFM MOUNTING HEIGHT ABOVE FINISHED FLOOR (IF WALL MOUNTED)
	PRESSURE GAUGE
	COMBINATION PRESSURE AND TEMPERATURE TEST PLUG WITH EXTENDED NECK AND CAP
	THERMOMETER
	TEMPERATURE WELL
	FLEXIBLE CONNECTION
	THROUGH WALL SLEEVE
	POINT OF NEW CONNECTION TO EXISTING
	VOLUME CONTROL DAMPER IN DUCT
	FIRE DAMPER IN HORIZONTAL DUCT
	FIRE DAMPER IN VERTICAL DUCT
	MOTORIZED DAMPER
	THERMOSTAT
	SENSOR
	SUPPLY AIR (SECTION)
	RETURN / EXHAUST AIR (SECTION)
	AIR FLOW DIRECTION
	DUCT TRANSITION
	FLEXIBLE DUCT

ABBREVIATIONS:

AFB	ABOVE FINISH FLOOR	LWT	LEAVING WATER TEMPERATURE
ATR	AIR TEMPERATURE RISE	MAT	MIXED AIR TEMPERATURE
BF	BELOW FLOOR	MBH	1000 BRITISH THERMAL UNITS PER HOUR
BOD	BOTTOM OF DUCT	MIN	MINIMUM
BOS	BOTTOM OF STEEL	MFG	MANUFACTURER
BTUH	BRITISH THERMAL UNIT PER HOUR	NC	NORMALLY CLOSED
BY	BRITISH THERMAL UNIT PER HOUR	NO	NORMALLY OPEN
CA	COMPRESSED AIR	OA	OUTSIDE AIR
CEF	CEILING EXHAUST FAN	OAL	OUTSIDE AIR LOUVER
CFH	CUBIC FEET PER HOUR	OD	OVERFLOW DRAIN
CFM	CUBIC FEET PER MINUTE	OF	OVERFLOW
CH	CABINET HEATER	OCFI	OWNER FURNISHED - CONTRACTOR INSTALLED
CO	CLEAN OUT	PD	PRESSURE DROP
CONC	CONCRETE	PT	PRESSURE/TEMPERATURE PLUG
CW	DOMESTIC COLD WATER	RD	ROOF DRAIN
DB	DECEIBELS, SOUND PRESSURE LEVEL	RH	RELATIVE HUMIDITY/REHEAT
DN	DOWN	RPM	REVOLUTIONS PER MINUTE
EA	EXHAUST AIR/ EACH	BFP	BACKFLOW PREVENTER
EAL	EXHAUST/RELIEF AIR LOUVER	S	SINK
EAT	ENTERING AIR TEMPERATURE	SA	SUPPLY AIR
EDB	ENTERING DRY BULB	SAN	SANITARY
EF	EXHAUST FAN	SCW	SPPT COLD WATER
ESP	EXTERNAL STATIC PRESSURE	SP	STATIC PRESSURE
EWB	ENTERING WET BULB	SS	STAINLESS STEEL
EWT	ENTERING WATER TEMPERATURE	ST	STORM
EXIST	EXISTING	TEMP	TEMPERATURE
FD	FLOOR DRAIN	TOD	TOP OF DUCT
FS	FLOW SWITCH	TOS	TOP OF STEEL
GPM	GALLONS PER MINUTE	TSP	TOTAL STATIC PRESSURE
HB	HOSE BIB	V	VENT
HO	HUB OUTLET	VTR	VENT THROUGH ROOF
HP	HORSEPOWER	WC	WATER CLOSET
HW	DOMESTIC HOT WATER	WH	WATER HEATER
HWR	DOMESTIC HOT WATER RETURN	WPD	WATER PRESSURE DROP
LAV,L	LAVATORY	WTW	WALL TO WALL
LAT	LEAVING AIR TEMPERATURE/LATENT HEAT		
LD	LEAVING DRY BULB		
LWB	LEAVING WET BULB		

GENERAL CONTRACTOR REQUIREMENTS:

1.	ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND LAWS.	11.	LAYOUT PLUMBING WORK TO AVOID CONFLICTS WITH OTHER BUILDING COMPONENTS. ESTABLISH ELEVATION OF PUBLIC SEWER SYSTEM.
2.	ARRANGE AND PAY FOR ALL PERMITS AND INSPECTIONS AS REQUIRED.	12.	WHERE FIXTURES ARE MOUNTED TO WALLS SEAL ALL INTERSECTIONS WITH SILICONE CAULK.
3.	MAKE ARRANGEMENTS WITH AND PAY ALL CHARGES REQUIRED BY UTILITY COMPANIES FOR, WATER, AND SEWER SERVICES.	13.	IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY DETAIL OF CONSTRUCTION. CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS NECESSARY FOR A COMPLETE CODE COMPLYING MECHANICAL SYSTEM TO BE IN PROPER WORKING ORDER.
4.	ALL WORK SHALL BE PERFORMED TO FACILITATE EXPEDITIOUS PROGRESS ON THE WHOLE PROJECT. COORDINATE WORK WITH OTHER TRADES TO MINIMIZE AND RESOLVE POTENTIAL CONFLICTS.	14.	PROVIDE APPROPRIATE FIRE STOPPING MATERIALS WHERE FIRE RATED ASSEMBLIES ARE PENETRATED.
5.	COMPLETED SYSTEM SHALL BE TESTED, BALANCED, AND GUARANTEED.	15.	MATERIALS EXPOSED WITHIN A PLENUM SHALL BE NONCOMUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84. EXISTING AND NEW PVC PIPING WILL REQUIRE 1/2 INCH MINERAL FIBER INSULATION WITH VAPOR RETARDER FACING THAT MEETS ASTM E84.
6.	PROVIDE A GAS SHUTOFF VALVE AND DIRT LEG AT EACH PIECE OF GAS FIRED EQUIPMENT.	16.	CONTROL S MECHANICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL CONDUIT AND WIRING FOR LOW VOLTAGE AND LINE VOLTAGE REQUIREMENTS FOR PROPER FUNCTION AND COMMUNICATION OF EQUIPMENT.
7.	THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR SHALL PROVIDE FITTINGS, OFFSETS, ETC., AS NECESSARY TO PROPERLY COMPLETE THE INSTALLATION OF THE SYSTEMS.		
8.	CONTRACTOR TO FURNISH AND INSTALL WATER HAMMER ARRESTERS AT EACH VALVED FIXTURE.		
9.	ALL PIPES PASSING THRU FINISHED WALLS, PARTITIONS AND FLOORS SHALL BE FITTED WITH ADJUSTABLE ESCUTCHEONS, AND APPROPRIATE FIRE TOPPING WHERE REQUIRED.		
10.	FURNISH AND INSTALL ALL VALVING FOR THE PROPER SECTIONALIZING AND OPERATION OF THE PIPING SYSTEM.		

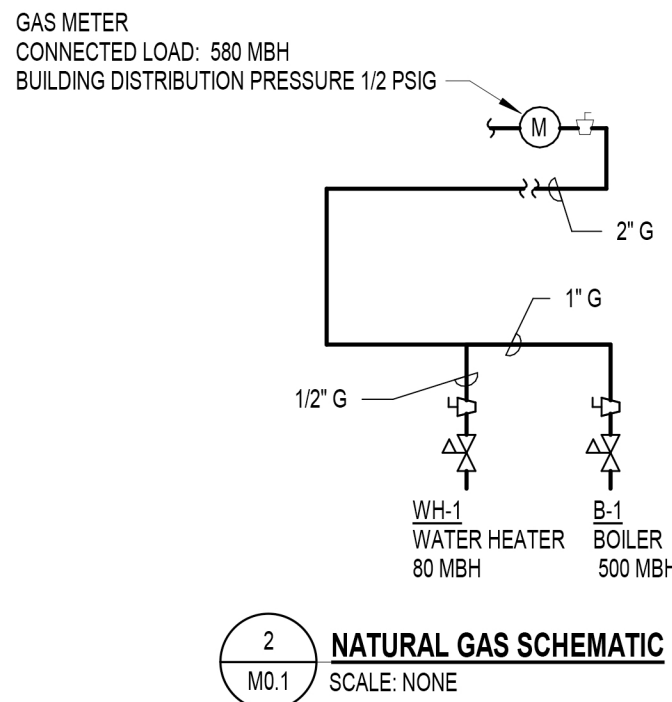
PLUMBING FIXTURE SCHEDULE									
MARK	FIXTURE	CW	HW	SAN	V	FIXTURE MODEL	FIXTURE MANUFACTURER	TRIM MODEL	TRIM MANUFACTURER
BF-1	BOTTLE FILLER	1/2"	-	1-1/4"	-	LBDW06	ELKAY	STAINLESS STEEL	ELKAY
CO-LD	CLEANOUT	-	-	4"	-	ZN-1400	ZURN	-	-
DN-1	DOWNSPOUT NOZZLE	-	-	-	-	ZANB199-SS	ZURN	STAINLESS STEEL BIRD SCREEN	ZURN
FD-1	FLOOR DRAIN	-	-	3", 4"	-	ZN415B	ZURN	SURE SEAL TRAP SEAL	RECTORSEAL
FS-1	FLOOR SINK	-	-	4"	-	ZN1926-33	ZURN	SURE SEAL TRAP SEAL	RECTORSEAL
L-1	LAVATORY - BARRIER FREE	1/2"	1/2"	1-3/4"	1-1/2"	037100-U	NAMEEKS	EFX 300 FAUCET	SLOAN
MS-1	MOP SINK	1/2"	1/2"	3"	1-1/2"	Z1996-24	ZURN	830-AA	FIAT
NFW-1	HOSE BIBB	3/4"	-	-	-	MODEL 68	WOODFORD	-	-
SK-1	BAR SINK - BARRIER FREE	1/2"	1/2"	2"	1-1/2"	ELUHAD161650	ELKAY	4832 410, FINISH: 075 PVD STAINLESS STEEL	AMERICAN STANDARD
UR-1	URINAL	3/4"	-	2"	1-1/2"	6002.001	AMERICAN STANDARD	SOLIS 8186-0.5-SF	SLOAN VALVE
WB-1	WALL BOX - CLOTHES WASH	1/2"	-	-	-	SSWB3	GUY GRAY	-	-
WC-1	WATER CLOSET	1"	-	4"	2"	2234.001	AMERICAN STANDARD	SOLIS 8111-1.28-SF	SLOAN VALVE
WC-2	WATER CLOSET - BARRIER FREE	1"	-	4"	2"	3043.001	AMERICAN STANDARD	SOLIS 8111-1.28-SF	SLOAN VALVE
WC-3	WATER CLOSET - KIDS	1"	-	4"	2"	2282.001	AMERICAN STANDARD	SOLIS 8111-1.28-SF	SLOAN VALVE

EXHAUST FANS									
MARK	MODEL	CFM	ESP	WATTS	BHP	RPM	VIP	SONES	REMARKS
EF-1	CSP-A390-VG	275	0.5	60	0.08	1,320	115/1	2.2	1, 2
EF-2	CSP-A390-VG	200	0.5	40	0.05	1,243	115/1	2.2	1, 2
EF-3	SQ-16-M2	4,800	1.09	2 HP	1.55	1,750	208/3	18.3	1

1. BASED ON "GREENHECK"
2. TO OPERATE CONTINUOUSLY

SPLIT SYSTEMS									
MARK	EVAPORATOR	MODEL	CONDENSER	MARK	LOCATION	MODEL	TONS	VIP	REMARKS
AC-5	MAKERS SPACE 108	FCQ181AVJU	OUTDOOR	CU-5	OUTDOOR	RZQ181AVJUA	1.5	208 / 1	1

1. BASED ON "DAIKIN."



PUMPS									
MARK	MODEL	GPM	HEAD (FT)	RPM	HP	BHP	IMPELLER DIA	VIP	REMARKS
P-1	E60-1.25-1.25-5.25	27	20	1576	0.5	0.237	5	115/1	1
P-2	PL-45	17.5	20	3300	1/6	-	-	115/1	1

1. BASED ON "BELL & GOSSETT".

BOILERS									
MARK	MODEL #	SERVICE	INPUT (MBH)	OUTPUT (MBH)	WATER (GPM)	VENT "(O)	VIP		REMARKS
B-1	KBX0500N	NATURAL GAS	500	485	75	4"	120/1	1	

1. BASED ON "LOCHINVAR".

WATER HEATER									
MARK	MODEL	SERVICE	STORAGE	GPH REC	INPUT BTU	VIP			REMARKS
WH-1	LG2PDV7H803N	NATURAL GAS	75	77		80,000	115/1	1	

1. BASED ON "BRADFORD WHITE".

AIR HANDLING UNITS												
MARK	MODEL	CFM	MAX O.A. CFM	ESP	COOLING MBH	HEATING MBH	HW GPM	FAN HP	FAN BHP	FAN RPM	VIP	FLC
AHU-1	CAH011GDDM	4800	4800	0.75	187	153.5	10.2	4.1	1.80	3001	208/3	9.0
AHU-2	CAH004GDDM	1600	360	0.75	54.2	76.2	5.10	1.5	1.11	3500	208/3	4.60
AHU-3	CAH004GDDM	1600	360	0.75	54.2	76.2	5.10	1.5	1.11	3500	208/3	4.60
AHU-4	CAH004GDDM	1600	360	0.75	54.2	76.2	5.10	1.5	1.11	3500	208/3	4.60

1. BASED ON "DAIKIN".
2. PROVIDE SEVEN-DAY PROGRAMMABLE THERMOSTAT.
3. FAN HP, FAN BHP, FLC ARE PER FAN. THERE ARE (2) FANS IN THIS UNIT.

CONDENSING UNITS									
MARK	MODEL	CONNECT TO	TONS	SEER (MIN)	VIP	FLA	MCA	MOCF	REMARKS
CU-1	CFA-915-B-A-3-DA00N	AHU-1	12.5	12	208/3	58	64	90	1
CU-2	CFA-005-A-A-3-DA00H	AHU-2	4	14.2	208/3	20	24	40	1
CU-3	CFA-005-A-A-3-DA00H	AHU-3	4	14.2	208/3	20	24	40	1
CU-4	CFA-005-A-A-3-DA00H	AHU-4	4	14.2	208/3	20	24	40	1

1. BASED ON "AARON".

AIR INLETS AND OUTLETS									
KEY	MODEL	DESCRIPTION					REMARKS		
E-1	50F	11/2x12x1/2 GRID CORE, SURFACE MOUNTED, ALUMINUM, BAKED ON ENAMEL					1, 3		
R-1	667	24x8 ONE PIECE STEEL CONSTRUCTION, 1/3" SPACED FINS SET AT 20 DEGREES					2, 3		
R-2	50F	11/2x12x1/2 GRID CORE, LAY-IN, ALUMINUM, BAKED ON ENAMEL					1, 3		
R-3	300RL	STEEL DOUBLE DEFLECTION RETURN GRILLE, 3/4" BLADE SPACING, FRONT BLADES PARALLEL TO LONG DIMENSION					1, 3		
S-1	TMS	24x24 LOUVER FACE, SURFACE MOUNTED, STEEL, BAKED ON ENAMEL					1, 3		
S-2	S300FL	DOUBLE DEFLECTION SPIRAL MOUNTED GRILLE, 3/4" BLADE SPACING WITH OUTER BLADE PARALLEL TO LONG DIMENSION					1, 3		
S-3	300FL	ALUMINUM DOUBLE DEFLECTION SUPPLY GRILLE, SURFACE MOUNTED, 3/4" BLADE SPACING WITH FRONT BLADES PARALLEL TO THE LONG DIMENSION					1, 3		

1. BASED ON "TITUS".
2. BASED ON "HART AND COOLEY".
3. COLOR BY ARCHITECT.






ELECTRIC BASEBOARD HEATERS									
MARK	MODEL	ENCLOSURE LENGTH	CONVECTOR LENGTH	CATALOG NUMBER	WATTS	BTU/HR	VIP		REMARKS
EBH-1	SBT	9'-6"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-2	SBT	7'-10"	7'-0"	SB-7150	1050	3581	115/1	1, 2	
EBH-3	SBT	7'-10"	7'-0"	SB-7150	1050	3581	115/1	1, 2	
EBH-4	SBT	9'-6"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-5	SBT	8'-0"	7'-0"	SB-7150	1050	3581	115/1	1, 2	
EBH-6	SBT	9'-8"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-7	SBT	9'-8"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-8	SBT	6'-8"	5'-0"	SB-5150	750	2560	115/1	1, 2	
EBH-9	SBT	11'-2"	10'-0"	SB-10150	1500	5120	115/1	1, 2	
EBH-10	SBT	6'-0"	5'-0"	SB-5150	750	2560	115/1	1, 2	
EBH-11	SBT	6'-4"	5'-0"	SB-5150	750	2560	115/1	1, 2	
EBH-12	SBT	9'-6"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-13	SBT	9'-6"	8'-0"	SB-8150	1200	4092	115/1	1, 2	
EBH-14	SBT	6'-4"	5'-0"	SB-5150	750	2560	115/1	1, 2	









1. BASED ON "VULCAN".
2. PROVIDE ALL BASEBOARD HEATERS AS BOTTOM INTAKE, TOP DISCHARGE WITH CAST PEDESTAL.







PLUMBING EQUIPMENT LIST




WS-1	WATER SOFTENER MANUFACTURER: PEERLESS MODEL: 210 TCCM-WVC-2" CAPACITY: 210,000 GRAINS PIPING SIZE: 2" SERVICE FLOW RATE: 47 GPM STEADY @ 15 PSI DROP PEAK DEMAND FLOW RATE: 65 GPM PEAK SYSTEM @ 15 PSI DROP BACKWASH RATE: 15 GPM MEDIA: 7 CU. FT.
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
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







DATA DEVICES SCHEDULE						
CONDUITS AND OUTLETS BY	PROVIDED BY	INSTALLED BY	WIRED BY	E - ELECTRICAL M = MECHANICAL X = OTHERS		M. H. TO CENTER
				SYMBOL	DESCRIPTION	
E	X	X	X		WIRELESS ACCESS POINT, CEILING	
E	X	X	X		DATA DEVICE	18"
E	X	X	X		DOOR POSITION SWITCH	IN DOOR FRAME
E	X	X	X		ELECTRIC STRIKE	44"
E	X	X	X		CARD READER	IN DOOR FRAME

LIGHTING DEVICES SCHEDULE						
CONDUITS AND OUTLETS BY	PROVIDED BY	INSTALLED BY	WIRED BY	E - ELECTRICAL M = MECHANICAL X = OTHERS		M. H. TO CENTER
				SYMBOL	DESCRIPTION	
E	E	E	E		DAYLIGHT SENSOR	CEILING
E	E	E	E		VACANCY SENSOR	CEILING
E	E	E	E		DAYLIGHT HARVEST SENSOR, WALL MOUNTED	80"
E	E	E	E		OCCUPANCY SENSOR, WALL MOUNTED	80"
E	E	E	E		PHOTOCELL SENSOR, WALL MOUNTED	80"
E	E	E	E		DIMMING VOLTAGE SWITCH	44"
E	E	E	E		OCCUPANCY SENSOR SWITCH, DUAL TECHNOLOGY	44"
E	E	E	E		LOW VOLTAGE SWITCH	44"

FIRE ALARM DEVICES SCHEDULE						
CONDUITS AND OUTLETS BY	INSTALLED BY	PROVIDED BY	WIRED BY	E - ELECTRICAL M = MECHANICAL X = OTHERS		M. H. TO CENTER
				SYMBOL	DESCRIPTION	
E	E	E	E		FIRE ALARM ANNUNCIATOR PANEL	
E	E	E	E		FIRE ALARM CONTROL PANEL	
E	E	E	E		FIRE ALARM CEILING HORN/STROBE DEVICE	CEILING
E	E	E	E		FIRE ALARM CEILING STROBE DEVICE	CEILING
E	E	E	E		FIRE ALARM SPEAKER STROBE, WALL MOUNTED, WP = WEATHERPROOF RATED	96"
E	E	E	E		CEILING MOUNTED SMOKE DETECTOR	CEILING

LIGHT FIXTURE SCHEDULE						
MARK	SYMBOL	LAMPS		MANUFACTURER	MTG.	REMARKS
		WATTS	TYPE			
WA		19 W	LED	LITHONIA: DSXW1 LED 10C 350 30K T3M MVOLT PE DBLXD OR EQUIVALENT	WALL 8'-0" AFF	EXTERIOR EGRESS LIGHT WITH EMERGENCY BATTERY BACK-UP.
WW		15 W	LED	KIM LIGHTING: INT-2-24L-30-3K8-WW-UNV-A3-CR-LM-BLT-PC OR EQUIVALENT	1'-0" ABOVE GRADE	WALL WASH FIXTURE WITH NARROW MEDIUM DISTRIBUTION.
XA		1 W	LED	LITHONIA: LOC XX R EL N OR EQUIVALENT	8'-0" AFF	EMERGENCY EXIT SIGN, PROVIDE FACES AND CHEVRONS AS SHOWN.

ELECTRICAL EQUIPMENT SCHEDULE						
CONDUITS AND OUTLETS BY	INSTALLED BY	PROVIDED BY	WIRED BY	E - ELECTRICAL M = MECHANICAL X = OTHERS		M. H. TO CENTER
				SYMBOL	DESCRIPTION	
E	E	E	E		VARIABLE FREQUENCY DRIVE (VFD)	
E	E	E	E		FUSIBLE DISCONNECT SWITCH W/ FUSES TO SUIT, WP = NEMA 3R, XP = CLASS 2, DIVISION 1 RATED	
E	E	E	E		ELECTRIC METER	44"
E	E	E	E		CIRCUIT BREAKER PANEL, SURFACE MOUNTED	48"
E	E	E	E		DISTRIBUTION PANEL, SURFACE	48"
E	E	E	E		OIL TYPE TRANSFORMER (UTILITY)	

ELECTRICAL FIXTURE SCHEDULE						
CONDUITS AND OUTLETS BY	PROVIDED BY	INSTALLED BY	WIRED BY	E - ELECTRICAL M = MECHANICAL X = OTHERS		M. H. TO CENTER
				SYMBOL	DESCRIPTION	
E	E	E	E		FLOOR BOX, LEGRAND EVOLUTIONARY SERIES, 4 GANG BOX. SPEC #EFB6S OR EQUIVALENT.	FLOOR
E	E	E	E		ELECTRIC HAND DRYER CONNECTION	44"
E	E	E	E		JUNCTION BOX	
E	E	E	E		SINGLE PHASE MOTOR	
E	E	E	E		MANUAL MOTOR STARTER	
E	E	E	E		PUSH-BUTTON CONTROL	
E	E	E	E		DUPLEX RECEPTACLE, U = RECEPTACLE WITH USB PORTS	18"
E	E	E	E		DUPLEX RECEPTACLE, ABOVE COUNTER OR AS NOTED	44"
E	E	E	E		GFCI RECEPTACLE, WP = WEATHERPROOF IN-USE COVER	18"
E	E	E	E		GFI RECEPTACLE, ABOVE COUNTER OR AS NOTED, WP = WEATHERPROOF IN-USE COVER	44"
E	E	E	E		QUAD PLEX RECEPTACLE	18"
E	E	E	E		QUAD PLEX RECEPTACLE, ABOVE COUNTER OR AS NOTED	44"
E	E	E	E		SPECIAL PURPOSE RECEPTACLE	
E	E	E	E		TIME CLOCK CONTROL	
E	E	E	E		CORD REEL, BASIS OF DESIGN:HUBBELL - HBLC40123TT	

LIGHT FIXTURE SCHEDULE						
MARK	SYMBOL	LAMPS		MANUFACTURER	MTG.	REMARKS
		WATTS	TYPE			
CA		10 W	LED	LITHONIA: LDN6 4010 L06 WR LS TRW MVOLT G210 OR EQUIVALENT	RECESSED	6" DIAMETER RECESSED DOWNLIGHT. 1000 DELIVERED LUMENS.
CAE		10 W	LED	LITHONIA: LDN6 4010 L06 WR LS TRW MVOLT G210 EL OR EQUIVALENT	RECESSED	6" DIAMETER RECESSED DOWNLIGHT W/ INTEGRATED EMERGENCY BATTERY PACK. 1000 DELIVERED LUMENS.
DA		215 W	LED	G LIGHTING: GL-2726-O-XXX-4-A OR EQUIVALENT	13'-8" AFF	8'-0" ROUND RING PENDANT, 60% UPLIGHT, 40% DOWNLIGHT. 20096 DELIVERED LUMENS. ARCHITECT TO VERIFY FINISH IN SHOP DRAWING PHASE.
DB		108 W	LED	G LIGHTING: GL-2726-G-XXX-4-A OR EQUIVALENT	13'-8" AFF	4'-0" ROUND RING PENDANT, 60% UPLIGHT, 40% DOWNLIGHT. 10197 DELIVERED LUMENS. ARCHITECT TO VERIFY FINISH IN SHOP DRAWING PHASE.
DC		60 W	LED	DILULAMP: 48CM WHITE 41W INTEGRATED LED PHASE-CUT	TBD	ARTICHOKE LAMP, 18.9".
DD		7 W	LED	LUMENWERX: AEC3VP-D 12W XXXX BULD XXXX NOL S2DEG 2STP 80CRI 40K LSDL UNV 7W NA D1 1C FLR XXXX BPC#RN BKS#WN NA OR EQUIVALENT	13'-8" AFF	SMALL DECORATIVE PENDANT. 560 DELIVERED LUMENS. ARCHITECT TO VERIFY FINISH IN SHOP DRAWING PHASE.
DW		14 W	LED	KOHLER: K32375-SC01-BNL OR EQUIVALENT.	TBD	DECORATIVE WALL SCNCE.
FAE		40 W	LED	LITHONIA: WL4 40L G210 LP840 EL7L OR EQUIVALENT	WALL 8'-0" AFF	4" WRAP AROUND STAIR WELL LIGHT W/ INTEGRATED EMERGENCY BATTERY PACK. 4000 DELIVERED LUMENS.
IA		30 W	LED	LITHONIA: ZL1D L48 3000LM FST MVOLT 40K 80CRI WH OR EQUIVALENT	CHAIN 10'-0" AFF	8' INDUSTRIAL STRIP LIGHT. 3000 DELIVERED LUMENS.
IAE		30 W	LED	LITHONIA: ZL1D L48 3000LM FST MVOLT 40K 80CRI E10WLP WH OR EQUIVALENT	10'-0" AFF	8' INDUSTRIAL STRIP LIGHT W/ INTEGRATED EMERGENCY BATTERY PACK. 3000 DELIVERED LUMENS.
PA		96 W	LED	MARK ARCHITECTURAL LIGHTING: S2PD LSL 12FT MSL8 80CRI 40K 1000LMF SCT MIN10 FLL MVOLT XXX ZT ADC F21144A RDCY BLKCY BCRD PIF OR EQUIVALENT	AIRCRAFT CABLE 16'-0" AFF	12' LINEAR PENDANT. 12000 DELIVERED LUMENS. ARCHITECT TO VERIFY FINISH IN SHOP DRAWING PHASE.
PAE		96 W	LED	MARK ARCHITECTURAL LIGHTING: S2PD LSL 12FT MSL8 80CRI 40K 1000LMF SCT MIN10 FLL MVOLT XXX 1E10WLP ZT ADC F21144A RDCY BLKCY BCRD PIF OR EQUIVALENT	AIRCRAFT CABLE 16'-0" AFF	12' LINEAR PENDANT W/ INTEGRATED EMERGENCY BATTERY PACK. 12000 DELIVERED LUMENS. ARCHITECT TO VERIFY FINISH IN SHOP DRAWING PHASE.
PB		64 W	LED	MARK ARCHITECTURAL LIGHTING: S2PD LLP 8FT MSL8 80CRI 40K 1000LMF SCT MIN10 FLL MVOLT XXX ZT F21144A RDCY BLKCY BCRD PIF OR EQUIVALENT	AIRCRAFT CABLE 16'-0" AFF	8' LINEAR PENDANT. 8000 DELIVERED LUMENS. ARCHITECT TO VERIFY FINISH IN SHOP DRAWING PHASE.
PBE		64 W	LED	MARK ARCHITECTURAL LIGHTING: S2PD LLP 8FT MSL8 80CRI 40K 1000LMF SCT MIN10 FLL MVOLT XXX 1E10WLP ZT F21144A RDCY BLKCY BCRD PIF OR EQUIVALENT	AIRCRAFT CABLE 16'-0" AFF	8' LINEAR PENDANT W/ INTEGRATED EMERGENCY BATTERY PACK. 8000 DELIVERED LUMENS. ARCHITECT TO VERIFY FINISH IN SHOP DRAWING PHASE.
PC		48 W	LED	MARK ARCHITECTURAL LIGHTING: S2PD LLP 8FT MSL8 80CRI 40K 1000LMF SCT MIN10 FLL MVOLT XXX ZT F21144A RDCY BLKCY BCRD PIF OR EQUIVALENT	AIRCRAFT CABLE 16'-0" AFF	6' LINEAR PENDANT. 6000 DELIVERED LUMENS. ARCHITECT TO VERIFY FINISH IN SHOP DRAWING PHASE.
PCE		48 W	LED	MARK ARCHITECTURAL LIGHTING: S2PD LLP 8FT MSL8 80CRI 40K 1000LMF SCT MIN10 FLL MVOLT XXX 1E10WLP ZT F21144A RDCY BLKCY BCRD PIF OR EQUIVALENT	AIRCRAFT CABLE 16'-0" AFF	6' LINEAR PENDANT W/ INTEGRATED EMERGENCY BATTERY PACK. 6000 DELIVERED LUMENS. ARCHITECT TO VERIFY FINISH IN SHOP DRAWING PHASE.
RA		44 W	LED	MARK ARCHITECTURAL LIGHTING: SL2L LOP 4FT FLP FL 80CRI 40K 1000LMF MIN10 120 ZT OR EQUIVALENT	RECESSED	3" RECESSED LINEAR. 4000 DELIVERED LUMENS.
RAE		44 W	LED	MARK ARCHITECTURAL LIGHTING: SL2L LOP 4FT FLP FL 80CRI 40K 1000LMF MIN10 120 E10WLP ZT OR EQUIVALENT	RECESSED	3" RECESSED LINEAR W/ INTEGRATED EMERGENCY BATTERY PACK. 4000 DELIVERED LUMENS.
RB		40 W	LED	LITHONIA: 2BLT2 40L ADP EZ1 LP840 OR EQUIVALENT	RECESSED	2X2 TROFFER, HIGH LUMEN OUTPUT. 4000 DELIVERED LUMENS.
RBE		40 W	LED	LITHONIA: 2BLT2 40L ADP EZ1 LP840 EL7L OR EQUIVALENT	RECESSED	2X2 TROFFER W/ INTEGRATED EMERGENCY BATTERY PACK, HIGH LUMEN OUTPUT. 4000 DELIVERED LUMENS.
RC		30 W	LED	LITHONIA: 2BLT2 33L ADP EZ1 LP840 OR EQUIVALENT	RECESSED	2X2 TROFFER, LOW LUMEN OUTPUT. 3300 DELIVERED LUMENS.
RCE		30 W	LED	LITHONIA: 2BLT2 33L ADP EZ1 LP840 EL7L OR EQUIVALENT	RECESSED	2X2 TROFFER W/ INTEGRATED EMERGENCY BATTERY PACK, LOW LUMEN OUTPUT. 3300 DELIVERED LUMENS.
RD		32 W	LED	MARK ARCHITECTURAL LIGHTING: SL1LW LOP 3FT FL 90CRI 40K 200LMF MIN1 FLL MVOLT XXX OR EQUIVALENT	RECESSED	VERTICAL RECESSED LINEAR TO BE SPECIFIED AT 9'-6". HORIZONTAL RECESSED LINEAR TO BE SPECIFIED AT 16'. 200 DELIVERED LUMENS PER FOOT. ARCHITECT TO VERIFY FINISH IN SHOP DRAWING PHASE.
RF		44 W	LED	MARK ARCHITECTURAL LIGHTING: SL2L LOP 4FT FLP FL 80CRI 40K 1000LMF MIN10 120 ZT DPL OR EQUIVALENT	RECESSED	3" RECESSED LINEAR DAMP RATED. 4000 DELIVERED LUMENS.

C	ADDENDUM #3		01/31/2024
A	ADDENDUM #1		01/12/2024
NO.	REVISION DESCRIPTION	BY	DATE

PROJECT:
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