Schenectady County
Purchasing Department

620 State St.-2nd Floor
Schenectady, NY 12305
Purchasing@schenectadycountyny.gov
518.388.4240

ADDENDUM

RFB-2023-54
SCHENECTADY COUNTY RAY WEMPLE RINK ADDITIONS AND RENOVATIONS
C2 DESIGN GROUP

ADDENDUM #5

Issued Date: 12/20/2023

The purpose of this addendum is to provide detailed information to all Bidders. This addendum is hereby included in and made part of the Contract Documents, whether or not attached thereto. Receipt of this Addendum must be acknowledged on the bid form.

CONTENTS/RESPONSE TO QUESTIONS/REFERENCE TO ATTACHMENTS

General:

1. This addendum changes the documents for Bid #RFB-2023-54.
2. The bid due date is January 4, 2024 at 2:00pm

Revised/New Contract Drawings and Specifications

1. Drawing SK-01. **Add** to bid set.
2. Specification 023200, *Geotechnical Investigations.*
    a. Description: **Add** Specification 023200 to bid set.
        i. **Add** *Geotechnical Data Report* dated May 26, 2023, from Terracon Consultants, Inc. to bid set.
3. Specification section 074100, PREFORMED METAL WALL & SOFFIT PANELS.
    a. Description: Revise 2.1.C - *Soffit panels to be 7" wide.*
    b. Revise 2.3.A - *Preformed metal panels shall be fabricated of 24-gauge steel.*
4. Specification section 084413, CURTAIN WALL SYSTEMS.
    a. Description: **Add** Specification 084413 to bid set.

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5. Specification section 084413, CURTAIN WALL SYSTEMS.
    a. Description: **Add** Specification 084413 to bid set.
6. Specification section 101423, PANEL SIGNAGE.
    a. Description: **Add** Specification 101423 to bid set.
7. Specification section 084523, INSULATED TRANSLUCENT FIBERGLASS SANDWICH PANEL WALL SYSTEM.
    a. Description: **Add** paragraph 2.4 ALUMINUM 1" PRESSURE PLATE ADAPTOR, integral 1" pressure plate adaptor system factory attached to panels. Finish: mill.
    b. Related Sections: 08 44 13 CURTAIN WALL SYSTEMS
8. Specification section 235216, CONDENSING BOILERS.
    a. Description: **Replace** Specification 084413 to bid set.
9. Drawing G101, Sheet List, Abbreviations and Symbols.
    a. Description: **Replace** Drawing G101 in bid set.
10. Drawing G500, Logistics and Phasing Plans:
    a. Description: **Replace** Drawing G500 in bid set.
11. Drawing S102, Roof Framing Plan:
    a. Description: **Replace** Drawing S102 in bid set.
12. Drawing S300, Roof Framing Plan:
    a. Description: **Replace** Drawing S300 in bid set.
13. Drawing S301, Framing Sections:
    a. Description: **Replace** Drawing S301 in bid set.
14. Drawing A100, Foundation Plan:
    a. Description: **Replace** Drawing A100 in bid set.
15. Drawing A101, First and Mezzanine Floor Plans:
    a. Description: **Replace** Drawing A101 in bid set.

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16. Drawing A300, Building Sections.
    a. Description: **Replace** Drawing A300 in bid set.
17. Drawing A601, First Floor Enlargement Plan -South:
    a. Description: **Replace** Drawing A601 in bid set.
18. Drawing A602, First Floor Enlargement Plan -South:
    a. Description: **Replace** Drawing A602 in bid set.
19. Drawing A700, First Floor Enlargement Plan -South:
    a. Description: **Replace** Drawing A700 in bid set.
20. Drawing A901, First Floor Enlargement Plan -South:
    a. Description: **Replace** Drawing A901 in bid set.
21. Drawing P201.
    a. Description: **Replace** Drawing P201 in bid set.
22. Drawing P700.
    a. Description: **Replace** Drawing P700 in bid set.
23. Drawing FP201.
    a. Description: **Replace** Drawing FP201 in bid set.
24. Drawing FP301.
    a. Description: **Replace** Drawing FP301 in bid set.
25. Drawing E002.
    a. Description: **Replace** Drawing E002 in bid set.
26. Drawing E003.
    a. Description: **Replace** Drawing E003 in bid set.
27. Drawing E301.

a. Description: **Replace** Drawing E301 in bid set.

28. Drawing E602.

    a. Description: **Replace** Drawing E602 in bid set.

General Bid RFI's

1. Q: What is the pre-bid product substitution process?
    a. Response: ***REMINDER*** - Refer to Addendum #2 "General Bid RFI #7" regarding product substitutions, and also paragraph 'W' of *General and Supplementary Conditions – Office of Facilities V2017.1*. Acceptance of any and all substitutions will not be considered until ***after*** the "effective date of the Agreement".

2. Q: Note – ALL CONTRACTS:
    a. *SEE SPECIFICATION SECTION 01 10 00, SUMMARY OF MULTIPLE CONTRACTS, FOR THE WORK TO BE COORDINATED WITH OTHER CONTRACTORS. SCOPE OF WORK OF THE SEPARATE CONTRACTORS IS SHOWN IN THE DRAWINGS AND/OR SPECIFICATIONS AND FURTHER DEFINED WHERE THE WORK OF ONE CONTRACTOR INTERFACES WITH THE WORK OF ANOTHER. IT IS THE RESPONSIBILITY OF EACH CONTRACTOR TO BE FAMILIAR WITH THE ENTIRE PROJECT AND HOW ITS WORK RELATES AND INTERFACES WITH THE WORK OF THE OTHER CONTRACTORS.*

3. The specified unit for the wheelchair lift calls for a plexiglass enclosure, however, it's in a drywall shaft. Please advise if the plexiglass enclosure is required.
    a. Response: Lift shall be installed in a gyp board shaft. See plans for wall types.

4. Q: Specification Section 075323, Par. 2.03 indicates.060 Mil Membrane, Drawing A603 detail indicates .090 Mil Membrane.
    a. Response: EPDM membrane shall be .060 mil.

5. Q: Specification Section 075323, Par.1.07 indicates a 20-year manufacture's warranty, drawing A603 detail 10/A603 indicates a 30-year manufacturer's warranty.
    a. Response: EPDM roof system shall provide a 20-year warranty.

6. Q: Please clarify Specification Section 075323, Par. 2.02, A. 4 and also 2.02, B. 1 – 9.
    a. Response: Paragraph 2.02.A.4, delete line 4. Does not apply to this project. Insulation follows slope of roof structure.
    b. Response: Paragraph 2.02.B, delete lines 4-9. Does not apply to this project.

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7. Q: Roof penetration EF-2 appears to fall within the roof drain cricket.
    a. Response: move EF-2 curb to the south of the cricket. Mechanical contractor to coordinate location with the General Contractor.

8. Q: M701 Calls out Tekmar Controls for the Boiler an Associated Valves – is there any intent to have a Building Management System so that the system can be viewed/alarmed remotely? Boiler spec section 23 52 16 (written for a Fulton Endura unit) does not appear to match the Navien wall hung boiler listed on drawing M002.
    a. Response: No, all controls shall be hard-wired and have the ability to operate as a stand-alone system.

9. Q: Please advise if any exhaust ductwork or ductwork accessories associated with locker rooms and showers to be fabricated from aluminum in lieu of galvanized sheet stock. If ductwork associated with locker rooms and showers to be fabricated from aluminum, please advise extent of ductwork to be aluminum associated with EF-1.
    a. Response: No aluminum ductwork is required on the project.

10. Q: Boiler spec section 23 52 16 (written for a Fulton Endura unit) does not appear to match the Navien wall hung boiler listed on drawing M002. Please provide an updated section.
    a. Response: The revised specification section has been include in this Addendum.
11. Q: Drawing C-102 site note C8. Is the "New Dual EV Charging Unit Station with two bollards" to be provided by the electrical contract?
    a. Response: Bollards are to be provided under the GC bid, EV charger under the EC bid.

12. Q: Are Doors #100 & 101 Aluminum Storefront Doors per Door Elevations S5 & S7 as indicated on the Floor Plan or Hollow Metal as indicated on the Door Schedule. Are they intended to be Aluminum Doors and Frames.
    a. Response: Yes, doors #100 & 101 shall be Kawneer Trifab 450 system, or approved equal.

13. Q: Various locations identify Special-Lite HMR retrofit replacement type FRP Doors which are not intended for new applications. Please specify another model FRP door or make all the FRP Doors type 1 SL-17 Doors.
    a. Response: **All** doors and frames scheduled as FRP shall be Type FRP-1 (Special-Lite model SL-17).
    b. **All** FRP doors to be provided with a factory installed continuous hinge with a 10-year installation warranty and a lifetime mechanical warranty.

14. Q: Add #2, Revision Note 5; confirm column line B.6 should be B.4
    a. Response: Yes, the stair for Alt. #1 is located between B.4 and C.2.

15. Q: A900; door 202 is the only door noted as Alternate 1. Confirm this is the only door intended to be in alternate #1. Should alternate #1 also include 124, 125, 126, 127, 128? (not in base bid)
    a. Response: Door 202 is the only door for Alternate #1.

i. Reference drawing 1/A105: This part plan was included to show the stair for Alternate #1 above Toilet 117. Doors 124, 125, 126, 127, 128 are to be included in base bid.

16. Q: In addendum #1 it states the engineer prefers 3" copper water service. Can the engineer please provide a connection detail for the new 3" copper to the existing 8" main. It would be less money to install a 4" or 6" ductile iron water service then reduce the size once inside the building.
    a. Response: The Owner wants to stay with copper for the water entrance. See attached drawing P700.

17. Q: Drawing A103 Item # 101 it states to coordinate hockey stick rack with the owner. Please clarify what work needs to be included by the General Contractor
    a. Response: Racks are existing. Move as required for work along existing wall on EX11. Coordinate final location with Owner.

18. Q: Roof framing S102 - Detail 5/S300 shown on grid line 12 & 15. Detail has L 6 x 4 x 5/16 outriggers installed to beams at 4'-0 O.C. Please confirm if outriggers are needed at both grid lines, Grid line 12 between A & H and grid line 15 between C.2 & H.2. The arch. drawing have a section on A106, detail 3/A300 refer to 3/A501 & 2/A603 that shows 2'-4 deck cant. Assuming the outriggers will be needed at grid line 15. Not sure for grid line 12. Detail 5/S300 shows ¼ plate. Please provide plate width, weld details and location this plate pertains to. Detail 5/S300 is shown on grid lines 12 & 15. Note sure what the plate is called out for if they have roof deck installed over the steel.
    a. Response: See attached revised drawing S102, S300, S301 for revised details.

19. Q: Sheet C-101 states that Contractor is responsible for demolition of the existing septic tank structure and distribution box. Please clarify if this existing septic tank is currently in use, and if it is currently in use please clarify if pumping out the septic tank will be required prior to demolition or if this will be handled by the Owner.
    a. Response: The septic system is currently used by the facility and will need to remain in operation until the facility is connected to the municipal system. The contractor shall pump out the septic tank prior to demolition. Pump out must be completed by a NYS licensed waste transporter.

20. Q: Sheet C-101 shows roughly 450 feet of effluent septic system piping to be demolished. Please confirm the elevation of this piping. Please clarify if the Owner would consider the alternate option of abandoning all of this piping in place in lieu of demolishing the pipe if it is buried deep enough to not conflict with the new subbase and asphalt work to be completed.
    a. Response: The elevation of the septic system piping is unknown. The piping may be abandoned in place if it is at least 1 foot below the bottom of the subbase materials to be placed and the piping is filled solid with flowable fill.

21. Q: Please confirm depth of existing septic tank structure to be demolished.

a. Response: The depth or size of the septic tank is unknown.

22. Q: Confirm no foundation waterproofing/ damp proofing is intended.
    a. Response: Waterproofing is desired for the **entire** exterior of the foundation wall. See detail 3/A603. Product shall be as follows:
        i. Cementitious waterproofing. Two component, self-curing cementitious waterproofing system, suitable for both negative and positive side waterproofing.
        ii. Products:
            1. SikaTop® Seal 107.
            2. W.R. Meadows Cem-Kote™ Flex ST.
            3. Or approved equal.

23. Q: Finish Schedule Calls for PL-1 to be used at Removable Panels at bathroom vanities, however the section (4/A605) and the Elevations don't show a panel. Please confirm.
    a. Response: The panel refers to plastic laminate casework front and side panels.

24. Q: Are there any liquidated damages?
    a. Response: Only to the extent as listed in the specification for bid submittal requirements.

25. Q: Where is Gypsum Board Finish Level 5?
    a. Response: All exposed surfaces unless otherwise noted.

26. Q: Are lockers metal or phenolic?
    a. Response: Lockers are metal as specified. Phenolic surface in locker rooms is for bench tops only.

27. Q: Is there any spray foam on this project?
    a. Response: No.

28. Q: A903; WT-5 location calls for locker room wet areas. Please identify location and extent of this flooring.
    a. Response: WT-5 corresponds to areas of FT-1 in locker rooms.

29. Q: Are there any interior ADA signage specs and/or drawings. Any specs for the exterior letters.
    a. Response: See attached Specification section 101423.
    b. Exterior building-mount letters as shown on elevation 3/A200 shall be manufactured by Gemini Inc. or Architect Approved Equivalent. Material: Cast Aluminum. Color: to be selected by Architect from manufacturer's standard colors. Size and font: As shown on Contract Drawings. Verify location with Architect and Owner. Mount to wall using projected spacer style mounting.

30. Q: Project phasing – how is the work for the sprinkler system, and any other MEP shut-down to be phased?
    a. Response: Sprinkler systems and fire alarm shall be worked on after the second week of

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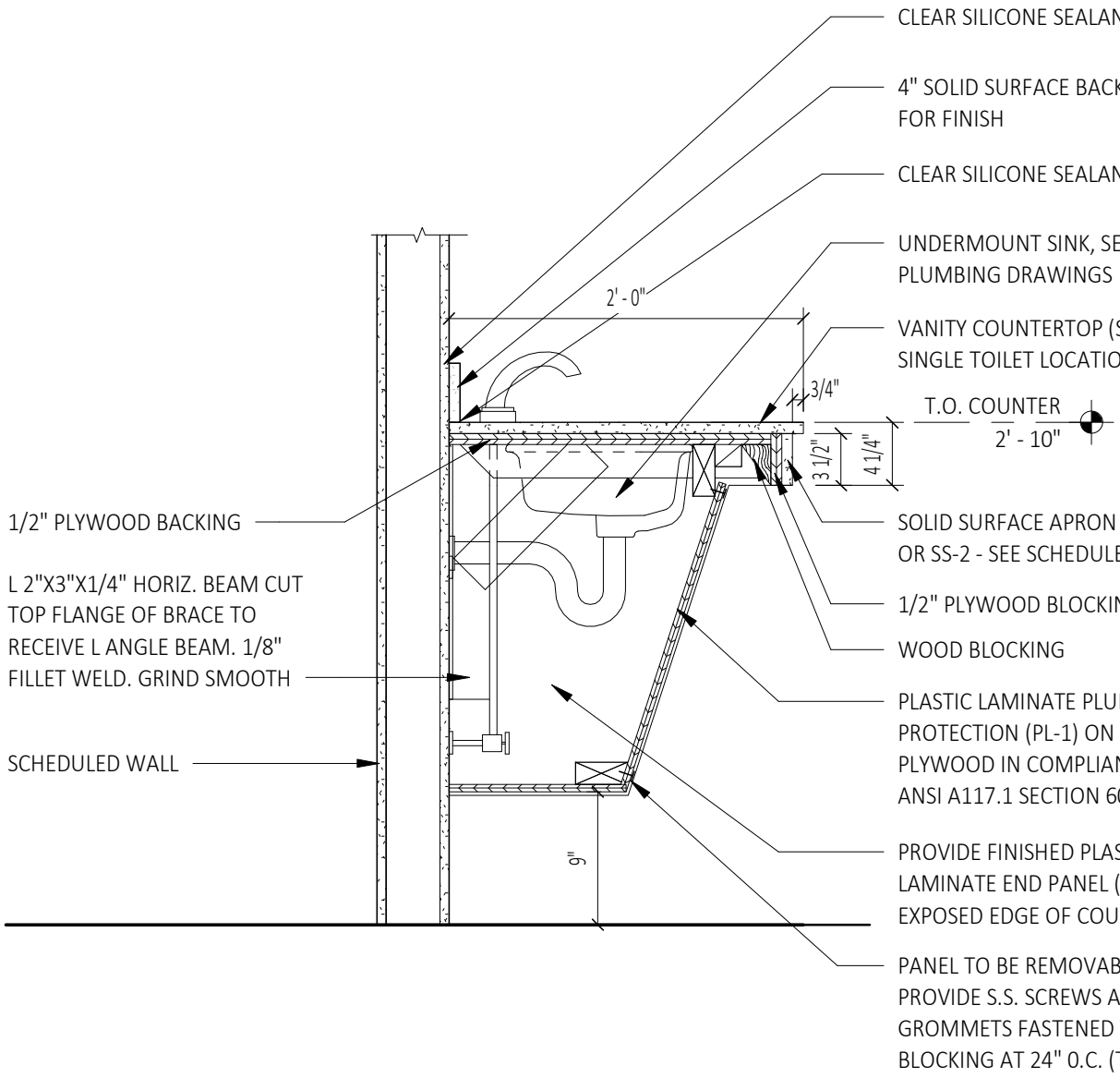
April 2024. Existing system shall remain operable over the period of Friday evening to Monday morning each week during the contract period and coordinate with the Owner. All other MEP interruptions ***must*** be coordinated with the Owner and the CM prior to any work interruptions.

31. Q: Plumbing drawing P201 general note #13 reference fire sprinkler heads and piping demo. The plumbing and fire protection contracts are individual primes on this project so are the fire sprinkler removals the responsibility of the plumbing contractor or the fire protection contractor?
    a. Response: Sprinkler removals are the responsibility of the Fire Protection contractor. See attached drawing FP201 for removals. Delete note #13 on P201.

Please acknowledge this addendum on your bid form.

END OF ADDENDUM #5



1
SKA-01

Sink Detail with ADA Plumbing Protection Panel

SCALE: 1" = 1'-0"

C2 DESIGN GROUP
WWW.C2-DESIGNGROUP.COM
24 AIRPORT ROAD
SCHENECTADY, NY 12302
518.320.8250

Stamp:

Project:
ADDITIONS AND RENOVATIONS TO:
RAY WEMPLE MEMORIAL RINK
Tower Road Schenectady, NY 12302

RFB 2023-54 - (BID SET)

No.	REVISION #	DATE:

Drawn By:	C2 Architecture
Scale:	As Noted
Date:	12/19/2023
Job No:	2237

Sheet Title:
SINK DETAIL WITH ADA PLUMBING PROTECTION PANEL
Sheet Title:
Sheet Number:
SKA-01

PLOT DATE 12/19/2023 10:56:17 AM

SECTION 02 32 00

GEOTECHNICAL INVESTIGATION

PART 1 GENERAL

1.01 SUMMARY

A. This section describes a limited soils investigation at the site. The Geotechnical Report is an integral part of the Contract Documents.

1.02 SOILS INVESTIGATION REPORT

A. General:
1. A Geotechnical Report has been prepared for the site of this Work.

B. Use of Data:
1. This report is available for bidder's information but is not warranty of subsurface conditions.
2. Owner, Civil, Engineer and Architect will not be responsible for interpretations or conclusions drawn from the Geotechnical Report by the Contractor.
3. Owner, Civil Engineer and Architect are not responsible for the accuracy and/or completeness of the information given in the Geotechnical Report.
4. Contractors should visit the site and acquaint themselves with existing conditions.
5. Contractors may make their own subsurface investigations at their own cost to satisfy themselves as to site and subsurface conditions. Such investigations may be performed only under time schedules and arrangements approved in advance by the Architect and Owner.

1.03 TERMINOLOGY

A. General:
1. All terms referring to excavation and/or fill should be the same as the terms in Division 31, Civil Documents, and Structural Documents.

2. For any variation, the terms in Division 31, Civil Documents, and Structural Documents shall take precedent.

END OF SECTION 02 32 00

30 Corporate Cir., Suite 201
Albany, NY 12203
P (518) 266-0310
F (518) 266-9238
Terracon.com

May 26, 2023

C2 Design Group LLC
24 Airport Road
Glenville, New York

Attn: Mr. Michael Roman, RA, AIA, NCARB
P: (518) 320-8250
E: roman@c2-designgroup.com

Re: Geotechnical Data Report
Airport Road Development
Airport Road
Glenville, New York
Terracon Project No. JB235051

Dear Mr. Roman:

At your request, and in general conformance with our proposal no. PJB235051, revised January 31, 2023, we completed the test borings to characterize the subsurface conditions for alternative construction locations within the vicinity of 24 Airport Road in Glenville (nominally Schenectady), New York.

Our scope of services included advancing four test borings to minimum depths of 22 feet below existing grade. The approximate locations of the test borings are shown on the attached Exploration Plan. The boring logs and associated supporting documents are attached to this report.

Exploration and Testing Procedures

The test locations were selected by C2 Design Group and established in the field by Terracon using hand-held GPS equipment. Ground surface contours were not provided to us prior to the preparation of this report.

The test borings were completed using a standard rotary drill rig equipped with hollow-stem augers. As augers were advanced, the soils were sampled at intervals of five feet or less in general accordance with the Standard Method for Penetration Test and Split-Barrel Sampling of Soils, ASTM D1586. In the split barrel sampling procedure, a standard 2-inch outer diameter split barrel sampling spoon is driven into the ground by a 140-pound automatic hammer falling 30-inches. The number of blows required to advance the sampling spoon the middle 12-inches of a normal 24-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the corresponding test depths. Upon completion of drilling, the boreholes were backfilled using auger cuttings.

Field logs of the subsurface conditions were recorded, and final boring logs were prepared by a Geotechnical Engineer based on review of the field results. The boring logs can be found attached to this report. A summary of encountered soil conditions is provided below.

Subsurface Conditions

For informational purposes, the Surficial Geologic Map of New York – Lower Hudson Sheet, 1989, identifies native soils underlying the project area as glaciolacustrine dune deposits. The Geologic Map of New York – Lower Hudson Sheet, 1970, identifies bedrock underlying the project area as Canajoharie Shale; however, bedrock was not identified in the test borings through the depths explored.

Topsoil, about 4 to 6 inches in thickness, was encountered at the surface of B-1, B-3, and B-4. No discernable surface materials were noted at B-2. Fill/possible fill was encountered at B-1, B-2, and B-4 to depths of about 2 to 10 feet below existing grade. The fill/possible fill material generally consisted of brown to darker brown sand with lesser amounts of silt. An organic odor, possibly indicative of former topsoil, was noted underlying the possible fill material at B-4.

Native soils were encountered underlying the topsoil and/or fill/possible fill materials. In general, the native soils consisted of orange to brown sand with lesser amounts of silt and gravel. A siltier layer was encountered at about 21 feet in B-2 as indicated on the test boring log. Additionally, the soils overlying the siltier layer at B-2 were dark brown in color from about 9 to 21 feet below existing grade, which was inconsistent with native soils observed elsewhere. Given the relatively flat topography in the vicinity of B-2, along with its proximity to the existing drainage course, it is possible the soils in this area were reworked and/or these dark brown soils are representative of former river or flood deposits. That being said, no readily apparent fill material was identified beyond the 2-foot sample depth at test boring B-2.

Based on standard penetration N-values, the native soils were generally very loose to loose and soft where essentially coarse- and fine-grained, respectively. The borings terminated without refusal in the native soils at their target depths of about 22 feet below existing grade.

Groundwater was encountered at the test boring locations at depths ranging between about 5.8 and 14.6 feet below existing grade. The measured groundwater depths are tabulated below.

Boring No.	Approximate Groundwater Depth (feet)
B-1	14.6 [1]
B-2	5.8 [2]
B-3	12.0 [1]
B-4	11.2 [1]

1. Measurement obtained after boring completion.
2. Measurement obtained while drilling and sampling.

Fluctuations in groundwater level may occur with seasonal variations in the amount of rainfall, runoff, and other factors that may differ from those present at the time the explorations were performed. Additionally, grade adjustments on and around the site, as well as surrounding drainage

improvements, may affect the water table. The possibility of groundwater and stream level fluctuations should be considered when developing the design and construction plans for the project.

It should be understood that our scope of services was limited to the four test borings, sampled through the depths reported. Supplemental test borings and possibly test pit excavations should be completed as part of a design level geotechnical evaluation for the project should the planned development proceed.

We appreciate the opportunity to be of continued service on this project. Please contact us at your convenience if you have questions.

Sincerely,
Terracon Consultants, Inc.

Jared C. Hall, G.I.T.
Senior Staff Engineer

Joseph Robichaud, Jr., P.E.
Office Manager / Principal

Attachments:
Site Location and Exploration Plans
Boring Logs
Grain Size Distribution Test Results
General Notes
Unified Soil Classification System

Site Location

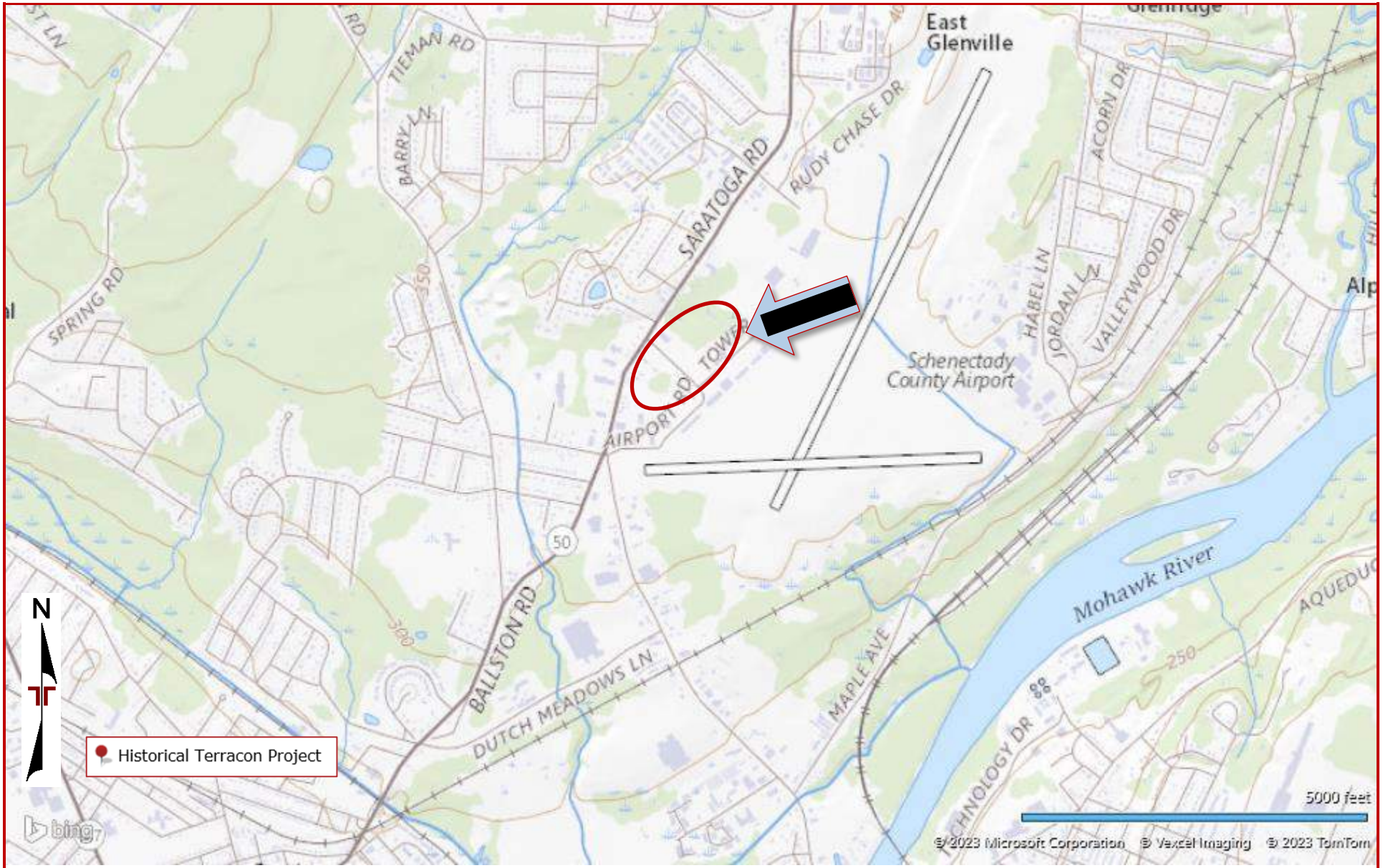


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan

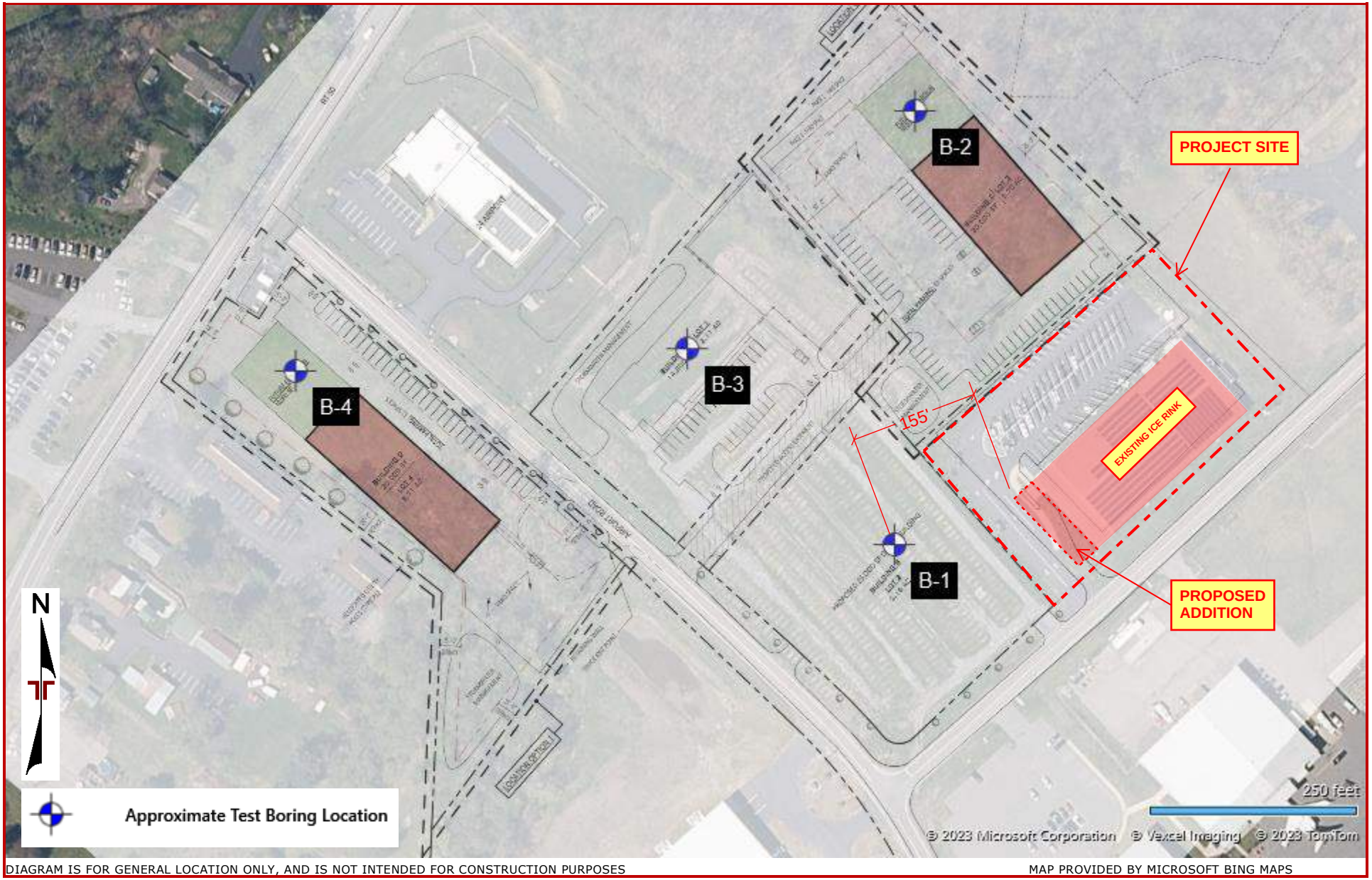


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Airport Road Development
24 Airport Road | Glenville, New York
Terracon Project No. JB235051

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Log No. B-1

Location: See Exploration Plan

Latitude: 42.8525° Longitude: -73.9379°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
0.3	**TOPSOIL**					
	FILL - SILTY SAND, rootlets noted, brown			20	2-3-4-3 N=7	13.7
	Similar, cobbles noted			5	2-2-2-3 N=4	
4.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, tan, loose			22	4-3-4-4 N=7	
5	**Grades to Silty Sand (SM) 6-8'**			22	3-4-4-5 N=8	9.2
10	**Grades brown**			22	4-3-4-4 N=7	
15		▽		20	5-2-2-3 N=4	
20				24	3-2-2-4 N=4	
22.0	***Boring Terminated at 22 Feet***					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations

▽ 14.6' at boring completion

Drill Rig
Diedrich D-50

Hammer Type
Automatic

Driller
S. Morey

Logged by

Boring Started
04-10-2023

Boring Completed
04-10-2023

Notes

Logged by: JCH

Advancement Method
2 1/4" ID HSA

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Airport Road Development
24 Airport Road | Glenville, New York
Terracon Project No. JB235051

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Log No. B-2

Location: See Exploration Plan

Latitude: 42.8539° Longitude: -73.9378°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
0	**FILL - POORLY GRADED SAND**, mottled silty sand seams noted, brown					
2.0				20	1-3-3-4 N=6	
	SILTY SAND (SM), brown, very loose to loose			22	4-4-5-4 N=9	
5		▽		20	WH/24"	
				24	WH/12"-1-1 N=1	27.2
9.0						
	POORLY GRADED SAND (SP), dark brown, very loose					
10				24	WH/18"-1	
15				22	WH/24"	
20				24	WH/24"	
21.0						
	SANDY SILT (ML), gray, very soft					
22.0						
	Boring Terminated at 22 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations

▽ 5.8' after 10-12' sample

Drill Rig
Diedrich D-50

Hammer Type
Automatic

Driller
S. Morey

Logged by

Boring Started
04-10-2023

Boring Completed
04-10-2023

Notes

Logged by: JCH

WH = Weight of Hammer

Advancement Method
2 1/4" ID HSA

Abandonment Method

Airport Road Development
24 Airport Road | Glenville, New York
Terracon Project No. JB235051

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Log No. B-3

Location: See Exploration Plan

Latitude: 42.8531° Longitude: -73.9388°

Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
	0.5 **TOPSOIL**					
	POORLY GRADED SAND (SP), orange to brown, loose			20	1-2-2-3 N=4	
	Grades to tan			22	3-3-4-5 N=7	
				22	4-3-3-3 N=6	
				20	4-4-3-4 N=7	
	10.0					
	POORLY GRADED SAND WITH SILT (SP-SM), brown, loose	▽		19	2-2-3-3 N=5	
				24	2-3-3-4 N=6	
				24	3-3-3-3 N=6	
	22.0					
	Boring Terminated at 22 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations

▽ 12' at boring completion

Drill Rig
Diedrich D-50

Hammer Type
Automatic

Driller
S. Morey

Logged by

Boring Started
04-10-2023

Boring Completed
04-10-2023

Notes

Logged by: JCH

Advancement Method
2 1/4" ID HSA

Abandonment Method

Airport Road Development
24 Airport Road | Glenville, New York
Terracon Project No. JB235051

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Log No. B-4

Location: See Exploration Plan

Latitude: 42.8531° Longitude: -73.9405°

Depth (Ft.)	Graphic Log	Material Description	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
0.4		**TOPSOIL**					
		POSSIBLE FILL - SILTY SAND, tan			22	2-3-4-4 N=7	
					20	4-4-5-5 N=9	12.5
4.0		**POSSIBLE FILL - POORLY GRADED SAND WITH SILT**, brown			22	4-3-4-4 N=7	
6.5		**POSSIBLE FILL - POORLY GRADED SAND**, dark brown			22	3-3-3-3 N=6	
10.0		**POORLY GRADED SAND (SP)**, dark brown, very loose to medium dense	▽		24	WH/12"-2-2 N=2	
		Organic odor noted at 10'					
		Grades to brown			24	WH-2-4-5 N=6	
22.0		***Boring Terminated at 22 Feet***			24	4-6-6-5 N=12	

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations

▽ 11.2' at boring completion

Drill Rig
Diedrich D-50

Hammer Type
Automatic

Driller
S. Morey

Logged by

Boring Started
04-10-2023

Boring Completed
04-10-2023

Notes

Logged by: JCH

WH = Weight of Hammer

Advancement Method
2 1/4" ID HSA

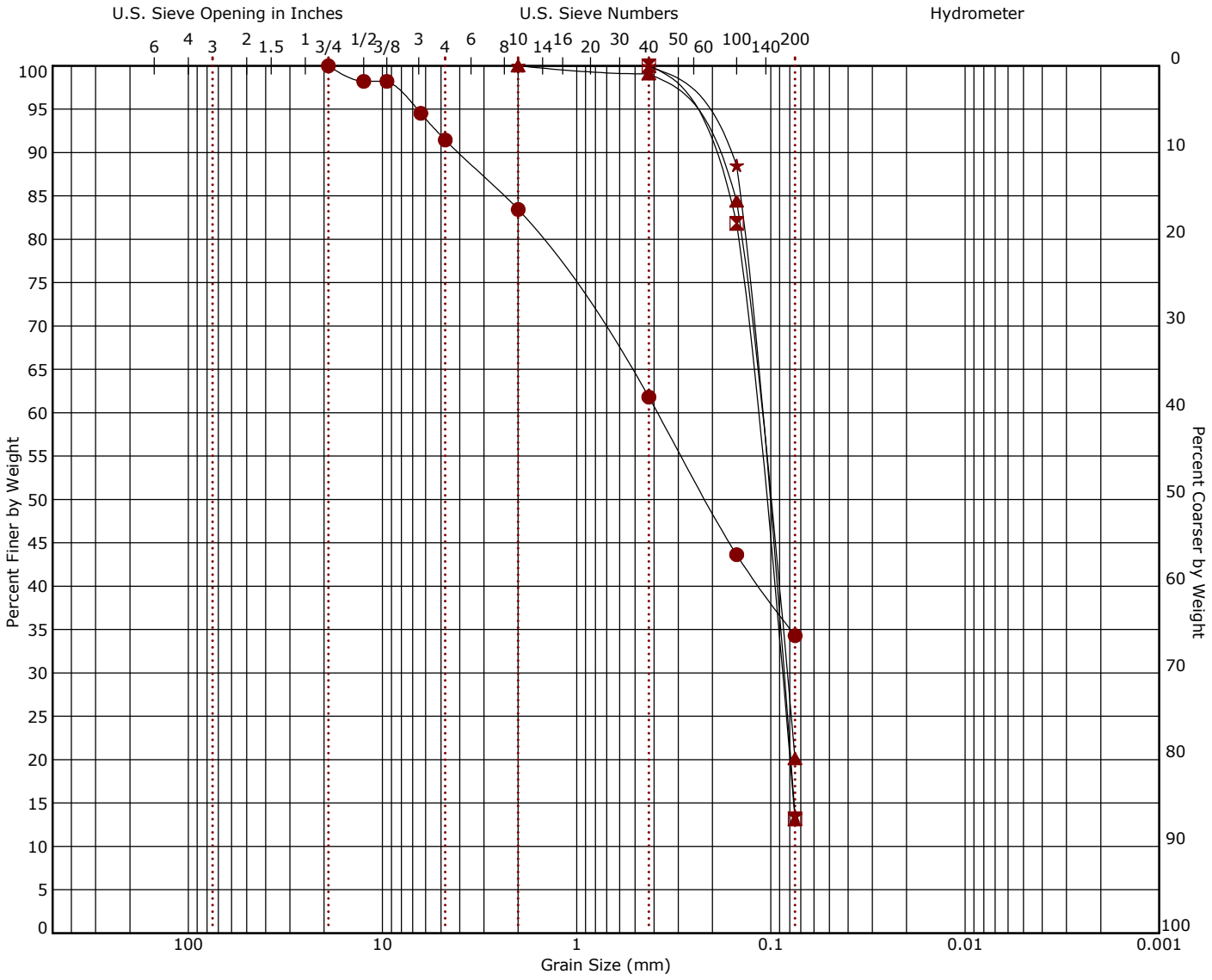
Abandonment Method

Airport Road Development
24 Airport Road | Glenville, New York
Terracon Project No. JB235051

30 Corporate Cir Ste 201
Albany, NY

Grain Size Distribution

ASTM D422 / ASTM C136



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID		Depth (Ft)	Description	USCS	LL	PL	PI	Cc	Cu
●	B-1	0 - 2	SILTY SAND	SM					
⊠	B-1	6 - 8	SILTY SAND	SM					
▲	B-2	6 - 8	SILTY SAND	SM					
★	B-4	2 - 4	SILTY SAND	SM					

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-1	0 - 2	19	0.383			0.0	8.6	57.1	34.3		
⊠	B-1	6 - 8	0.425	0.12	0.089		0.0	0.0	86.8	13.2		
▲	B-2	6 - 8	2	0.115	0.083		0.0	0.0	79.9	20.1		
★	B-4	2 - 4	2	0.115	0.087		0.0	0.0	86.5	13.5		

Terracon
30 Corporate Cir Ste 201
Albany, NY

General Notes

Sampling	Water Level	Field Tests
Split Spoon	Water Initially Encountered Water Level After a Specified Period of Time Water Level After a Specified Period of Time Cave In Encountered Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-Ionization Detector (OVA) Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils
(More than 50% retained on No. 200 sieve.)
Density determined by Standard Penetration Resistance

Relative Density	Standard Penetration or N-Value (Blows/Ft.)
Very Loose	0 - 3
Loose	4 - 9
Medium Dense	10 - 29
Dense	30 - 50
Very Dense	> 50

Consistency of Fine-Grained Soils
(50% or more passing the No. 200 sieve.)
Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance

Consistency	Unconfined Compressive Strength Qu (tsf)	Standard Penetration or N-Value (Blows/Ft.)
Very Soft	less than 0.25	0 - 1
Soft	0.25 to 0.50	2 - 4
Medium Stiff	0.50 to 1.00	4 - 8
Stiff	1.00 to 2.00	8 - 15
Very Stiff	2.00 to 4.00	15 - 30
Hard	> 4.00	> 30

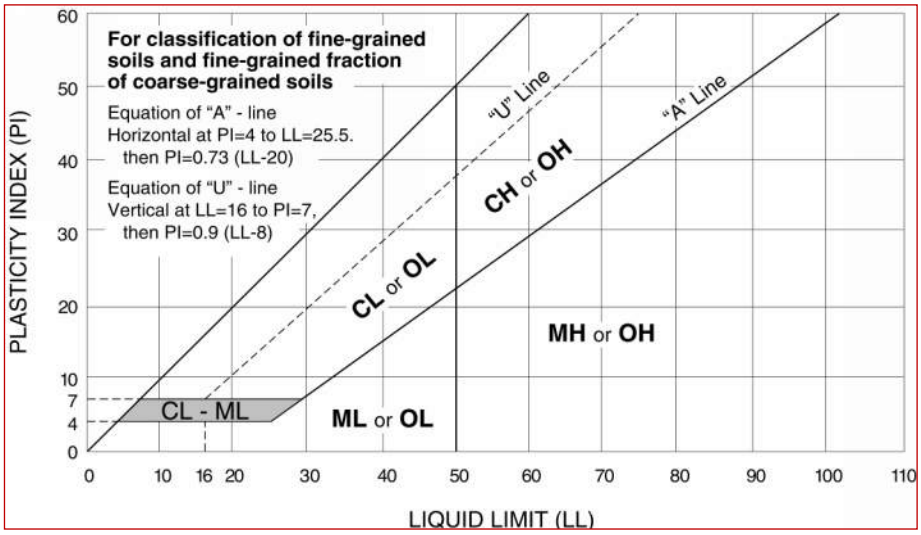
Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N]
					Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P]
					Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



SECTION 08 44 13

CURTAIN WALL SYSTEMS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section covers Architectural Aluminum Curtain Wall Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of curtain wall framing.

B. Types of Aluminum Curtain Wall Systems include:

1. 1600 Wall System®5 Curtain Wall:

    a. Sight line: 2-1/2" (63.5 mm)

    b. Inside glazed capture

    c. System depth: 6" (152.4 mm) or 7-1/2" (190.5 mm)

2.

C. Related Sections:

2. 079200: Joint Sealants

4. 084523: Insulated Translucent Fiberglass Sandwich Panels

1.3 DEFINITIONS

A. For fenestration industry standard terminology and definitions, refer to the American Architectural Manufacturers Association Glossary (AAMA AG-13).

1.4 PERFORMANCE REQUIREMENTS

A. General Performance:

1. Product to comply with the specified performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction, as determined by testing of glazed aluminum curtain walls representing those indicated for this project.

2. Glazed aluminum curtain walls shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from

uniformly distributed and concentrated live loads.

3. Failure includes any of these events:

   a. Thermal stresses transferring to building structure

   b. Glass breakage

   c. Loosening or weakening of fasteners, attachments, and other components

   d. Failure of operating units

B. Wind Loads:

1. The curtain wall system shall include anchorage that is capable of withstanding the following wind load design pressures:

   a. Inward/Outward: 30 psf

2. The design pressures are based on the 2020 IBC Building Code.

C. Air Leakage:

1. The test specimen shall be tested in accordance with ASTM E 283.

2. Air infiltration rate shall not exceed 0.06 cfm/ft^2 (0.3 l/s · m^2) at a static air pressure differential of 6.2 psf (300 Pa).

D. Water Resistance:

1. Static:

   a. The test specimen shall be tested in accordance with ASTM E 331.

   b. There shall be no leakage at a minimum static air pressure differential of 12 psf (575 Pa) as defined in AAMA 501.

2. Dynamic:

   a. The test specimen shall be tested in accordance with AAMA 501.1.

   b. There shall be no leakage at an air pressure differential of 12 psf (575 Pa) as defined in AAMA 501.

E. Uniform Load:

1. A a static air design load of 40 psf (1915 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330.

2. There shall be no deflection in excess of L/175 of the span of any framing member at design load.

3. At a structural test load equal to 1.5 times the specified design load, no glass breakage or

permanent set in the framing members in excess of 0.2% of their clear spans shall occur.

F. Seismic:

1. When tested to AAMA 501.4, system must meet design displacement (elastic) of 0.010 x the story height and ultimate displacement (inelastic) of 1.5 x the design displacement.

G. Incidental Water Management Option:

1. Head member shall be capable of directing condensation within the spandrel cavity to the exterior.

H. Thermal Transmittance (U-factor), Physical Test:

1. Thermal transmittance test results in accordance with AAMA 1503 or CSA A440 are based upon 1" (25.4 mm) clear insulating glass (1/4", 1/2" AS, 1/4").

2. Captured: When tested using AAMA 1503, the U-factor shall not be more than 0.74 Btu/(hr·ft^2·°F).

3. SSG: When tested using AAMA 1503, the U-factor shall not be more than 0.62 Btu/(hr·ft^2·°F).

I. Thermal Transmittance (U-factor), Simulation:

1. Thermal transmittance simulation results using NFRC 100 or AAMA 507 are based on a Center of Glass (COG) U-factor of 0.24 Btu/(hr·ft^2·°F) and a warm-edge spacer.

J. Condensation Resistance Factor (CRF):

1. Condensation resistance test results in accordance with AAMA 1503 or CSA A440 are based upon 1" (25.4 mm) clear insulating glass (1/4", 1/2" AS, 1/4").

2. Captured: When tested using AAMA 1503, the CRF_{frame} and CRF_{glass} shall not be less than 61 and 59 respectively.

3. SSG: When tested using AAMA 1503, the CRF_{frame} and CRF_{glass} shall not be less than 71 and 62 respectively.

K. Sound Transmission Loss:

1. When tested to ASTM E90 and ASTM E1425, the Sound Transmission Class (STC) and Outdoor/Indoor Transmission Class (OITC) shall not be less than:

a. STC 32 or OITC 28 based upon 1" (25.4 mm) insulating glass (1/4", 1/2" AS, 1/4")

L. Environmental Product Declaration (EPD): Shall have a Type III Product-Specific EPD created from a Product Category Rule.

1.5 SUBMITTALS

A. Product Data:

1. For each type of product indicated, include:
    a. Construction details
    b. Material descriptions
    c. Dimensions of individual components and profiles
    d. Finishes
3. Environmental Product Declaration (EPD):
    a. Include a Type III Product-Specific EPD created from a Product Category Rule.

B. Shop Drawings:
1. Plans
2. Elevations
3. Sections
4. Full-size details
5. Attachments to other work

C. Samples for Initial Selection:
1. Provide samples for units with factory-applied color finishes.

D. Samples for Verification:
1. Provide a verification sample for each type of exposed finish required, in manufacturer's standard sizes.

E. Product Test Reports:
1. Provide test reports for glazed aluminum curtain walls.
2. Test reports must be based on evaluation of comprehensive tests performed by a qualified preconstruction testing agency.
3. Test reports must indicate compliance with performance requirements.

F. Fabrication Sample:
1. Provide a fabrication sample of each vertical-to-horizontal intersection of aluminum-framed curtain wall systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
    a. Joinery
    b. Glazing

1.6 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer must have successfully installed the same or similar systems required for the project and other projects of similar size and scope.

B. Manufacturer Qualifications:

1. Manufacturer must be capable of fabricating glazed aluminum curtain walls that meet or exceed the stated performance requirements.

C. Source Limitations:

1. Obtain aluminum curtain wall system through one source from a single manufacturer.

D. Product Options:

1. Information on drawings and in specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

2. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Mockups:

1. Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

2. Build mockups for the type(s) of curtain wall elevation(s) indicated, in location(s) shown on drawings.

F. Pre-installation Conference:

1. Conduct conference at project site to comply with requirements in Division 01 Project Management and Coordination Section.

1.7 PROJECT CONDITIONS

A. Field Measurements:

1. Verify actual locations of structural supports for glazed aluminum curtain walls by field measurements before fabrication.

2. Indicate measurements on shop drawings.

1.8 WARRANTY

A. Submit manufacturer's standard warranty for owner's acceptance.

B. Warranty Period:

1. Two years from Date of Substantial Completion of the project provided however that in no event shall the Limited Warranty begin later than six months from date of shipment by manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product:

1. Kawneer Company, Inc.

2. 1600 Wall System®5 Curtain Wall types:

a. 1600 Wall System®5 Curtain Wall:

1) Sight line: 2-1/2" (63.5 mm)

2) Inside glazed capture

3) System depth: 6" (152.4 mm) or 7-1/2" (190.5 mm)

3. Tested to AAMA 501

B. Substitutions:

1. Refer to Division 01 Substitutions Section for procedures and submission requirements.

2. Pre-Contract (Bidding Period) Substitutions:

a. Submit written requests ten (10) days prior to bid date.

3. Post-Contract (Construction Period) Substitutions:

a. Submit written request in order to avoid installation and construction delays.

4. Product Literature and Drawings:

a. Submit product literature and drawings modified to suit specific project requirements and job conditions.

5. Certificates:

a. Submit certificate(s) certifying that the substitute manufacturer (1) attests to adherence to specification requirements for curtain wall system performance criteria, and (2) has been engaged in the design, manufacture, and fabrication of aluminum curtain walls for a period of not less than ten (10) years. (*Company Name*).

6. Test Reports:

a. Submit test reports verifying compliance with each test requirement required by the project.

7. Samples:

a. Provide samples of typical product sections and finish samples in manufacturer's standard sizes.

C. Substitution Acceptance:

1. Acceptance will be in written form, either as an addendum or modification.

2. Acceptance will be documented by a formal change order signed by the owner andcontractor.

2.2 MATERIALS

A. Aluminum Extrusions:

1. Alloy and temper recommended by glazed aluminum curtain wall manufacturer for strength, corrosion resistance, and application of required finish

2. Not less than 0.070" (1.8 mm) wall thickness at any location for the main frame

3. Complying with ASTM B221: 6063-T6 alloy and temper

B. Aluminum Sheet Alloy:

1. Shall meet the requirements of ASTM B209.

C. Fasteners:

1. Aluminum, nonmagnetic stainless steel or other materials must be non-corrosive and compatible with aluminum members, trim hardware, anchors, and other components.

D. Anchors, Clips, and Accessories:

1. Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.

2. Anchors, clips, and accessories shall provide sufficient strength to withstand the design pressure indicated.

E. Reinforcing Members:

1. Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.

2. Reinforcing members must provide sufficient strength to withstand the design pressure indicated.

F. Sealant:

1. For sealants required within fabricated curtain wall system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

G. Thermal Improvement:

1. Vertical and horizontal covers shall utilize rigid PVC thermal isolator clips.

H. Tolerances:

1. References to tolerances for wall thickness and other cross-sectional dimensions of glazed curtain wall members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 CURTAIN WALL FRAMING

A. Framing Members:

1. Manufacturer's standard extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads

2. Glazing System: Four-sided captured

3. Glazing Plane: Front

B. Glass:

1. 1" (25.4 mm) insulating glass option

C. Brackets and Reinforcements:

1. Manufacturer's standard high-strength aluminum with non-staining, non-ferrous shims for aligning system components.

D. Framing Sealants:

1. Shall be suitable for glazed aluminum curtain wall as recommended by sealant manufacturer.

E. Fasteners and Accessories:

1. Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories must be compatible with adjacent materials.

2. Where exposed, fasteners and accessories shall be stainless steel.

F. Perimeter Anchors:

1. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

G. Packing, Shipping, Handling, and Unloading:

1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

H. Storage and Protection:

1. Store materials so that they are protected from exposure to harmful weather conditions.

2. Handle material and components to avoid damage.

3. Protect material against damage from elements, construction activities, and other hazards before, during, and after installation.

2.4 GLAZING

A. Glazing to meet requirements in Division 08 Glazing Section.

B. Available Glazing Options:

1. 1600 Wall System®5: inside glazed, captured with 1" (25.4 mm) double glazed insulating glass

C. Glazing Gaskets:

1. Gaskets to meet requirements of ASTM C864.

D. Spacers and Setting Blocks:

1. Manufacturer's standard elastomeric type

E. Bond-Breaker Tape:

1. Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

F. Glazing Sealants:

1. As recommended by manufacturer for joint type.

2.5 ACCESSORY MATERIALS

A. Bituminous Paint:

1. Cold-applied asphalt-mastic paint

2. Complies with SSPC-Paint 12 requirements except containing no asbestos

3. Formulated for 30-mil (0.762 mm) thickness per coat

a. Anchor shall be designed to engage shelf so as to allow the shelf to rotate down and safely hang on its own for cleaning.

b. Extruded aluminum shear blocks designed to hinge on the anchors to allow rotating individual shelves for cleaning.

c. Panel/shelf projection not exceeding 30" (762 mm).

d. Mullion spacing of framing system shall not exceed 6’ (1.83 m) on center.

e. Panel/shelf deflection shall not exceed 1/120 of horizontal span length.

2.6 FABRICATION

A. Extrude or form aluminum shapes before finishing.

B. Fabricate components that, when assembled, have the following characteristics:

1. Profiles that are sharp, straight, and free of defects or deformations

2. Accurately fitted joints

3. Physical and thermal isolation of glazing from framing members

4. Accommodations for thermal and mechanical movements of glazing and framing that maintain required glazing edge clearances

5. Fasteners, anchors, and connection devices that are concealed from view to the greatest extent possible

6. Internal weeping system or other means to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum curtain wall to exterior

C. Curtain Wall Framing:

1. Fabricate components for assembly using shear block system following manufacturer's standard installation instructions.

D. After fabrication, clearly mark components to identify their locations in project according to shop drawings.

2.7 ALUMINUM FINISHES

A. Finish designations that are prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Factory Finishing:

1. Kawneer Permanodic® AA-M10C21A44 / AA-M45C22A44, AAMA 611, Architectural Class I Color Anodic Coating (Color: To be selected by the Architect.)

PART 3 EXECUTION

3.1 EXAMINATION

A. With installer present, examine areas for compliance with requirements for installation tolerances and other conditions affecting performance of the work.

B. Proceed with installation only after correcting unsatisfactory conditions.

3.2 INSTALLATION

A. Curtain Wall System Installation:

1. Install curtain wall systems plumb, level, and true to line, without warp or rack of frames, within manufacturer's prescribed tolerances, and complying with installation instructions.

2. Provide support and anchor in place.

3. Dissimilar Materials:

    a. Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.

4. Glazing:

    a. Glass shall be outside-glazed.

    b. Glass shall be held in place with extruded aluminum pressure plates anchored to the mullion using stainless steel fasteners that are spaced no more than 9" (228.6 mm) on center.

5. Water Drainage

    a. Each light of glass shall be compartmentalized using joint plugs and silicone sealant to divert water to the horizontal weep locations.

    b. Weep holes shall be located in the horizontal pressure plates and covers to divert water to the exterior of the building.

B. Related Products Installation:

1. Sealants (Perimeter):

    a. Refer to Joint Treatment (Sealants) Section.079200

2. Glass:

    a. Refer to Glass and Glazing Section.

    b. Reference: ANSI Z97.1, CPSC 16 CFR 1201, and GANA Glazing Manual.

3.3 FIELD QUALITY CONTROL

A. Field Tests:

1. Architect shall select curtain wall units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter-caulked, and cured.

2. Conduct tests for air infiltration and water penetration with manufacturer's representative present.

3. Tests that do not meet the specified performance requirements and units that have deficiencies shall be corrected as part of the contract amount.

4. Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements.

5. Air Infiltration Tests:

a. Conduct tests in accordance with ASTM E 783.

b. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft^2, whichever is greater.

6. Water Infiltration Tests:

a. Conduct tests in accordance with ASTM E 1105.

b. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 8 psf (383 Pa).

B. Manufacturer's Field Services:

1. Upon owner's written request, provide periodic site visit by manufacturer's field service representative.

3.4 ADJUSTING, CLEANING, AND PROTECTION

A. Adjusting: Not applicable.

B. Protection:

1. Protect installed product's finish surfaces from damage during construction.

2. Protect aluminum curtain wall system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.

C. Cleaning:

1. Repair or replace damaged installed products.

2. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance.

3. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during the construction period.

4. Remove construction debris from project site and legally dispose of debris.

END OF SECTION 08 44 13

SECTION 10 14 23

PANEL SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Room-identification signs.

1.3 DEFINITIONS

A. Accessible: In accordance with the accessibility standard.

1.4 COORDINATION

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For panel signs.

1. Include fabrication and installation details and attachments to other work.

2. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.

3. Show message list, typestyles, graphic elements, including raised characters and Braille, and layout for each sign at least half size.

4. Include diagrams for power, signal, and control wiring.

C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.

1. Include representative Samples of available typestyles and graphic symbols.

D. Samples for Verification: For each type of sign assembly showing all components and with the required finish(es), in manufacturer's standard size unless otherwise indicated and as follows:

1. Room-Identification Signs: Full-size Sample.

E. Sign Schedule:

1. LOCKER ROOM 1

2. LOCKER ROOM 2
3. LOCKER ROOM 3
4. LOCKER ROOM 4
5. GENDER NEUTRAL TOILET/SHOWER ROOM
6. WOMENS LOCKER
7. LIFT
8. JANITOR/UTILITY ROOM
9. MECHANICAL ROOM
10. MENS TOILET
11. WOMENS TOILET
12. OFFICE
13. ELECTRICAL
14. GROUNDS STORAGE
15. RENTAL
16. WORKSHOP
17. MECHANICAL ROOM
18. HOCKEY SHOOTING ROOM
19. MEZZANNE 1 ROOM
20. MEZZANNE 2 ROOM
21. MEZZANNE 3 ROOM (Alternate #1)
22. MECHANICAL ROOM
23. LIFT (2)
24. IT & EQUIP. STORAGE

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For signs to include in maintenance manuals.

1.7 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Deterioration of finishes beyond normal weathering.
b. Deterioration of embedded graphic image.
c. Separation or delamination of sheet materials and components.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for signs.

2.2 SIGNS

A. Room-Identification Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:

1. Laminated-Sheet Sign: Photopolymer face sheet with raised graphics laminated to acrylic backing sheet to produce composite sheet.

a. Composite-Sheet Thickness: 0.125 inch .

2.3 FIELD-APPLIED, VINYL-CHARACTER SIGNS

A. Field-Applied, Vinyl-Character Sign : Prespaced characters die cut from 3- to 3.5-mil thick, weather-resistant vinyl film with release liner on the back and carrier film on the front for on-site alignment and application.

1. Circle 6 inches (152.4 mm) in diameter, with a stroke width of 1/2 inch (12.7 mm). The sign background shall be reflective white in color. The circle and contents shall be reflective red in color, conforming to Pantone matching system (PMS) #187.

2. Directly applied to door.

3. Roman alphanumeric designation of the construction type of the building, in accordance with the provisions for the classification of types of construction set forth in section 602 of the *Building Code of New York State* (see 19 NYCRR Part 1221), and an alphabetic designation for the structural components that are of truss construction, as follows:

2.4 ACCESSORIES

A. Two-Face Tape: Manufacturer's standard high-bond, foam-core tape, 0.045 inch thick, with adhesive on both sides.

2.5 FABRICATION

A. Subsurface-Applied Graphics: Apply graphics to back face of clear face-sheet material to produce precisely formed image. Image shall be free of rough edges.

B. Subsurface-Engraved Graphics: Reverse engrave back face of clear face-sheet material. Fill resulting copy with manufacturer's standard enamel. Apply opaque manufacturer's standard background color coating over enamel-filled copy.

C. Shop- and Subsurface-Applied Vinyl: Align vinyl film in final position and apply to surface. Firmly press film from the middle outward to obtain good bond without blisters or fishmouths.

2.6 GENERAL FINISH REQUIREMENTS

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of signage work.

B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.

1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.

2. Install signs so they do not protrude or obstruct according to the accessibility standard.

3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.

B. Room-Identification Signs: Install in locations on walls according to accessibility standard.

C. Field-Applied, Vinyl-Character Signs: Clean and dry substrate. Align sign characters in final position before removing release liner. Remove release liner in stages, and apply and firmly press characters into final position. Press from the middle outward to obtain good bond without blisters or fishmouths. Remove carrier film without disturbing applied vinyl film.

3.3 ADJUSTING AND CLEANING

A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.

B. Remove temporary protective coverings and strippable films as signs are installed.

C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 10 14 23

SECTION 23 52 16

CONDENSING BOILERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and General Provisions of the Contract including the General and Supplementary Conditions and Division 1 Specifications Sections, apply to the work of this section.

1.2 SUBMITTALS

A. Product Data: Include performance data, operating characteristics, technical product data, rated capacities of selected model, weights (shipping, installed and operating), installation and start-up instructions, and furnished accessory information.

B. Shop Drawings: For boiler, standard boiler trim and accessories.

1. End Assembly Drawing: Detail overall dimensions, connection sizes, connection locations, and clearance requirements.
2. Wiring Diagrams: Detail electrical requirements for the boiler including ladder type wiring diagrams for power, interlock and control wiring. Clearly differentiate between portions of wiring that are factory installed and portions to be field installed.

C. Certificate of Product Rating: Submit AHRI Certificate indicating Thermal Efficiency, Combustion Efficiency, Materials of Construction, Input, and Gross Output conform to the design basis.

D. Thermal efficiency curves: Submit thermal efficiency curves for a minimum of 5 input rates between and including minimum and maximum rated capacities, for return water temperatures ranging from 80°F to 180°F.

E. Water side pressure drop curve.

F. Flue gas temperature curves: Submit flue gas temperature curves for minimum and maximum boiler capacity, for return water temperatures ranging from 80°F to 160°F.

1. If submitted flue gas temperatures, minimum or maximum inputs are different from that of the basis of design manufacturer and model, the manufacturer shall be responsible for draft calculations and reselection of the flue gas exhaust system.

G. Source quality-control test reports.

H. Field quality-control test reports: Start-up by a factory authorized service company.

I. Operation and Maintenance Data: Data to be included in Installation and Operation Manual.

J. Warranty: Standard warranty specified in this Section.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firms regularly engaged in the manufacture of condensing hydronic boilers with welded steel pressure vessels, whose products have been in satisfactory use in service for not less than twenty-five (25) years. The manufacturer must be privately owned and headquartered in North America. The specifying engineer, contractor and end customer must have the option to visit the factory during the manufacture of the boilers and be able to witness test fire and other relevant procedures.

B. Aftermarket Support and Service: The manufacturer shall have a factory authorized service training program, where boiler technicians can attend a training class and obtain certification to perform start-up, maintenance and basic troubleshooting specific to the product line.

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

D. ASME Compliance: Fabricate and label boilers to comply with ASME Boiler and Pressure Vessel Code, Section IV “Heating Boilers”, for a maximum allowable working pressure of 160 PSIG.

E. CSD-1 Compliance: The boiler shall comply with ASME Controls and Safety Devices for Automatically Fired Boilers (CSD-1).

F. ASHRAE/IESNA 90.1 Compliance: Boilers shall have minimum efficiency according to “Gas and Oil Fired Boilers - Minimum Efficiency Requirements.”

G. UL Compliance: Boilers must be tested for compliance with UL 795, “Commercial-Industrial Gas Heating Equipment.” Boilers shall be listed and labeled by ETL.

H. AHRI Compliance: Boilers shall be tested and rated according to the BTS-2000 test standard and verified by AHRI.

I. NOx Emissions Compliance: Boiler shall be tested for compliance with SCAQMD and TCEQ.

J. The equipment shall be of the type, design, and size that the manufacturer currently offers for sale and appears in the manufacturer’s current catalog.

K. The equipment shall fit within the allocated space, leaving ample allowance for maintenance and inspection.

L. The equipment shall be new and fabricated from new materials. The equipment shall be free from defects in materials and workmanship.

M. All units of the same classification shall be identical to the extent necessary to ensure interchangeability of parts, assemblies, accessories, and spare parts wherever possible.

N. In order to provide unit responsibility for the specified capacities, efficiencies, and performance, the boiler manufacturer shall certify in writing that the equipment being submitted shall perform as specified.

1.4 WARRANTY

A. Standard Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of boilers that fail in materials or workmanship within specified warranty period.

1. Warranty Period for the Pressure Vessel and Heat Exchanger: The boiler manufacturer shall warranty against failure due to thermal shock, flue gas condensate corrosion, and/or defective material or workmanship for a period of 10 years, non-prorated, from the date of shipment from the factory provided the boiler is installed, controlled, operated and maintained in accordance with the Installation, Operation and Maintenance Manual.
2. Warranty Period for all other components: The boiler manufacturer will repair or replace any part of the boiler that is found to be defective in workmanship or material within eighteen (18) months of shipment from the factory or twelve (12) months from start-up, whichever comes first.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Equivalent units and manufacturers must meet all performance criteria, and will be considered upon prior approval.

B. Basis-of-Design Product: Subject to compliance with requirements, provide Fulton Heating Solutions, Inc.; Endura model duplex stainless steel firetube condensing boiler.

C. The boiler manufacturer shall have the capability to construct an engineered hydronic system, skid mounted, for the above referenced boilers incorporating single point electrical, supply water, return water, fresh water make up, fuel, and drain. The boiler manufacturer shall have the engineering capabilities for all aspects of the mechanical, electrical and control design aspects of the skid mounted system.

2.2 CONSTRUCTION

A. Description: Factory-fabricated, -assembled, and -pressure tested, duplex stainless steel firetube condensing boiler with heat exchanger sealed pressure tight, built on a steel base; including flue gas vent; combustion air intake connections, water supply, water return, condensate drain, and controls. The boiler, burner and controls shall be completely factory assembled as a self-contained unit. Each boiler shall be neatly finished, thoroughly tested, and properly packaged for shipping. Closed-loop water heating service only.

B. Heat Exchanger: The heat exchanger is defined as the surfaces of the pressure vessel where flue gases transfer sensible and latent heat to the hydronic fluid. The heat exchanger shall be a three-pass firetube design constructed using only duplex alloys of stainless steel.

1. The boiler shall be a firetube design, such that all combustion chamber components are within water-backed areas. Watertube boilers will not be accepted.

2. Furnace: First pass of the combustion chamber shall be constructed of duplex alloy stainless steel with a minimum wall thickness of 0.25" and a minimum bottom head thickness of 0.625".

3. Firetubes: Second and third passes of the combustion chamber shall be constructed of duplex alloys of stainless steel having a minimum wall thickness of 0.109".

4. Furnace to tube connections shall be constructed with low weld intensity, a tube to tube minimum spacing of 2" center to center, minimum 5/8" tube to tube ligament, and shall not contain any overlapping welds.

5. Heat exchange capability shall be maximized within the heat exchanger via the use of corrugated firetube technology. The corrugation process shall not remove any material from the tubes. Aluminum heat transfer enhancements are dissimilar metals and are unacceptable.

6. Material: The heat exchanger shall have the following material characteristics and properties:
   a) The metallic crystalline lattice microstructure shall contain approximately equal amounts of body center cubic (BCC) and face centered cubic (FCC) structures to offer high resistance to intergranular corrosion.

   b) A minimum Pitting Resistance Equivalent Number (PREN) of 26.

   c) A minimum Yield Strength of 65 ksi at 0.2% plastic strain.

   d) A minimum Ultimate Tensile Strength of 94 ksi.

   e) To minimize stresses caused by uneven expansion and contraction, the Coefficient of Thermal Expansion at 212°F shall not be less than 7.0 in/in °F 10^{-6} and shall not be greater than 7.5 in/in °F 10^{-6}.

   f) To increase resistance to pitting and crevice corrosion, the Chromium content shall not be less than 21% by mass.

   g) For high mechanical strength, the Nitrogen content shall not be less than 0.17% by mass.

   h) Boilers with heat exchangers constructed of austenitic stainless steels, such as 316L or 304, and ferritic stainless steels, such as 439, are unacceptable.

   i) Boilers with heat exchangers constructed of cast aluminum, mild steel, cast iron or copper finned tube materials are unacceptable.

C. Blower: Variable speed, non-sparking, hardened aluminum impeller centrifugal fan to operate during each burner firing sequence and to pre-purge and post-purge the combustion chamber.

1. Motor: Brushless DC variable speed motor with hall effect sensor feedback; internal electronic commutation controller with built in speed control and protection features; long life, sealed, ball bearing with high temperature grease.

2. Variable speed blower: PWM signal input with tachometer output.

D. Main Fuel Train:

1. The boiler shall have a pre-mix combustion system, capable of operating at a minimum 4" W.C. incoming natural gas pressure while simultaneously achieving emissions performance, full modulation, and full rated input capacity. Maximum natural gas pressure allowed to the inlet of the fuel train shall be no less than 28" W.C.

2. A factory mounted main fuel train shall be supplied. The fuel train shall be fully assembled complete with high and low gas pressure switches, wired, and installed on the boiler and shall comply with CSD-1 code. The fuel train components shall be enclosed within the boiler cabinet.

3. A lock up regulator upstream of the fuel train shall be furnished by the boiler manufacturer as a standard component integral to the boiler cabinet. Factory test fire of the boiler with the provided lock up regulator is required.

4. Standard CSD-1 fuel train shall comply with IRI, which has been replaced by XL GAPS.

E. Mounting : The boiler shall come with manufacturer's kit (if applicable) for wall mounting installations.

F. Characteristics and Capacities:

1. Heating Medium: Closed loop hot water with up to 50% propylene glycol by volume if indicated on drawings. Standard capacities shall be based on 100% water.

2. Design Water Pressure Rating: 80 psi

3. Max Safety Relief Valve Setting: 160 psig.

4. Minimum Return Water Temperature: No minimum temperature required.

5. Maximum Allowable Water Temperature: 210°F.

6. Minimum Water Flow Rate: Minimum flow rate required to protect the heat exchanger per manufacturer's instructions.

7. Maximum Water Flow Rate: No maximum flow rate requirement.

8. Minimum Side Clearance: Shall not exceed 1" between any number of boilers.

9. Jacket Losses: External convection and radiation heat losses to the boiler room from the boiler shall comply with IAW ASHRAE 103-2007, and shall not exceed 0.2% of the rated boiler input at maximum capacity.

G. The boiler shall have its efficiency witnessed and certified by an independent third party, and the efficiency must be listed on the AHRI directory (www.ahridirectory.org) for natural gas operation. The test parameters for efficiency certification shall be the BTS-2000 standard. The certified thermal efficiency for natural gas firing shall not be less than 93.5%.

H. A zero flow or low flow condition shall not cause any harm to the pressure vessel or heat exchanger of the boiler. Flow switches, dedicated circulator pumps, or primary-secondary arrangements shall not be required to protect the boiler from thermal shock. Boilers requiring the use of flow switches or primary-secondary piping arrangements are unacceptable.

I. The equipment shall be in strict compliance with the requirements of this specification and shall be the manufacturer's standard product unless specified otherwise. Additional equipment features, details, accessories, etc. which are not specifically identified but which are a part of the manufacturer's standard commercial product, shall be included in the equipment being furnished.

2.3 TRIM

A. Safety Relief Valve: ASME Rated.

B. Pressure and Temperature Gauge: Minimum 3-1/2" diameter, combination pressure and -temperature gauge. Gauges shall have operating-pressure and -temperature ranges so normal operating range is about 50 percent of full range.

1. Mounted in the field in the boiler supply water piping prior to the first isolation valve by the boiler installer.

C. Combustion Air Inlet Filter: 50 Micron.

D. Flue Gas Condensate Drain Trap: A flue gas condensate drain trap shall be provided to prevent positive pressure exhaust gases from entering the boiler room.

E. Flue Gas Condensate Neutralization: pH neutralization accommodations available upon request.

2.4 CONTROLS

A. Boiler Operating Controls and Features:

1. Backlit Control panel with LCD type display, clear language text, Select Mode button and Command Dial to select and view information

2. Operating temperature limit with 190 deg F maximum boiler water temperature set point

3. High temperature limit control preset at 200 deg F and equipped with manual reset

4. Low water cut off (LWCO) with manual reset

5. ASME certified pressure relief valve set to 30 PSIG provided as standard with an option to furnish 50 PSIG and 80 PSIG relief valves

6. Flue gas, supply and return water temperature sensors

7. Circulator Exercising control logic

8. Built-in freeze protection

9. Warm Weather Shutdown

10. 4 pump contacts (boiler, zone1/DHW, zone2 and zone 3/system)

11. Fully customizable outdoor temperature reset curve provided along with an outdoor temperature sensor for field installation

12. Multiple boiler system functionality including lead/lag capability up to 16 boilers cascading and main boiler rotation

13. Alarm contacts indicating manual reset lockouts on flame failure, high temperature limits, high pressure limits, low water cut off limits and air pressure limits

14. Flame rod sensor

15. History of alarms, operating conditions, failures and user notifications

16. Control capability to communicate with NaviLink to control temperatures remotely, access usage data and receive diagnostic notifications

B. Sequencing Control of Modular Boiler Plants: Sequencing capabilities (lead/lag) shall be integral to the boiler controller for up to 16 boilers installed in the same hydronic loop and shall not require an external panel.

1. One (1) boiler in the system shall be field programmed as the master and subsequent boilers will be programmed as lag units.

2. Sequence of Operation:
   a) Upon call for heat and demand in the system, a boiler will be enabled at low fire and will modulate according to demand and PID settings up to the base load common value. The base load common shall be field adjustable with a default setting of 40%.

   b) If the heating load exceeds the output at the base load common firing rate, the next boiler in the sequence will be enabled at low fire. Modular boilers will modulate up and down in parallel as a cohesive unit with infinite modulation points to meet heating load requirements.

   c) This process continues until all available boilers are enabled, at which point they are released to modulate up to full fire if required.

   d) As the load decreases, the boilers will be sequentially disabled.

   e) Boiler sequence order shall be rotated on a programmable number of run hours.

   f) A boiler in lockout alarm shall be automatically removed from the sequence order.

   g) Lag boilers shall default to local control if the master boiler is fully powered off or removed.

h) Each individual boiler shall enable and disable a water circulation control device. The enable of the device, for example a motorized isolation valve or boiler circulator, will be simultaneous with the heat demand for that boiler. The disable of each device will be based on a programmable time delay when the heat demand is no longer present. In variable primary arrangements, the control shall hold the lead boiler isolation valve open at all times.

C. Building Automation System Interface: All controls are to be stand-alone and no building automation system included.

1. Hardwired Contacts:
   a) Backlit Control panel with LCD type display, clear language text, Select Mode button and Command Dial to select and view information
   b) Operating temperature limit with 190 deg F maximum boiler water temperature set point
   c) High temperature limit control preset at 200 deg F and equipped with manual reset
   d) Low water cut off (LWCO) with manual reset
   e) ASME certified pressure relief valve set to 30 PSIG provided as standard with an option to furnish 50 PSIG and 80 PSIG relief valves
   f) Flue gas, supply and return water temperature sensors
   g) Circulator Exercising control logic
   h) Built-in freeze protection
   i) Warm Weather Shutdown
   j) 4 pump contacts (boiler, zone1/DHW, zone2 and zone 3/system)
   k) Fully customizable outdoor temperature reset curve provided along with an outdoor temperature sensor for field installation
   l) Multiple boiler system functionality including lead/lag capability up to 16 boilers cascading and main boiler rotation
   m) Alarm contacts indicating manual reset lockouts on flame failure, high temperature limits, high pressure limits, low water cut off limits and air pressure limits
   n) Flame rod sensor
   o) History of alarms, operating conditions, failures and user notifications
   p) Control capability to communicate with NaviLink to control temperatures remotely, access usage data and receive diagnostic notifications

2. Communication Protocol: A communication interface with BAS shall enable BAS operator to remotely enable and monitor the boiler plant from an operator workstation.
   a) The boilers will communicate with each other through the boiler’s integral control interface.

2.5 ELECTRICAL POWER

A. Single-Point Field Power Connection: Factory-installed and factory-wired switches, transformers, control and safety devices and other devices shall provide a single-point field power connection to the boiler.

B. Electrical Characteristics:

1. Voltage: 120 V.
2. Phase: Single.

3. Frequency: 60 Hz.

2.6 VENTING

A. The boiler shall be capable of using either outside air (direct vent system) or inside air (non-direct vent system using single pipe) for combustion. Inlet and outlet of the vent system shall be connected to either through-the-roof or sidewall terminations and shall be tested for unbalanced (different pressure zones) locations.

B. Air intake acceptable venting materials include ABS, PVC, CPVC, PP, SS, galvanized steel, and corrugated aluminum. Total equivalent vent length shall be up to 65 ft. using 2” pipe and up to 150 ft. using 3” pipe.

C. Exhaust (flue gases) shall be vented using PVC Schedule 40 (solid core), CPVC Schedule 40 or 80 (solid core), SS and approved polypropylene as referenced in the boiler installation manual. Total equivalent vent length shall be up to 65 ft. using 2” pipe and up to 150 ft. using 3” pipe.

D. Common venting flue gases shall use Category IV approved materials. Maximum of eight (8) boilers can be connected to a common vent with the use of the Common Vent Backflow Damper Collar Kit. All boilers shall be of equal size and type.

2.7 SOURCE QUALITY CONTROL

A. Test and inspect factory-assembled boilers, before shipping, according to ASME Boiler and Pressure Vessel Code.

B. Each boiler shall be installed and operated in a functioning hydronic system, inclusive of venting, as part of the manufacturing process. A factory test fire report corresponding to the boiler configuration shall be included with each boiler.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Before boiler installation, examine roughing-in for concrete equipment bases, anchor-bolt sizes and locations, and piping and electrical connections to verify actual locations, sizes, and other conditions affecting boiler performance, maintenance, and operations.

1. Final boiler locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping and electrical connections.

B. Examine mechanical spaces for suitable conditions where boilers will be installed.

C. Proceed with installation only after satisfactory conditions have been verified.

3.2 BOILER INSTALLATION

A. Install gas-fired boilers according to NFPA 54. Equipment and materials shall be installed in an approved manner and in accordance with the boiler manufacturer’s installation requirements.

B. Assemble and install boiler trim.

C. Install electrical devices furnished with the boiler but not specified to be factory mounted.

D. Install control wiring to field-mounted electrical devices.

3.3 CONNECTIONS

A. Piping installation requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping from equipment drain connection to nearest floor drain. Piping shall be at least full size of connection. Provide an isolation valve if required.

C. Connect gas piping to boiler gas train inlet with isolation valve and union. Piping shall be at least full size of gas train connection. Provide a reducer if required.

D. Connect hot water supply and return water connections with shutoff valve and union or flange at each connection.

E. Install piping from safety relief valves to the nearest floor drain.

F. Install piping from flue gas condensate drain connection to the condensate drain trap and to the nearest floor drain.

G. Boiler Venting:

1. Install flue venting and combustion air-intake per manufacturer's instructions for concentric vent kit installations and the drawings.

2. Boiler pipe connections, flue size, and type as recommended by the manufacturer.

H. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

I. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. After boiler installation is completed, the manufacturer shall provide the services of a field representative to inspect components, assemblies, and equipment installations, including connections and provide startup of the boiler and training to the operator.

2. Arrange with National Board of Boiler and Pressure Vessel Inspectors for inspection of boilers and piping. Obtain certification for completed boiler units, deliver to Owner, and obtain receipt.

B. Tests and inspections:

1. Perform installation and startup checks according to manufacturer's written instructions.

2. Leak Test: Hydrostatic test. Repair leaks and retest until no leaks exist.

3. Operational Test: Start units to confirm proper motor rotation and unit operation. Adjust air-fuel ratio and combustion as directed by the manufacturer.
   a) Check and adjust initial operating set points and high- and low-limit safety set points of fuel supply, water level and water temperature.

   b) Set field-adjustable switches and circuit-breaker trip ranges as indicated.

C. Remove and replace malfunctioning units and retest as specified above.

D. Occupancy Adjustments: When requested within 12 months of startup, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to 2 visits to Project during other than normal occupancy hours for this purpose.

END OF SECTION 23 52 16

ABBREVIATIONS

KEY NAME	FULL NAME
A.B.	ANCHOR BOLT
ABR.	ABRASIVE FINISH
ACT	ACOUSTICAL CEILING TILE
ADH.	ADHESIVE
ADJ.	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
ALUM.	ALUMINUM
ALT.	ALTERNATE
APPROX.	APPROXIMATE
ARCH.	ARCHITECT
B/	BOTTOM OF
B/B	BACK TO BACK
BD.	BOARD
BLDG.	BUILDING
BLK	BLOCK
BM	BEAM
B.O.	BOTTOM OF
BOT.	BOTTOM
B.A.	BEARING PLATE
BR.	BRICK
BRG.	BEARING
CAB.	CABINET
CB	CATCH BASIN
CDX.	C-D GRADE EXT. PLYWOOD
CF	CUBIC FEET
C.H.	CABINET HEATER
CIR.	CIRCUIT
C.J.	CONTROL JOINT
CL.	CENTER LINE
CLG.	CEILING
CLR.	CLEAR
CMU	CONCRETE MASONRY UNIT
COL.	COLUMN
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
COORD.	COORDINATE
CORR.	CORRUGATED
CPT	CARPET
CRS.	COURSES
CSK.	COUNTER SINK
CT	CERAMIC TILE
C.W.	COLD WATER
DET	DETAIL
DIA .	DIAMETER
DIAG.	DIAGONAL
DIM.	DIMENSION
DR	DOOR
DWG	DRAWING(S)
EA.	EACH
E.F.	EACH FACE
E.J.	EXPANSION JOINT
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQ	EQUAL
EQUIP.	EQUIPMENT
ETR	EXISTING TO REMAIN
EXIST.	EXISTING
EXP.	EXPOSED
EXT.	EXTERIOR
F.D.	FLOOR DRAIN
F.C.	FAN COIL
FDN.	FOUNDATION
F.F.	FINISH FLOOR
FIN.	FINISH
FLG.	FLANGE
FLR.	FLOOR
FT.	FEET
GRP.	GROUP
GWB	GYPSUM WALL BOARD
GYP.	GYPSUM
H.B.	HOSE BIB
HC	HANDICAP
HDW.	HARDWARE
HDWD	HARDWOOD
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
H.P.	HIGH POINT
H.S.	HIGH STRENGTH
HT.	HEIGHT
HVAC	HEAT, VENT AND AC
H.W.	HOT WATER
H.W.T.	HOT WATER TANK
I.D.	INSIDE DIAMETER
I.E.	INVERT ELEVATION
IN.	INCH(ES)
INSUL.	INSULATION
INT.	INTERIOR
INV.	INVERT
JAN.	JANITOR
JT.	JOINT
LAM.	LAMINATED
LAV.	LAVATORY
LLH.	LONGER LEG HORIZONTAL
LLV.	LONGER LEG VERTICAL
LOC.	LOCATION
LONG.	LONGITUDINAL
L.P.	LOW POINT
M.	METER
MANUF.	MANUFACTURER
MAS.	MASONRY
MAT.	MATERIAL
MAX.	MAXIMUM
M.B.	MACHINE BOLTS
MC	METAL CHANNEL
M.C.	MECHANICAL CONTRACTOR
MECH.	MECHANICAL
MED.	MEDIUM
MISC.	MISCELLANEOUS
M.O.	MASONRY OPENING
M.T.	METAL THICKNESS
MTL	METAL
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
NOM.	NOMINAL
N.T.S.	NOT TO SCALE

KEY NAME	FULL NAME
O.A.	OVERALL
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OH	OVERHEAD
O.H.	OPPOSITE HAND
OPG.	OPENING
PC	PIECE
PCF	POUNDS PER CUBIC FT
PL	PLASTIC LAMINATE
PLAM	PLASTIC LAMINATE
PLT	PLATE
PLF	POUNDS PER LINEAR FT
PLUMB.	PLUMBING
PLYWD	PLYWOOD
POLY	POLYETHYLENE
PR.	PAIR
PSF	POUNDS PER SQUARE FT
PSI	POUNDS PER SQUARE IN
PFT	PORCELAIN TILE
PT	PAINT
PTD.	PAINTED
Q.T.	QUARRY TILE
R.	RISER
RAD.	RADIUS
RB	RUBBER BASE
R.D.	ROOF DRAIN
REF.	REFERENCE
REINF.	REINFORCING
REQ'D.	REQUIRED
REV.	REVISION
RFL	RUBBER FLOOR
R.L.	ROOF LEADER
RM.	ROOM
RT.	RESILIENT TILE
R.V.	ROOF VENT
SCHED.	SCHEDULE
SECT.	SECTION
SF	SQUARE FOOT
SHT.	SHEET
SIM.	SIMILAR
SPEC.	SPECIFICATIONS
SQ.	SQUARE
S.S.	STAINLESS STEEL
ST	STAIN
STD.	STANDARD
STL.	STEEL
STRUCT.	STRUCTURAL
SUSP.	SUSPENDED
T.	TREAD
T/	TOP OF
T&B	TOP AND BOTTOM
T/C.	TOP CHOR
T/F	TOP FLANGE
T/FTG	TOP OF FOOTING
T.O.	TOP OF
THK.	THICK
THRU.	THROUGH
TP	TOPPING
TRANS.	TRANSVERSE
TS.	TUBE STEE
T/S	TOP OF SLAB
T/STL.	TOP OF STEEL
TYP.	TYPICAL
UNEX.	UNEXCAVATED
UNO	UNLESS NOTED OTHERWISE
VAR.	VARIES
VB	VINYL BASE
V.B.	VAPOR BARRIER
VCT	VINYL COMPOSITE TILE
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
VTR	VENT THRU ROOF
W	WATER
W/	WITH
WB	WOOD BASE
W.J.	WATER CLOSET
WD	WOOD
W.I.	WROUGHT IRON
W.W.F.	WELDED WIRE FABRIC

DRAWING SYMBOLS LEGEND

WINDOW TAG:
REFERENCE WINDOW
SCHEDULE ON A900 FOR
SIZE AND DETAIL

ELEVATION TAG:
DRAWING NUMBER
(TOP NUMBER)
SHEET NUMBER
(BOTTOM NUMBER)

INTERIOR ELEVATION TAG:
DRAWING NUMBER (TOP NUMBER)
REFERENCE SPECIFIED SHEET
FOR DRAWING NUMBER

DOOR TAG:
REFERENCE DOOR
SCHEDULE ON A900 FOR
SIZE AND DETAIL

WALL TYPE TAG:
RATING
REFERENCE WALL TYPES
FOR WALL CONSTRUCTION

ELEVATION MARKER:
SPECIFIES THE VERTICAL
HEIGHT AT A GIVEN
LOCATION

PLAN DETAIL TAG:
DRAWING NUMBER (TOP NUMBER)
REFERENCE SPECIFIED SHEET
FOR DRAWING (BOTTOM NUMBER)

SECTION DETAIL TAG:
DRAWING NUMBER (TOP
NUMBER) REFERENCE SPECIFIED
SHEET FOR DRAWING (BOTTOM
NUMBER)

DEMOLITION TAG:
REFERENCE PLANS AND
GENERAL DEMOLITION NOTES

EQUIPMENT TAG:
REFERENCE PLANS AND
EQUIPMENT SCHEDULES

NOTE TAG:
SEE ASSOCIATED LEGEND

FLOOR DRAIN (FD)

ROOF DRAIN (RD)

EXISTING WALL TO REMAIN, TYP.

EXISTING WALL TO BE REMOVED, TYP.

NEW STUD WALL CONSTRUCTION

NEW MASONRY WALL CONSTRUCTION

EXISTING DOOR
TO REMAIN, TYP.

EXISTING DOOR TO
BE REMOVED, TYP.

EXISTING FIXTURES
TO BE REMOVED

Rev.	Sheet No.	Sheet Name
ARCHITECTURAL SK		
	SKA-01	Sink Detail with ADA Plumbing Protection Panel
GENERAL		
	G100	Cover Sheet
1	G101	Sheet List, Abbreviations and Symbols
	G102	General Notes
	G103	General Notes
	G200	Code
	G201	Life Safety Plans - Phase 2 & Phase 3
	G202	Life Safety Plans - Full Occupancy
	G203	Accessibility Details
	G300	Wall Types
1	G500	Logistics and Phasing Plans
CIVIL		
	C001	Site Legend and Notes
	C101	Existing Conditions and Demolition Plan
	C102	Site Plan
	C103	Erosion and Sediment Control Plan
	C104	Site Lighting Plan
	C501	Site Details (1 of 2)
	C502	Site Details (2 of 2)
	C503	Water and Sanitary Sewer Details
	C504	Erosion and Sediment Control Details (1 of 2)
	C505	Erosion and Sediment Control Details (2 of 2)
STRUCTURAL		
	S001	General Notes
	S100	Foundation Plan
	S101	Mezzanine Framing Plan
	S102	Roof Framing Plan
	S200	Foundation Sections
1	S300	Framing Sections
	S301	Framing Sections
	S400	Column Schedule
	S500	Typical Details
	S501	Typical Details
	S502	Typical Details
ARCHITECTURAL		
	D100	First Floor Demolition Plan
1	A100	Foundation Plan
1	A101	First and Mezzanine Floor Plans
	A102	First Floor Enlargement Plan - North
	A103	First Floor Enlargment Plan - South
	A104	Mezzanine Enlargment Plans
	A105	Mezzanine 3 - Alternate #1
	A106	Roof Plan
	A200	Building Elevations
1	A300	Building Sections
	A400	Stair 1 Plans and Sections
	A401	Stair 2 Plans, Sections, and Details
	A500	Wall Sections
	A501	Wall Sections
	A600	Exterior Details
1	A601	Exterior Details
1	A602	Exterior Details
	A603	Exterior Details
	A604	Interior Details
	A605	Interior Details
1	A700	Enlarged Plans
	A701	Interior Elevations
	A702	Interior Elevations
	A703	Interior Elevations
	A800	Reflected Ceiling Plans
	A900	Door Schedule, Types, and Details
1	A901	Kalwall and Storefront Types
	A902	Finish Plans
	A903	Finish Legend
	A904	Finish Schedule
FIRE PROTECTION		
	FP001	Legends, General Notes, & Schedules
	FP301	First Floor and Mezzanine Fire Protection Plans
PLUMBING		
	P001	Legends, General Notes, & Schedules
	P201	First Floor and Mezzanine Plumbing Removal Plans
	P301	First Floor and Mezzanine Drainage Plans
	P401	First Floor and Mezzanine Supply Plans
	P700	Plumbing Details
MECHANICAL		
	M001	General Notes, Symbols & Legends
	M002	Equipment Schedules
	M201	First Floor and Mezzanine Mechanical Removal Plans
	M301	First Floor and Mezzanine Duct Plans
	M302	Roof Mechanical Plan
	M401	First Floor and Mezzanine Piping Plans
	M501	Removal & New Boiler Schematic
	M601	Details and Diagrams
	M701	Temperature Controls Details & Diagrams
ELECTRICAL		
	E001	General Notes, Symbols & Abbreviations
	E002	One Line Diagram, Fire Alarm Riser, & Schedules
	E003	Light Fixture Schedule
	E101	Site Plan
	E201	First Floor and Mezzanine Removal Plans
	E301	First Floor and Mezzanine Lighting Plans
	E401	First Floor and Mezzanine Power & Systems Plans
	E402	First Floor Power Plan
	E601	Details

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Project:

Additions and Renovations To:

Ray Wemple Memorial Rink

Tower Road Schenectady, NY 12302

RFB 2023-54 - (Bid Set)

No.	REVISION #	DATE:
1	Addendum #5	12/19/2023

Drawn By:	C2 Architecture
Scale:	As Noted
Date:	11/15/2023
Job No:	2237

Sheet Title:

Sheet List, Abbreviations and Symbols

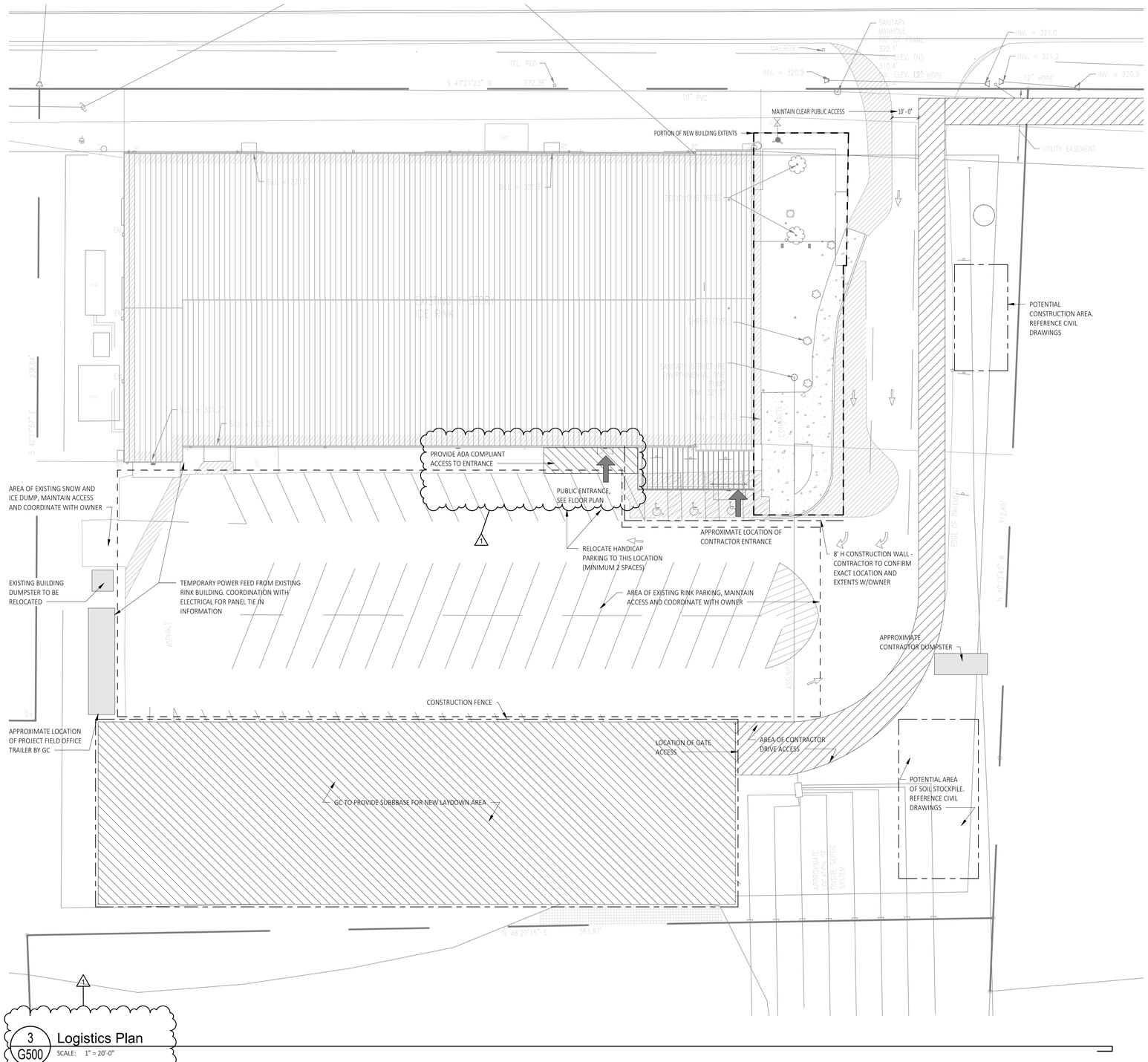
Sheet Number:

G101

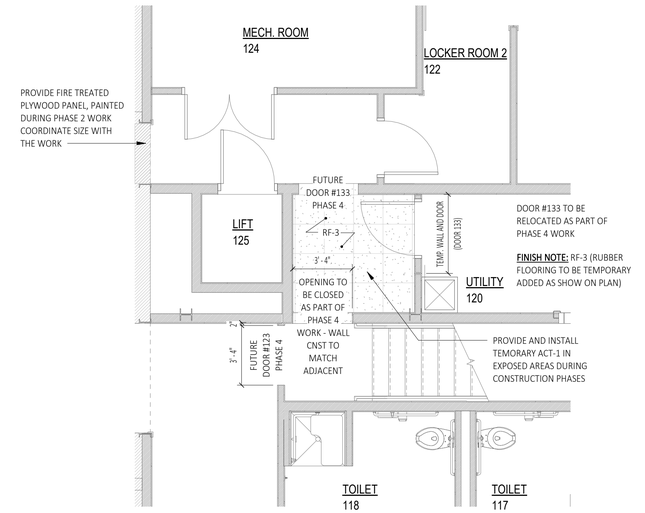
PLOT DATE: 12/19/2023 5:00:56 PM

Logistics Plan Legend

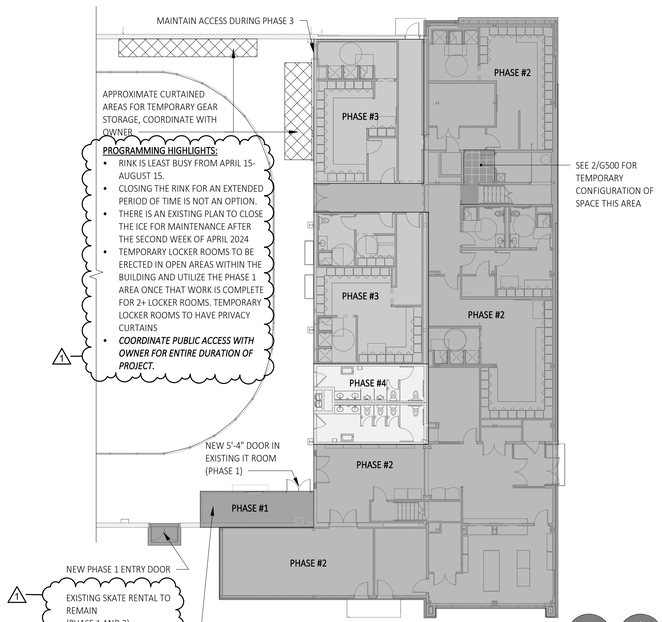
- SEE C-101 FOR PAVEMENT TO BE REMOVED
- AREA OF CONTRACTOR DRIVE ACCESS



3 G500 Logistics Plan
SCALE: 1" = 20'-0"



2 G500 Phase 2 - Temporary Construction
SCALE: 1/4" = 1'-0"



1 G500 Phasing Plan
SCALE: 1/16" = 1'-0"

TRUE NORTH
PROJECT NORTH

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1	Addendum #5	12/19/2023

Drawn By:	C2 Architecture
Scale:	As Noted
Date:	11/15/2023
Job No:	2237

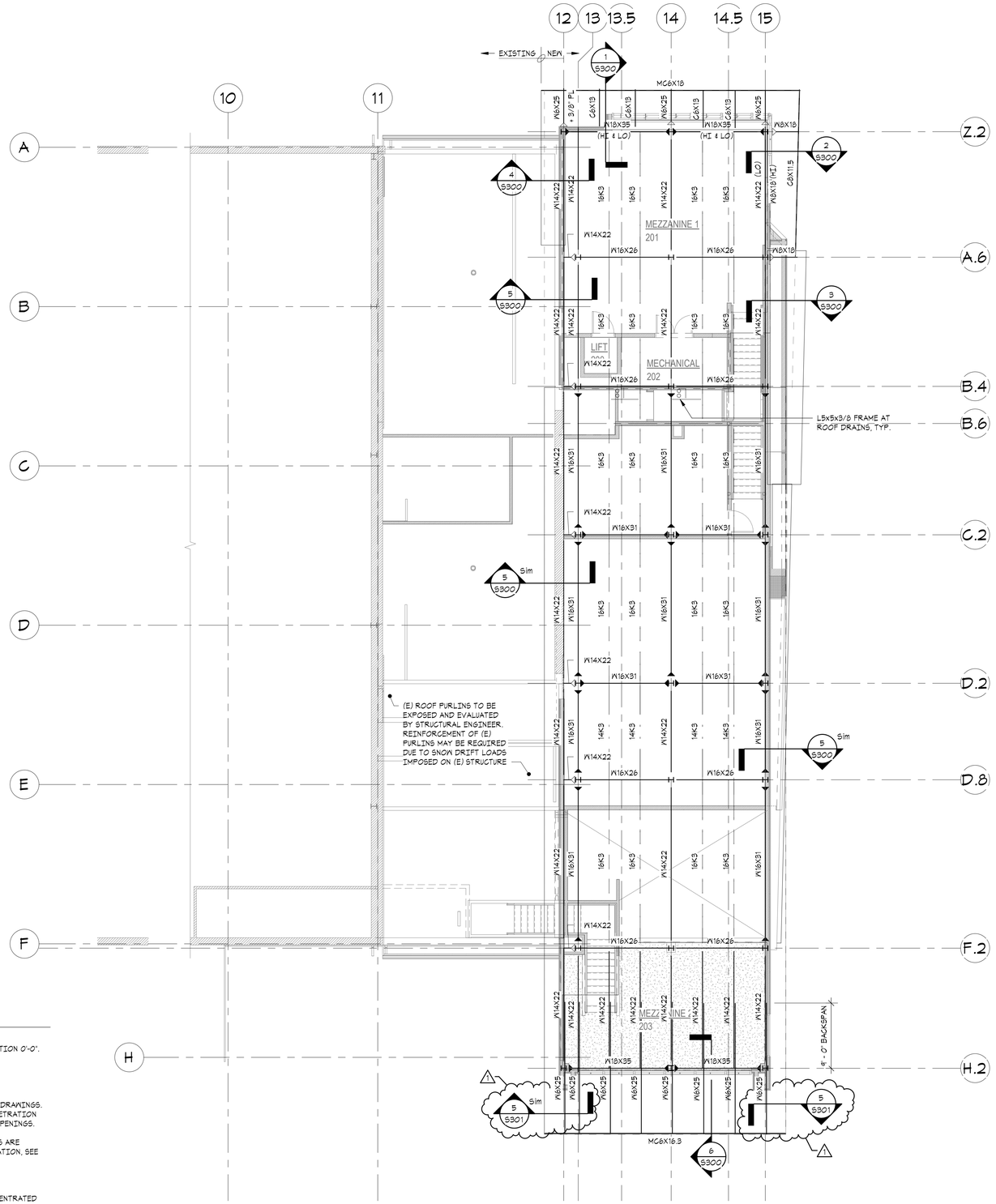
Sheet Title:

Logistics and Phasing Plans

Sheet Number:

G500

PLOT DATE: 12/19/2023 11:54:14 AM



ROOF FRAMING PLAN

1/8" = 1'-0"

1. UPPER ROOF TOP OF STEEL ELEVATION (UNDERSIDE OF DECK) INDICATED THUS 'T XX'-XX" ON PLAN FROM DATUM ELEVATION 0'-0".
2. ROOF DECK CONSTRUCTION: 1 1/2" - 20 ga. GALVANIZED TYPE 'B' METAL ROOF DECK.
3. ALL FRAMING SHALL BE EQUALLY SPACED BETWEEN COLUMN LINES, UNLESS OTHERWISE INDICATED.
4. COORDINATE SIZE AND LOCATION OF ALL ROOF PENETRATIONS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. ALL ROOF PENETRATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO FABRICATION AND INSTALLATION OF PENETRATION FRAMING ELEMENTS. PROVIDE FRAMING AS INDICATED IN "TYPICAL ROOF/FLOOR OPENING DETAIL". DO NOT SCALE OPENINGS.
5. MAXIMUM WEIGHT OF MECHANICAL UNITS, (INCLUDING WEIGHT OF CURB) USED IN THE DESIGN OF SUPPORTING MEMBERS ARE INDICATED ON THE PLANS. SEE MECHANICAL DRAWINGS FOR LOCATION OF MECHANICAL UNITS. FOR FRAMING INFORMATION, SEE 'TYPICAL ROOFTOP UNIT CURB DETAIL' GENERAL NOTES.
6. ▶ INDICATES MOMENT CONNECTION, SEE TYPICAL MOMENT CONNECTION DETAILS.
7. MAXIMUM ALLOWABLE CONCENTRATED LOAD WHICH MAY BE SUPPORTED BY METAL ROOF DECK TO BE 50 lbs. FOR CONCENTRATED LOADS GREATER THAN 50 lbs. PROVIDE SUPPLEMENTAL STEEL FRAMING CONNECTED TO STRUCTURAL STEEL MEMBERS.
8. FOR COLUMN SIZES, SEE COLUMN SCHEDULE, SHT. S400.
9. SEE GENERAL NOTES FOR ADDITIONAL INFORMATION.

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No.	REVISION #	DATE:
1	ADDENDUM 5	12/19/23

Drawn By:	C2 Architecture
Scale:	As Noted
Date:	11/15/2023
Job No:	23046

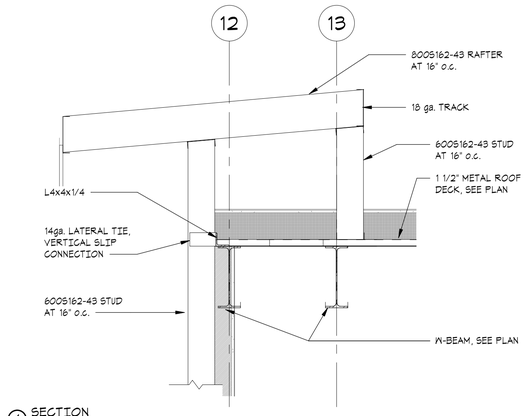
Sheet Title:

Roof Framing Plan

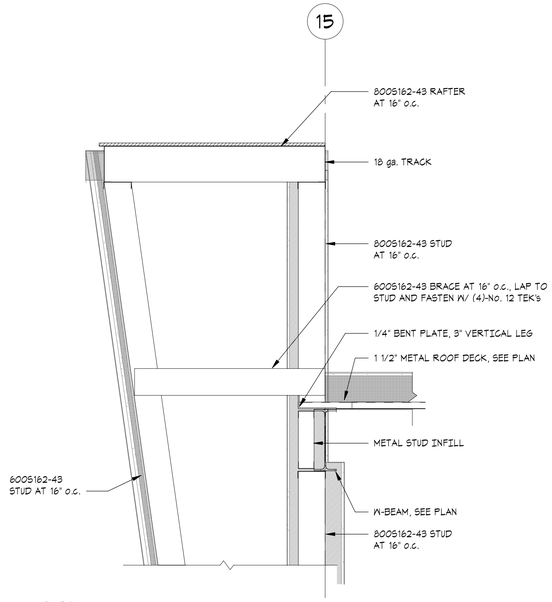
Sheet Number:

S102

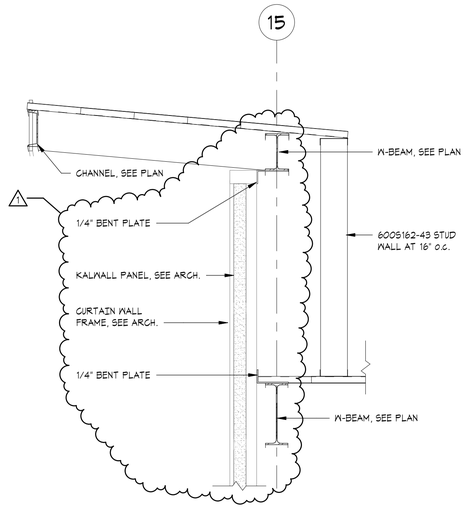
PLOT DATE: 12/19/2023 5:27:14 PM



④ SECTION
3/4" = 1'-0"



③ SECTION
3/4" = 1'-0"



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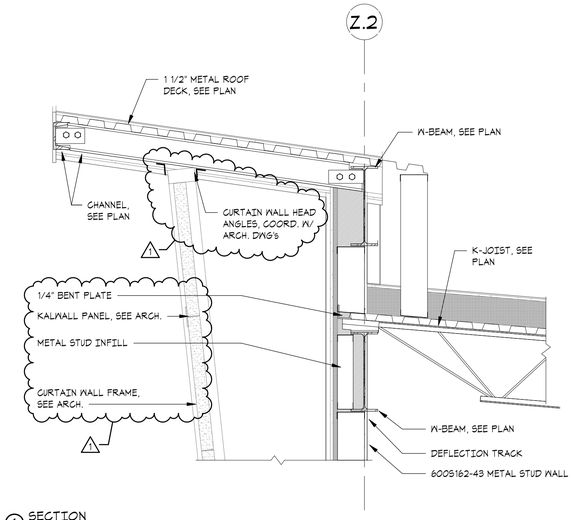
3/4" = 1'-0"

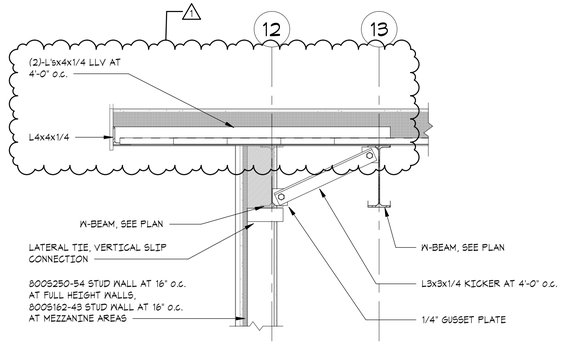


① SECTION
3/4" = 1'-0"

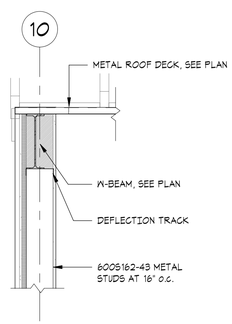
⑧ SECTION
3/4" = 1'-0"

⑦ SECTION
3/4" = 1'-0"

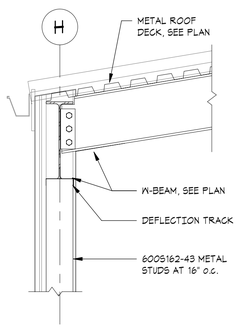
⑥ SECTION
3/4" = 1'-0"



⑤ SECTION
3/4" = 1'-0"



⑭ SECTION
3/4" = 1'-0"



⑬ SECTION
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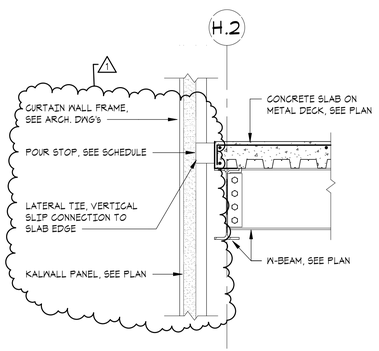

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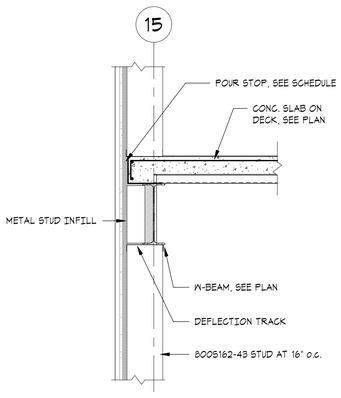
3/4" = 1'-0"



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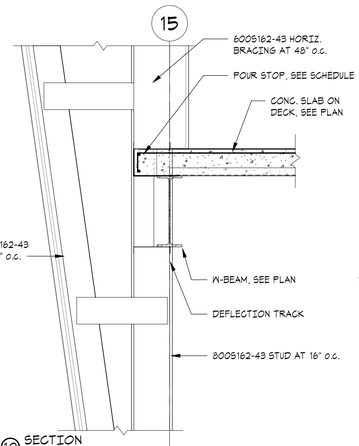
3/4" = 1'-0"



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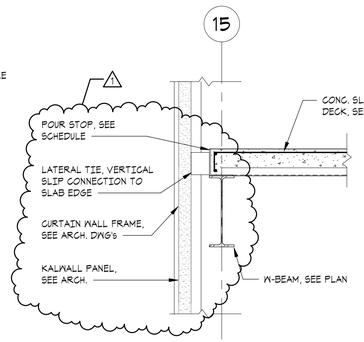
3/4" = 1'-0"



⑨ SECTION
3/4" = 1'-0"

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ADDITIONS AND RENOVATIONS TO:

RAY WEMPLE MEMORIAL RINK

Tower Road Schenectady, NY 12302

RFB 2023-54 - (BID SET)

No.	REVISION #	DATE:
1	ADDENDUM 5	12/19/23

Drawn By:	C2 Architecture
Scale:	As Noted
Date:	11/15/2023
Job No:	23046

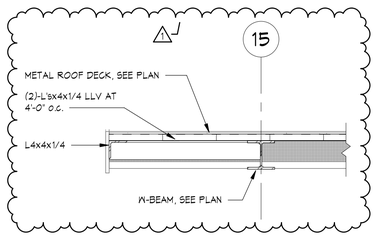
Sheet Title:

FRAMING SECTIONS

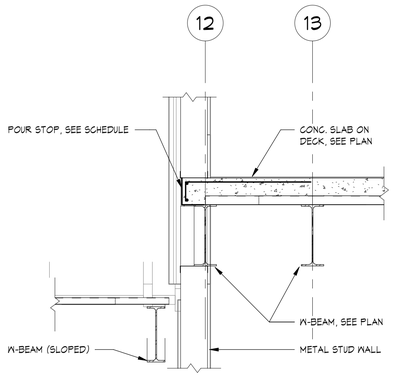
Sheet Number:

S300

PLOT DATE: 12/19/2023 5:27:15 PM



5 SECTION
3/4" = 1'-0"



4 SECTION
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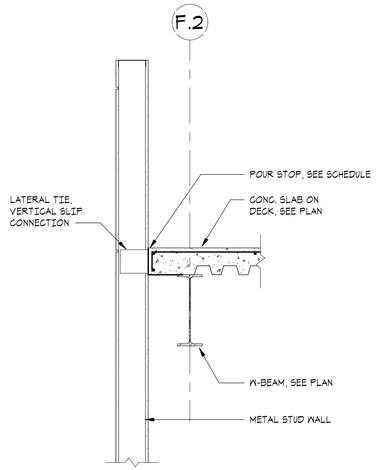

3 SECTION
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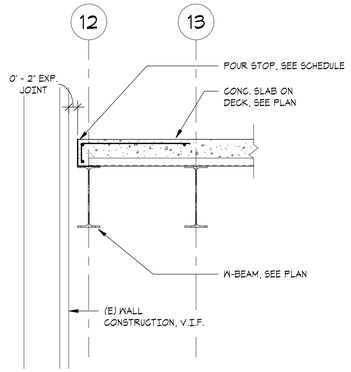
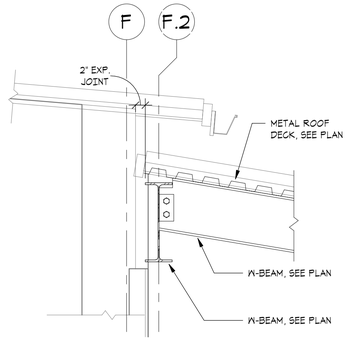


2 SECTION
3/4" = 1'-0"



1 SECTION
3/4" = 1'-0"

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ADDITIONS AND RENOVATIONS TO:

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RFB 2023-54 - (BID SET)

No.	REVISION #	DATE:
1	ADDENDUM 5	12/19/23

Drawn By:	C2 Architecture
Scale:	As Noted
Date:	11/15/2023
Job No:	23046

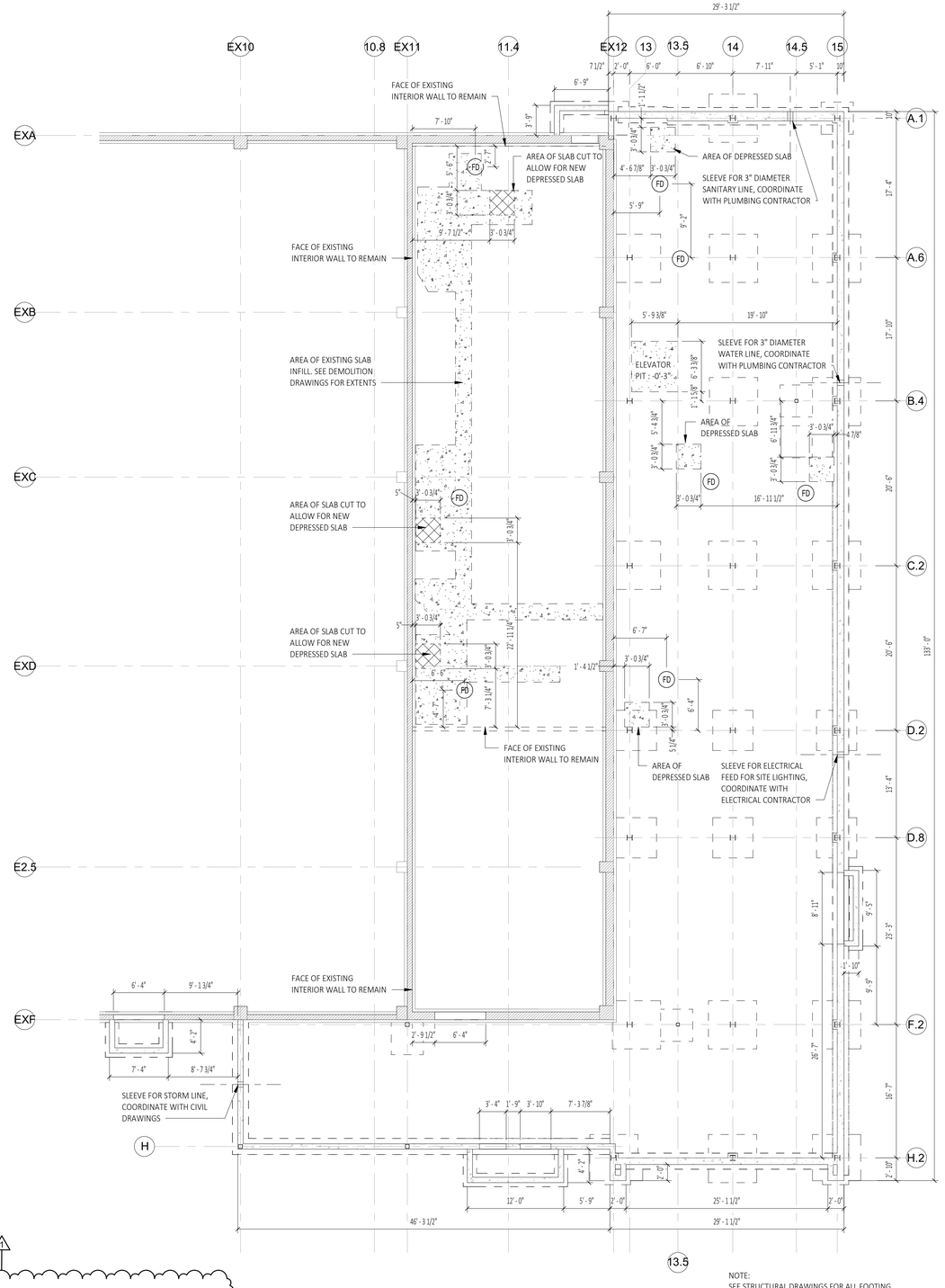
Sheet Title:

FRAMING SECTIONS

Sheet Number:

S301

PLOT DATE: 12/19/2023 5:27:15 PM



1 / A100 Foundation Plan
SCALE: 1/8" = 1'-0"

TRUE NORTH
PROJECT NORTH

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ADDITIONS AND RENOVATIONS TO:

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RFB 2023-54 - (BID SET)

No.	REVISION #	DATE:
1	Addendum #5	12/19/2023

Drawn By:	C2 Architecture
Scale:	As Noted
Date:	11/15/2023
Job No:	2237

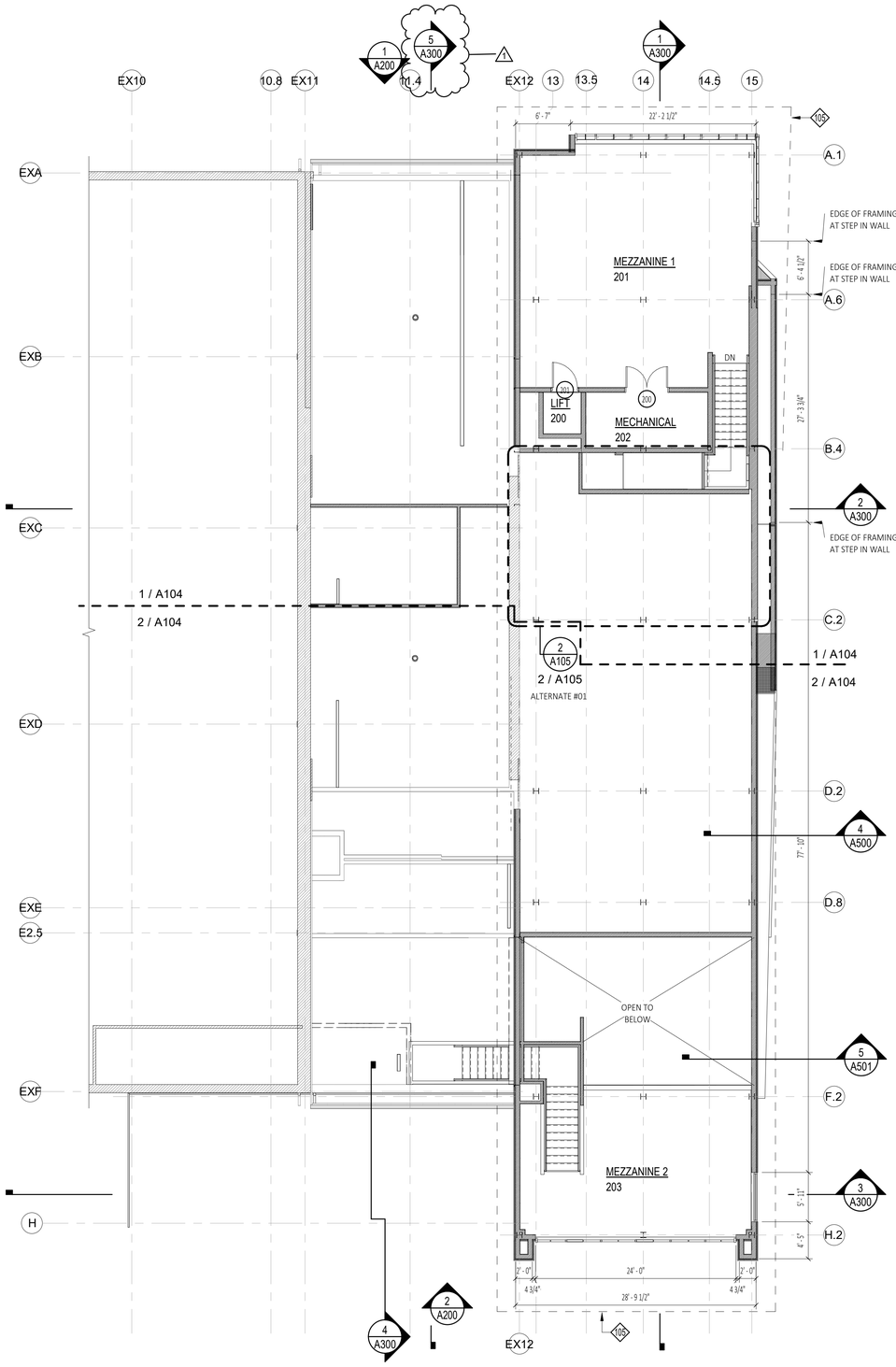
Sheet Title:

FOUNDATION PLAN

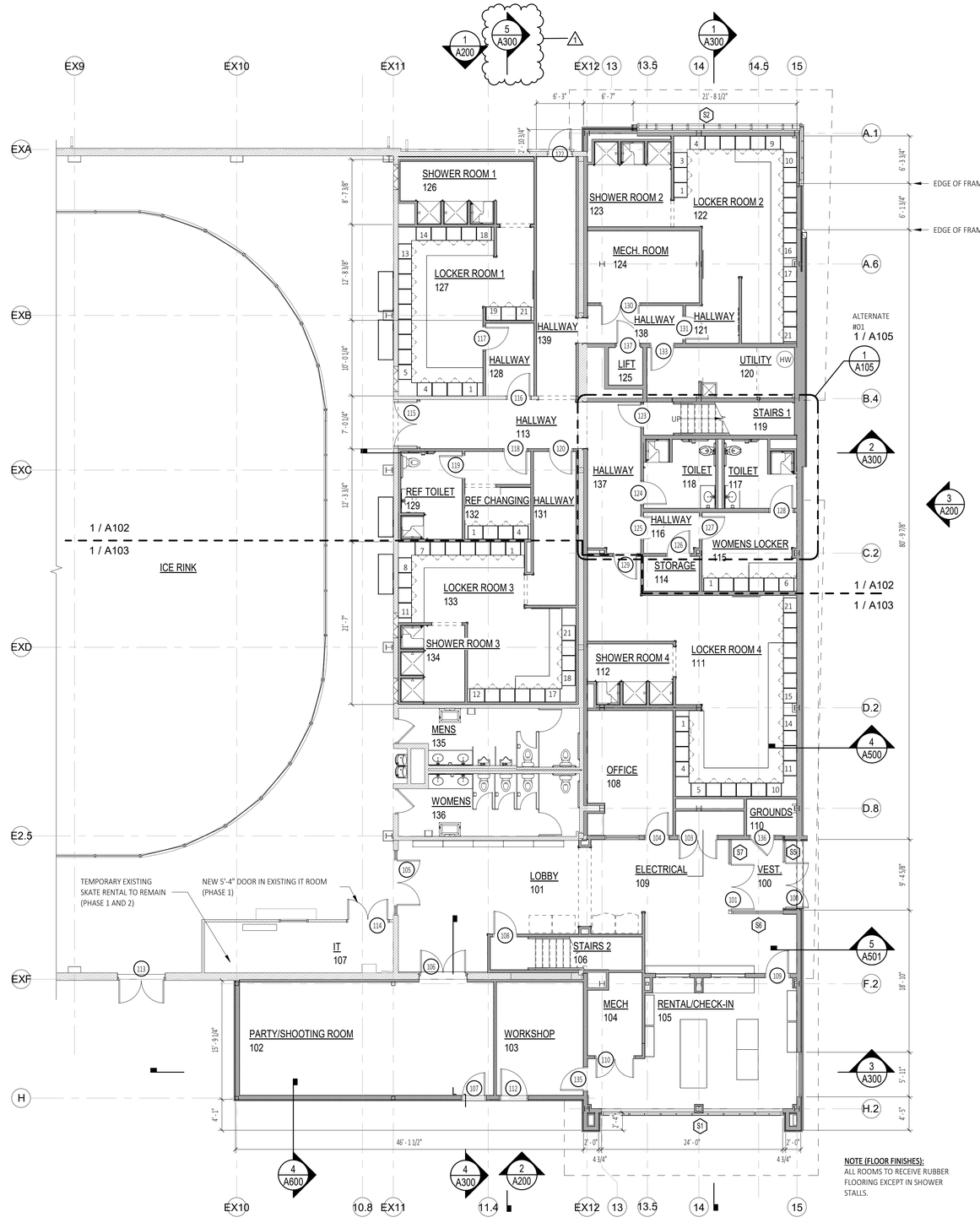
Sheet Number:

A100

PLOT DATE: 12/19/2023 11:54:11 AM



2 / A101 Mezzanine Floor Plan (Overall)
SCALE: 1/8" = 1'-0"



NOTE (FLOOR FINISHES):
ALL ROOMS TO RECEIVE RUBBER FLOORING EXCEPT IN SHOWER STALLS.

1 / A101 First Floor Plan (Overall)
SCALE: 1/8" = 1'-0"

TRUE NORTH
PROJECT NORTH

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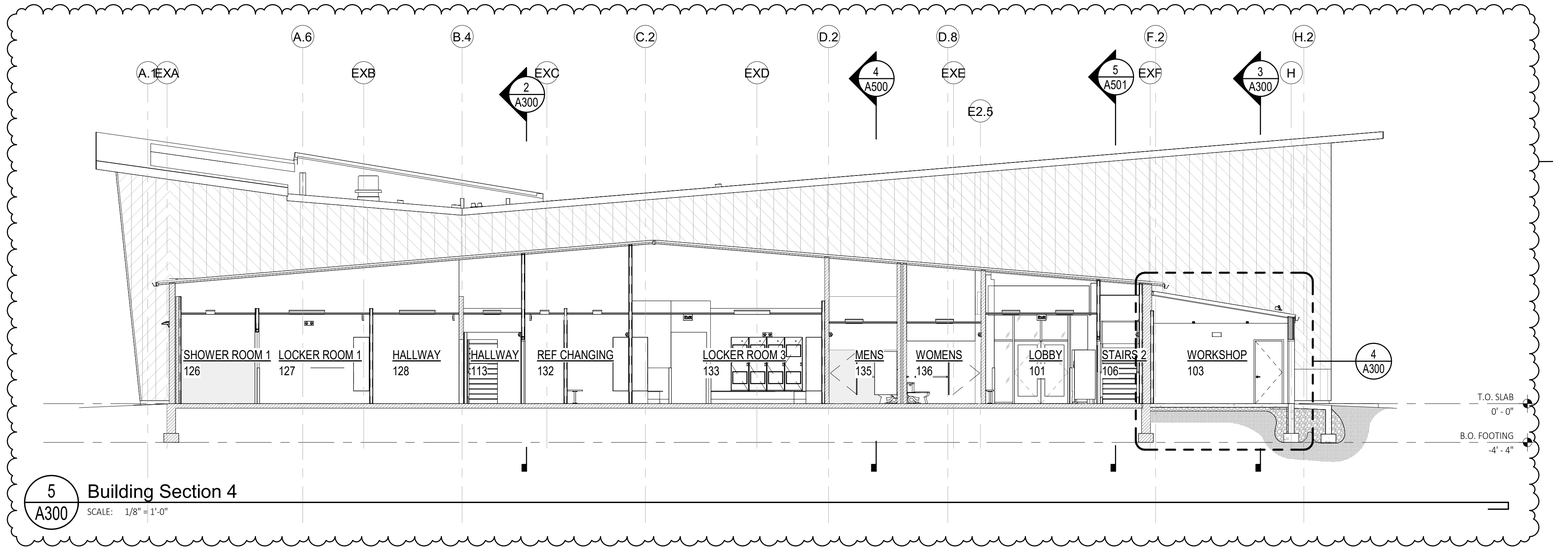
No.	REVISION #	DATE:
1	Addendum #5	12/19/2023

Drawn By:	C2 Architecture
Scale:	As Noted
Date:	11/15/2023
Job No:	2237

Sheet Title:
FIRST AND MEZZANINE FLOOR PLANS

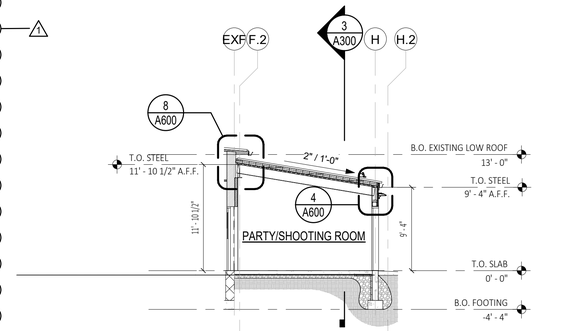
Sheet Number:
A101

PLOT DATE: 12/19/2023 5:00:49 PM



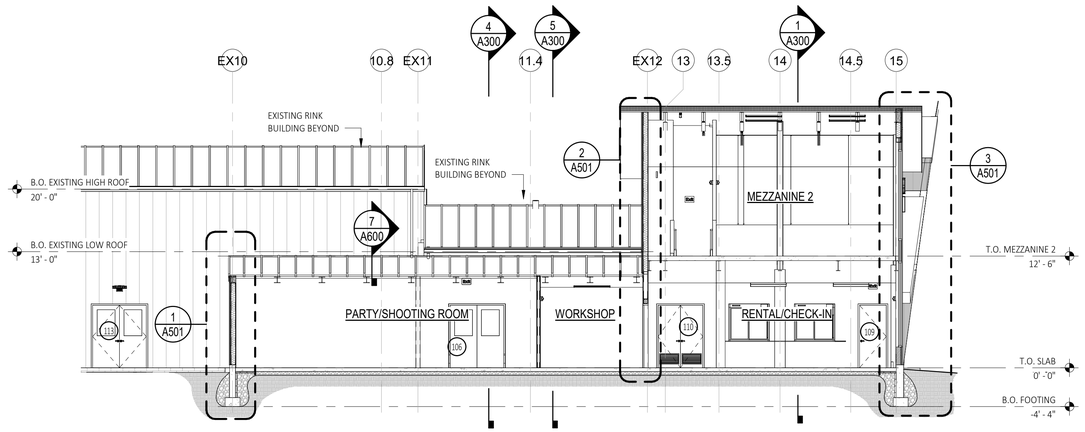
5 A300 Building Section 4

SCALE: 1/8" = 1'-0"



4 A300 Building Section at Shooting Room

SCALE: 1/8" = 1'-0"



3 A300 Building Section 3

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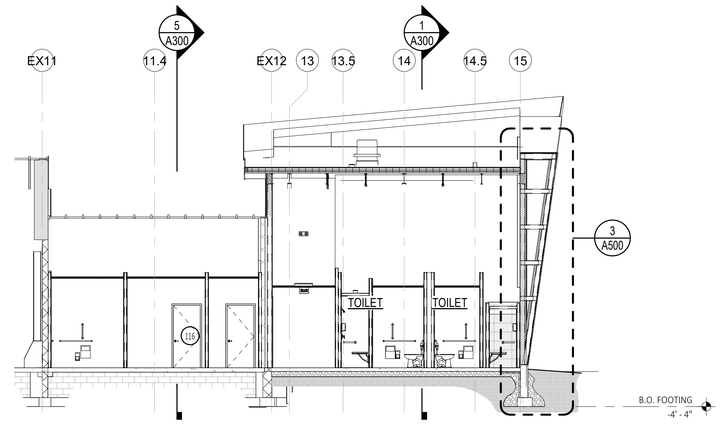
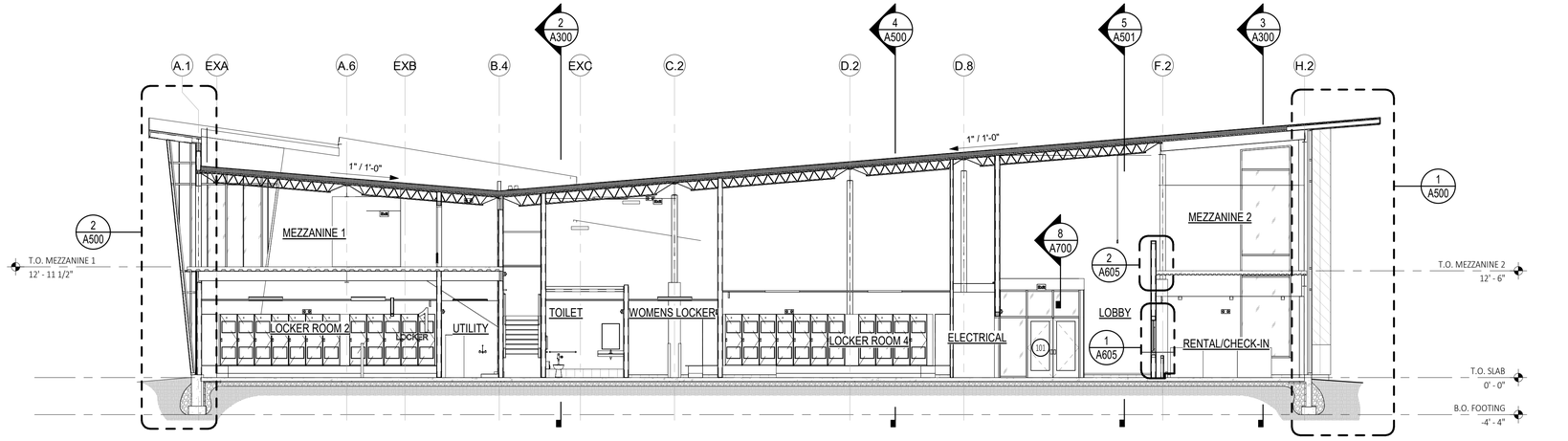


2 A300 Building Section 2

SCALE: 1/8" = 1'-0"



1 A300 Building Section 1

SCALE: 1/8" = 1'-0"

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RAY WEMPLE MEMORIAL RINK

Tower Road Schenectady, NY 12302

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No.	REVISION #	DATE:
1	Addendum #5	12/19/2023

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Job No:	2237

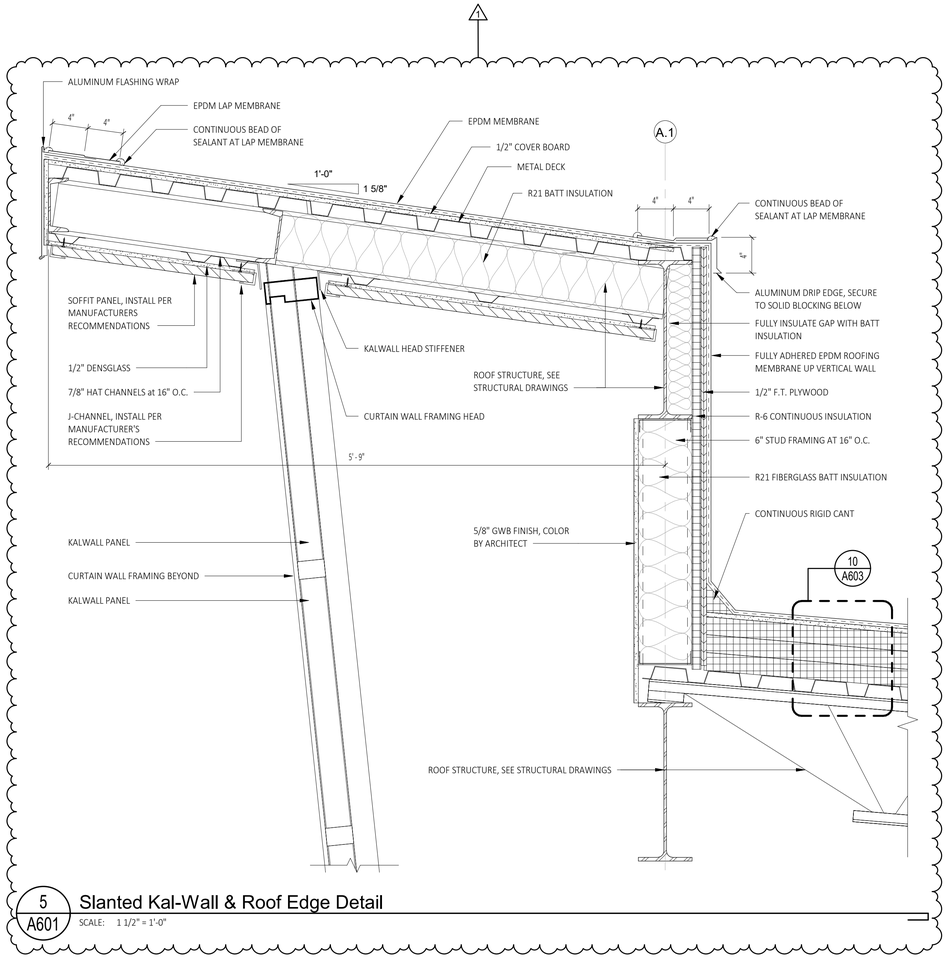
Sheet Title:

BUILDING SECTIONS

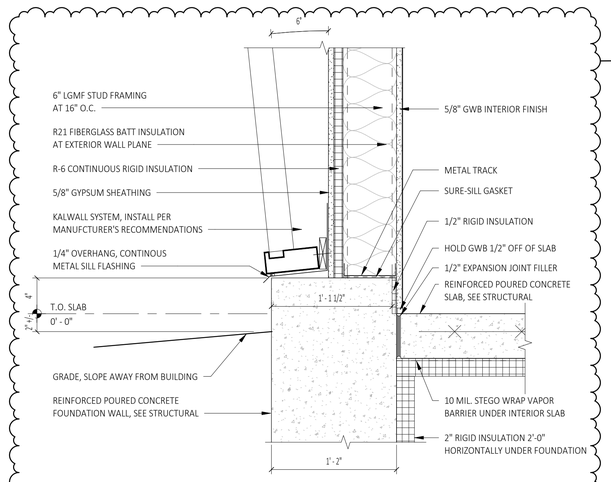
Sheet Number:

A300

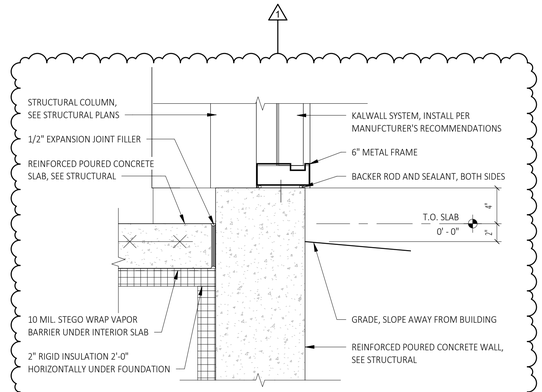
PLOT DATE: 12/19/2023 5:00:52 PM



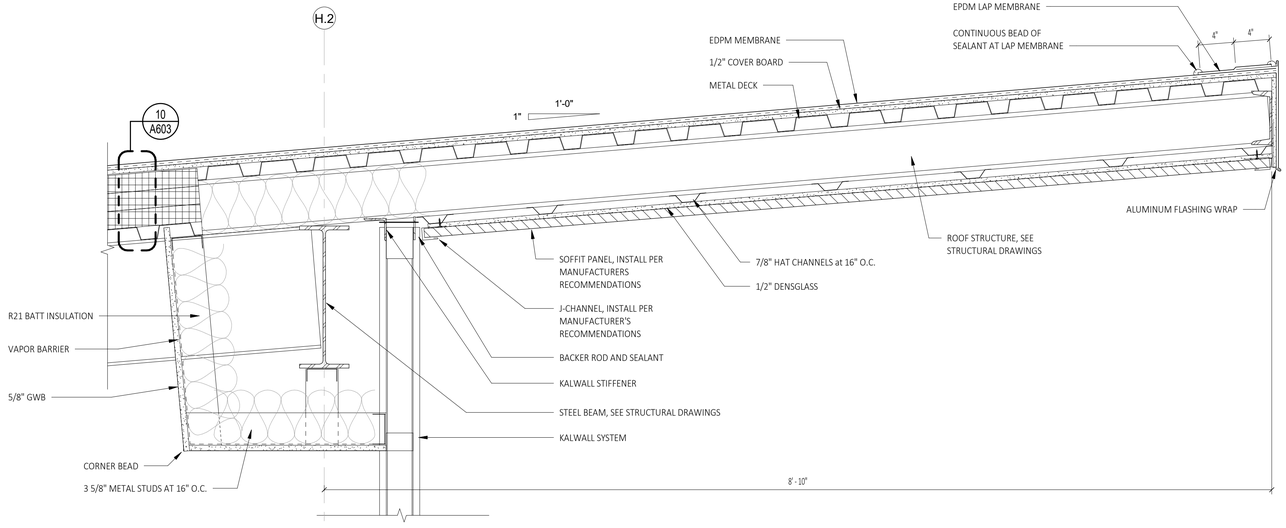
5 A601 Slanted Kal-Wall & Roof Edge Detail
SCALE: 1 1/2" = 1'-0"



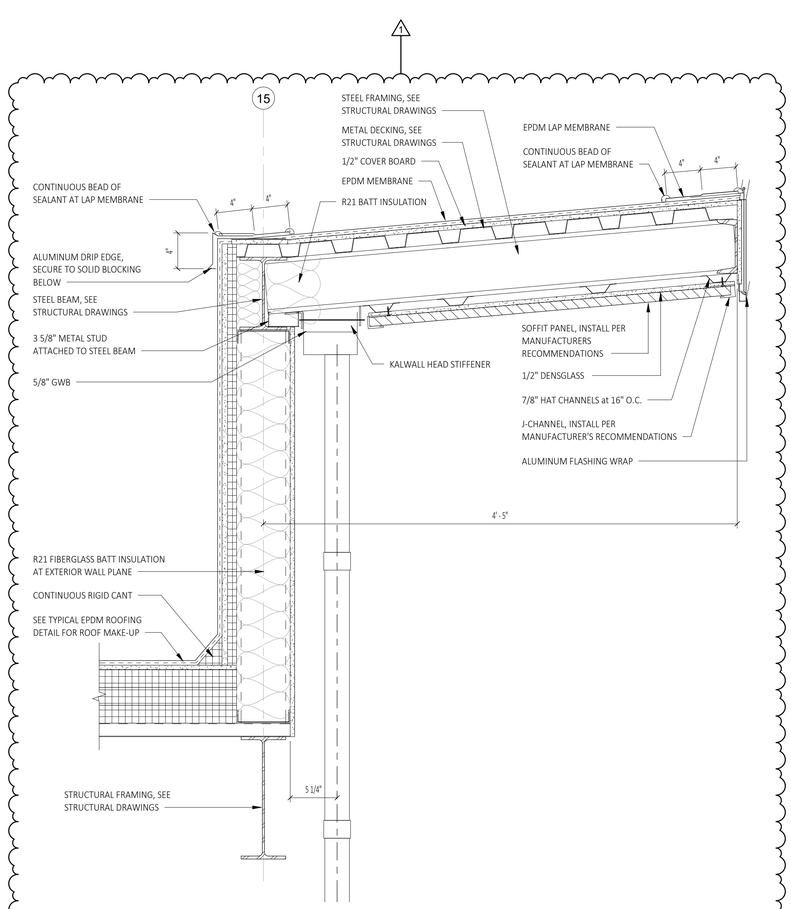
3 A601 Slanted Kal-Wall Base Detail
SCALE: 1 1/2" = 1'-0"



2 A601 Kalwall Base Detail
SCALE: 1 1/2" = 1'-0"



4 A601 Cantilever Detail
SCALE: 1 1/2" = 1'-0"



1 A601 Vertical Kal-wall and Roof Edge Detail
SCALE: 1 1/2" = 1'-0"

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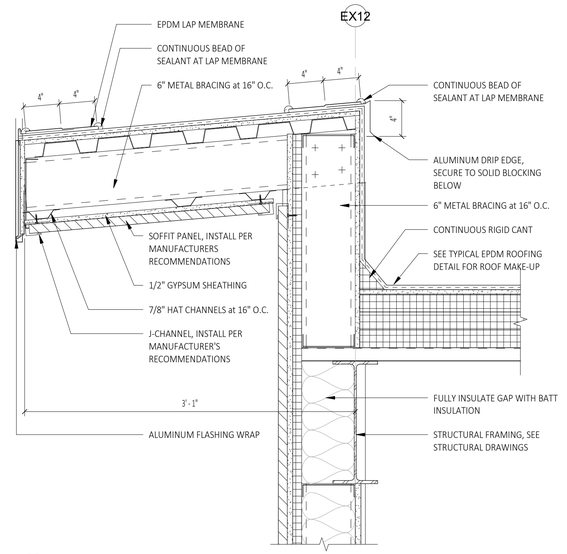
Job No:	2237

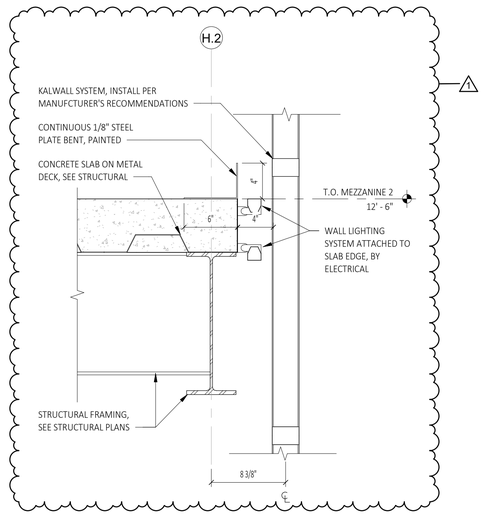
Sheet Title:
Exterior Details

Sheet Number:
A601

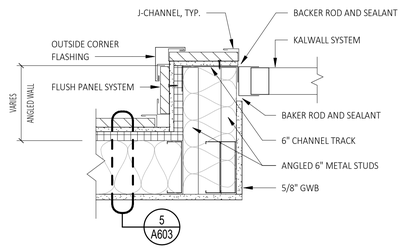
PLOT DATE: 12/19/2023 5:00:53 PM



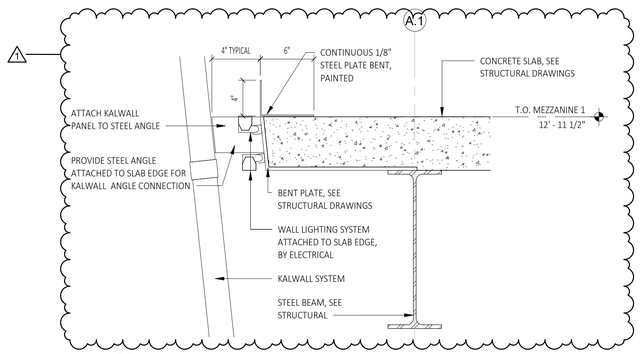
7 A602 **Roof Edge Detail**
SCALE: 1 1/2" = 1'-0"



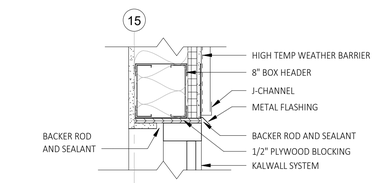
5 A602 **Mezzanine Exterior Edge Detail**
SCALE: 1 1/2" = 1'-0"



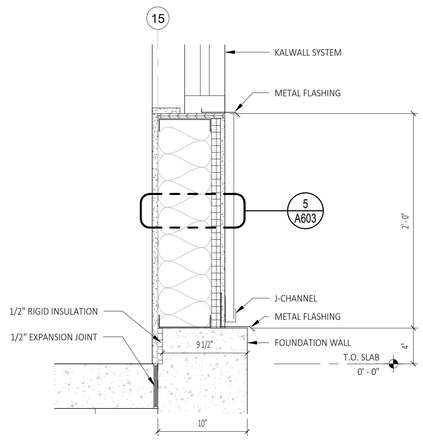
4 A602 **Wing Wall at Angled Kalwall**
SCALE: 1 1/2" = 1'-0"



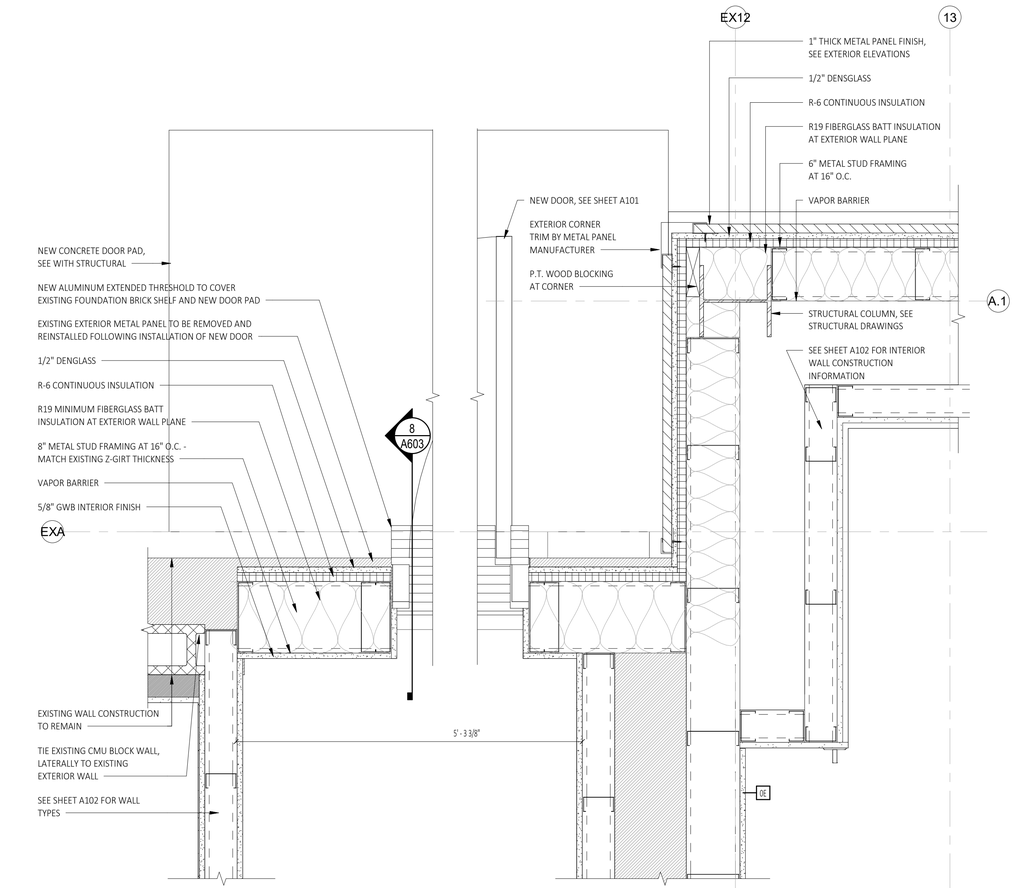
3 A602 **Detail at Mezzanine Slab to Kalwall**
SCALE: 1 1/2" = 1'-0"



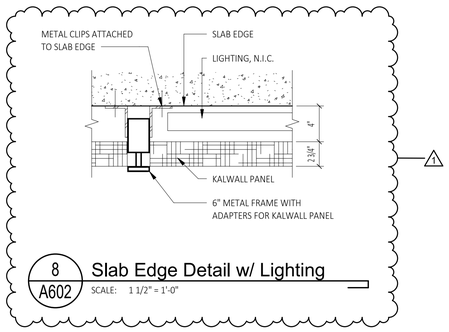
2 A602 **Detail at Kalwall Head**
SCALE: 1 1/2" = 1'-0"



1 A602 **Detail at Kalwall Sill**
SCALE: 1 1/2" = 1'-0"



6 A602 **Plan Detail at Door 122**
SCALE: 1 1/2" = 1'-0"



8 A602 **Slab Edge Detail w/ Lighting**
SCALE: 1 1/2" = 1'-0"

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Job No:	2237

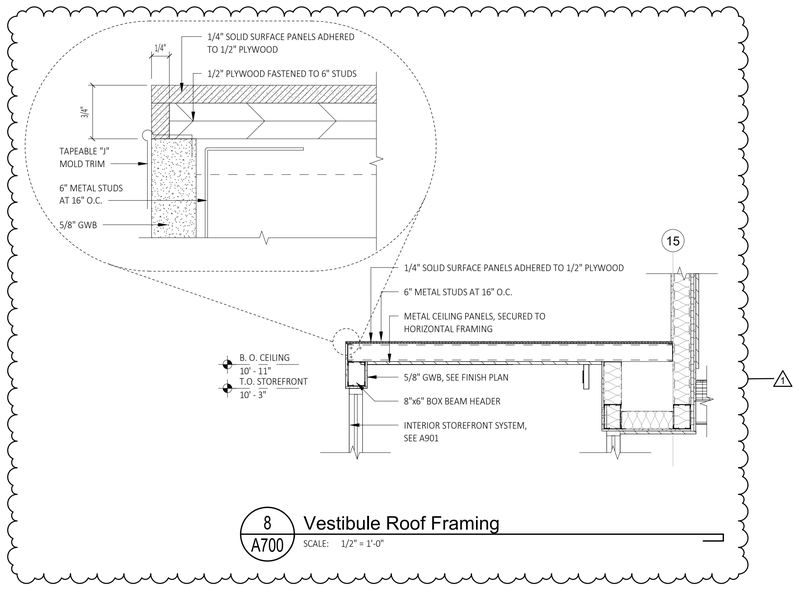
Sheet Title:
Exterior Details

Sheet Number:
A602

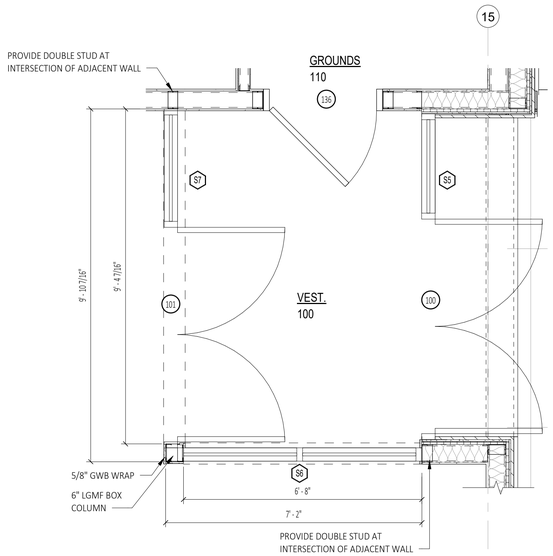
PLOT DATE: 12/19/2023 5:00:54 PM

Enlarged Floor Plan Keynote Legend	
601	36" X 36" TILED SHOWER UNIT, G.C. TO COORDINATE ALL PLUMBING WITH PLUMBING CONTRACTOR. PLUMBING CONTRACTOR TO PROVIDE HANDHELD SHOWER HEAD.
602	24" WIDE x 36" HIGH WALL MOUNTED MIRROR BY BOBRICK (B-290 2436). G.C. TO PROVIDE BLOCKING AS NECESSARY.
603	36" WIDE VANITY, G.C. TO COORDINATE ALL M.E.P. REQUIREMENTS WITH PLUMBING FIXTURE. REFERENCE DETAIL ON A605
604	NEW TOILET INSTALLED BY PLUMBING CONTRACTOR, G.C. TO COORDINATE LOCATION WITH PLUMBING DRAWINGS.
605	TOILET PAPER DISPENSOR, G.C. TO COORDINATE REQUIREMENT AND PROVIDE BLOCKING IN WALL WHERE REQUIRED.
606	ADA COMPLIANT GRAB BAR. G.C. TO PROVIDE BLOCKING AS REQUIRED.

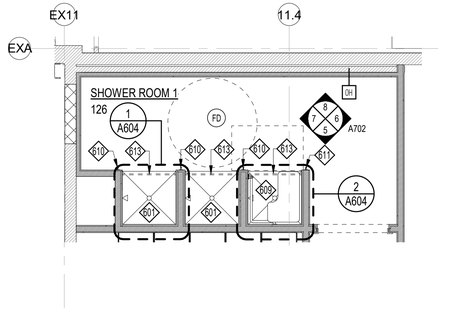
Enlarged Floor Plan Keynote Legend	
607	SANITARY NAPKIN DISPOSAL (WHERE SHOWN) G.C. TO PROVIDE BLOCKING IN WALL AS REQUIRED.
608	ADA COMPLIANT SOAP DISPENSOR. G.C. TO PROVIDE BLOCKING AS REQUIRED
609	36" X 36" ANSI A1117.1 COMPLAINT TILED SHOWER UNIT, G.C. TO COORDINATE ALL PLUMBING WITH PLUMBING CONTRACTOR. REFERENCE G201 FOR ADDITIONAL INFORMATION ON ADA REQUIREMENTS.
610	TOWEL HOOK MOUNTED 6' - 0" A.F.F., BRADLEY 9119-81, G.C. TO PROVIDE BLOCKING IN WALL AS REQUIRED.
611	TOWEL HOOK MOUNTED 3' - 6" A.F.F., BRADLEY 9119-81, G.C. TO PROVIDE BLOCKING IN WALL AS REQUIRED.
612	48"x 24" WABASH FLOOR MOUNTED ADA BENCH. FINISH TO BE BLACK PLASTISOL WITH BLACK POWDER COAT LEGS. MODEL #:SG2448-ADA
613	SHOWER ROD, BRADLEY 9538-060, SEE INTERIOR ELEVATIONS FOR MOUNTING HEIGHT



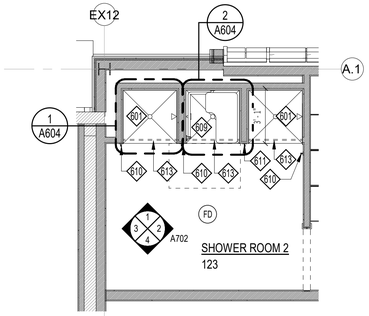
8 / A700 Vestibule Roof Framing
SCALE: 1/2" = 1'-0"



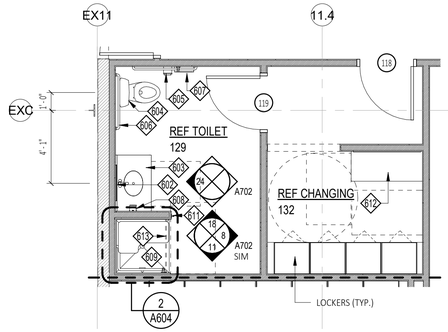
7 / A700 Enlarged Plan - Vestibule
SCALE: 1/2" = 1'-0"



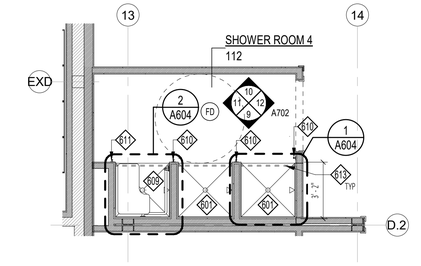
6 / A700 Enlarged Plan - Shower Room 1
SCALE: 1/4" = 1'-0"



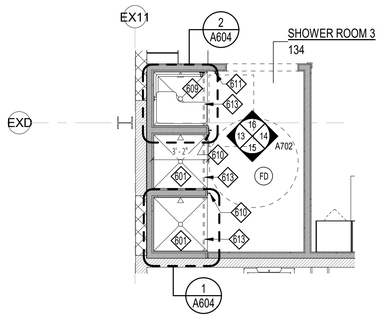
3 / A700 Enlarged Plan - Shower Room 2
SCALE: 1/4" = 1'-0"



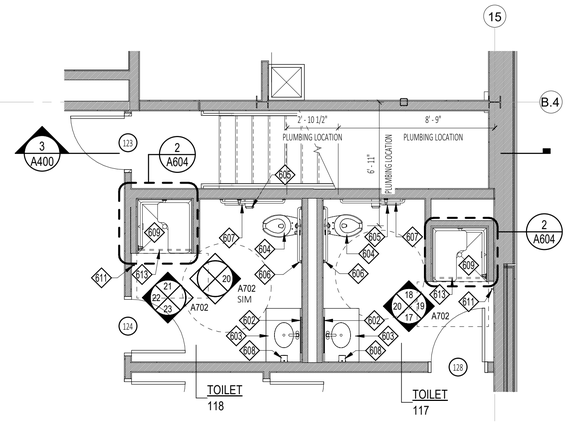
5 / A700 Enlarged Plan - Ref Area
SCALE: 1/4" = 1'-0"



2 / A700 Enlarged Plan - Shower Room 4
SCALE: 1/4" = 1'-0"



4 / A700 Enlarged Plan - Shower Room 3
SCALE: 1/4" = 1'-0"



1 / A700 Enlarged Plans - Single Toilet/Shower Rooms
SCALE: 1/4" = 1'-0"

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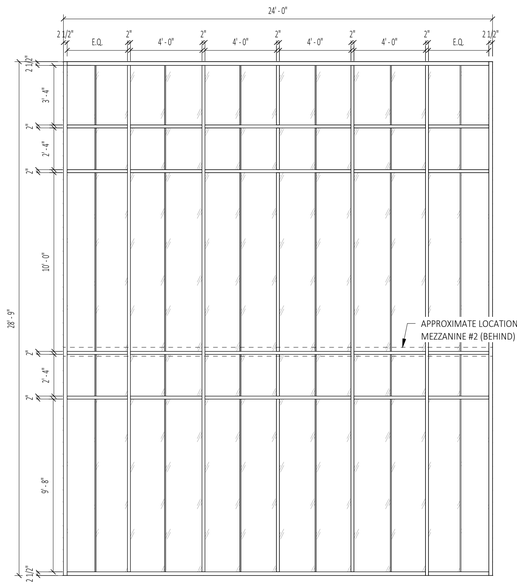
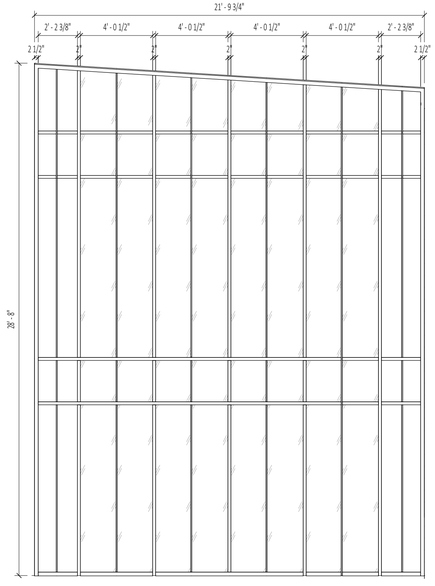
Job No:	2237
Sheet Title:	ENLARGED PLANS
Sheet Number:	A700

PLOT DATE: 12/19/2023 5:00:55 PM

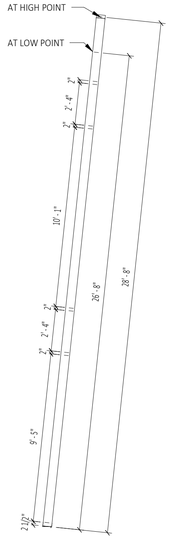
Kalwall Systems

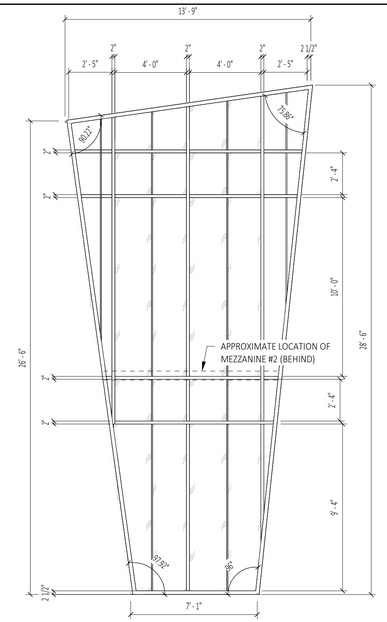


S1 KALWALL SYSTEM

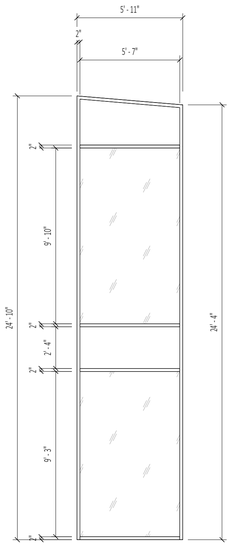


S2 KALWALL SYSTEM



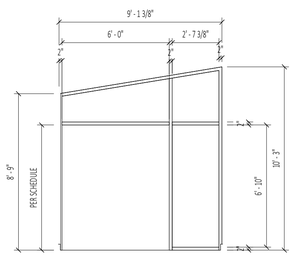


S3 KALWALL SYSTEM

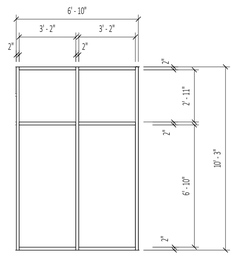


S4 KALWALL SYSTEM

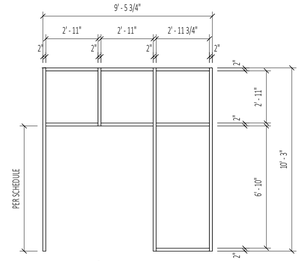
Storefront Types



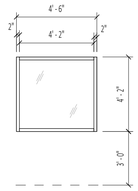
S5 STOREFRONT



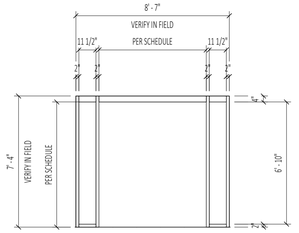
S6 STOREFRONT



S7 STOREFRONT



S8 STOREFRONT



S9 STOREFRONT

Storefront Specifications

STOREFRONT SPECIFICATION:

1. VERIFY ALL OPENINGS IN THE FIELD PRIOR TO ORDER AND FABRICATION
2. COMPONENT / GLAZING CALCULATIONS : THE GC SHALL HIRE A GLAZING SYSTEM ENGINEER TO PROVIDE ALL REQUIRED CALCULATIONS AS REQUIRED BY THE LOCAL AUTHORITIES AND FOR PERMIT
3. SEE SPECIFICATION SECTION FOR ADDITIONAL INFORMATION
4. **EXTERIOR STOREFRONT:**
   - A. FRAME SYSTEM TO BE 4 1/2" THERMALLY BROKEN FRAME SYSTEM
   - B. GLAZING TO BE 1" TEMPERED CLEAR, LOW-E, INSULATED
   - C. FRAME COLOR TO BE (INSERT)
   - D. AIR LEAKAGE SHALL COMPLY WITH 2018 IECC, C402.5
   - E. U-FACTORS:
     - a. FIXED FENESTRATION: 0.50
     - b. OPERABLE FENESTRATION: 0.65
     - c. ENTRANCE DOORS: 0.83
   - F. SHGC: 0.40
5. **INTERIOR STOREFRONT**
   - A. FRAME SYSTEM TO BE 4 1/2" ALUMINUM CENTERED GLAZING
   - B. GLAZING TO BE 1/4" CLEAR TEMPERED GLAZING

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Job No:	2237

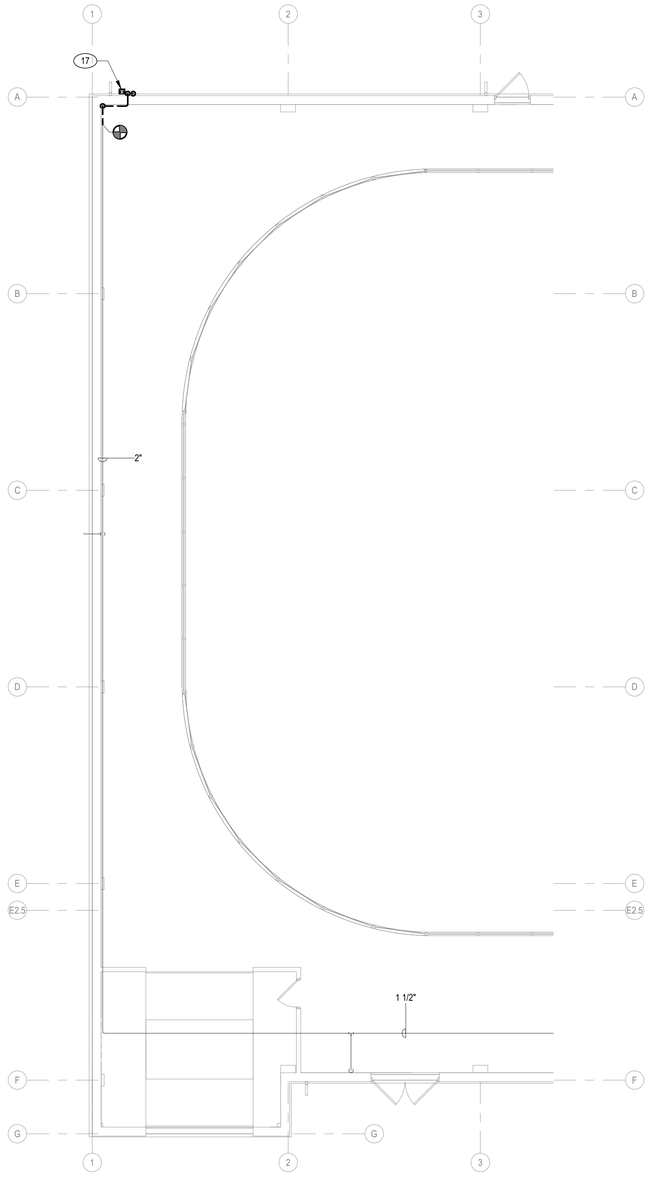
Sheet Title:

KALWALL AND STOREFRONT TYPES

Sheet Number:

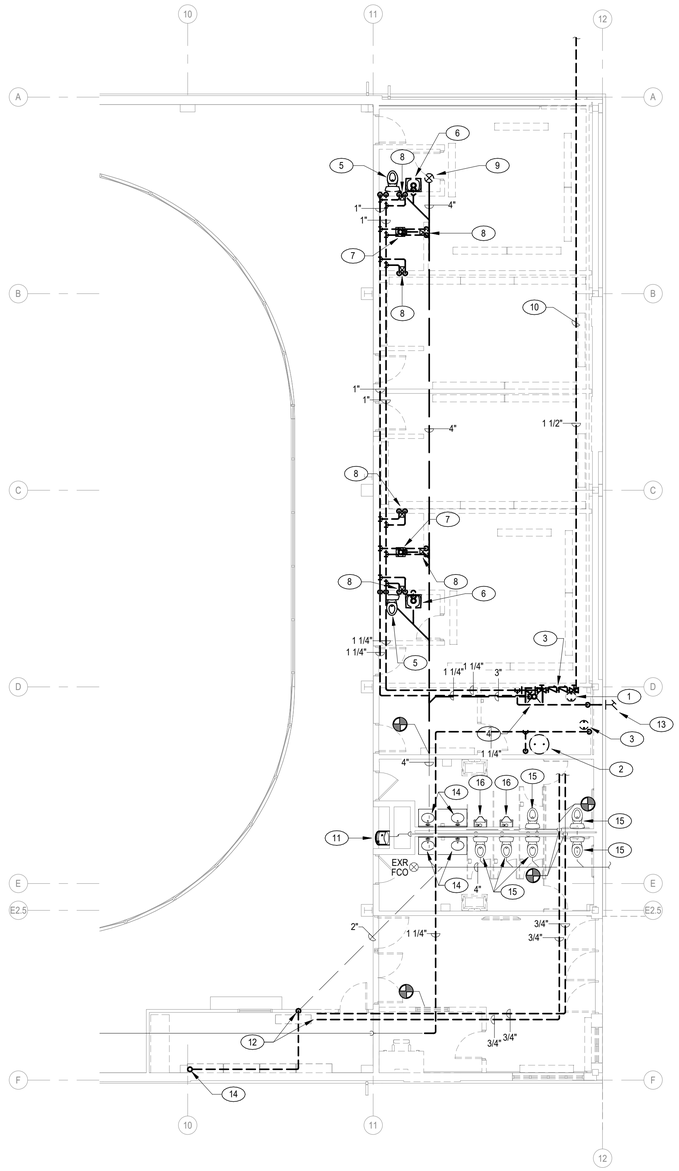
A901

PLOT DATE: 12/19/2023 5:00:56 PM



2 P201 First Floor Plumbing Removal Plan - Left

SCALE: 1/8" = 1'-0"



1 P201 First Floor Plumbing Removal Plan

SCALE: 1/8" = 1'-0"

REMOVAL NOTES:

1. REMOVE AND RETAIN WATER SOFTENER SYSTEM.
2. REMOVE WATER HEATER AND ALL ASSOSIATED DOMESTIC SUPPLY PIPING BACK TO LOCATIONS INDICATED. REMOVE GAS PIPING BACK TO LOCATION INDICATED.
3. DISCONNECT GAS FROM EXISTING BOILER. BOILTER RELOCATED BY MC.
4. REMOVE MOP SINK, FAUCET, STOPS & SUPPLY PIPING. REMOVE WASTE OUTLET VENT AND DRAINAGE PIPING BACK TO LOCATION INDICATED.
5. REMOVE TANK TYPE TOILET AND SUPPLY PIPING. REMOVE VENT PIPING BACK TO EXR VTR. REMOVE SANITARY PIPING BACK TO LOCATION INDICATED.
6. REMOVE LAVATORY, FAUCET, STOPS, AND SUPPLY PIPING. REMOVE VENT PIPING BACK TO EXR VTR. REMOVE DRAINAGE PIPING BACK TO LOCATION INDICATED.
7. REMOVE FLOOR DRAIN AND P-TRAP. REMOVE DRAINAGE PIPING BACK TO LOCATION INDICATED.
8. REMOVE SHOWER HEAD, MIXING VALVE AND ALL SUPPLY PIPING.
9. REMOVE FLOOR CLEANOUT.
10. REMOVE 1-1/2" WATER SERVICE. REMOVE 1-1/2" COLD WATER UNDERSLAB.COORDINATE WITH CIVIL PLANS.
11. REMOVE WATER COOLER. RETAIN EXISTING ROUGH-INS. TEMPORARILY CAP AS REQUIRED.
12. REMOVE ROUGH-INS FOR SINK. CAP AND ABANDON SANITARY BELOW FLOOR. REMOVE SUPPLY PIPING BACK TO LOCATIONS INDICATED.
13. REMOVE WALL HYDRANT.
14. REMOVE AND RETAIN LAVATORY. RETAIN EXISTING SUPPLY AND SANITARY ROUGH-INS FOR FUTURE RECONNECTION. TEMPORARILY CAP AS NEEDED.
15. REMOVE AND RETAIN WATER CLOSET. RETAIN EXISTING SUPPLY AND SANITARY ROUGH-INS FOR FUTURE RECONNECTION. TEMPORARILY CAP AS NEEDED.
16. REMOVE AND RETAIN URINAL. RETAIN EXISTING SUPPLY AND SANITARY ROUGH-INS FOR FUTURE RECONNECTION. TEMPORARILY CAP AS NEEDED.
17. REMOVE GAS PIPING AS INDICATED. COORDINATE GAS SERVICE UPGRADE WITH NATIONAL GRID.
18. REMOVE 3" VENT THROUGH ROOF.

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Tower Road Schenectady, NY 12302

BID DOCUMENTS

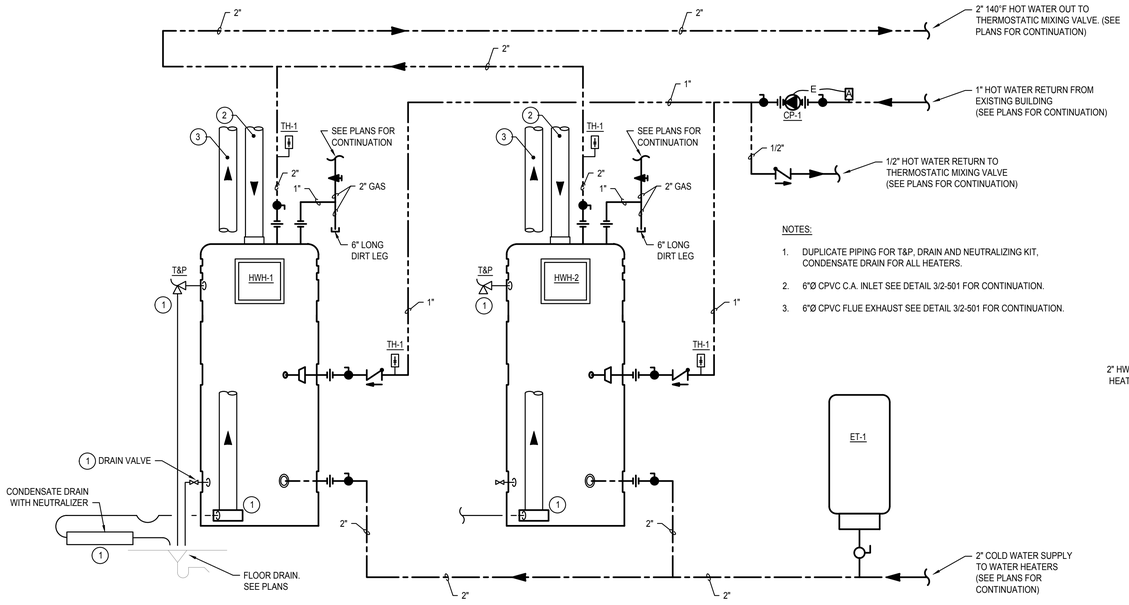
No.	REVISION #	DATE:
1	Addendum #5	12.19.2023

Drawn By:	C2 Architecture
Scale:	As Noted
Date:	11/15/2023
Job No:	2237

Sheet Title:
FIRST FLOOR AND MEZZANINE PLUMBING REMOVAL PLANS

Sheet Number:
P201

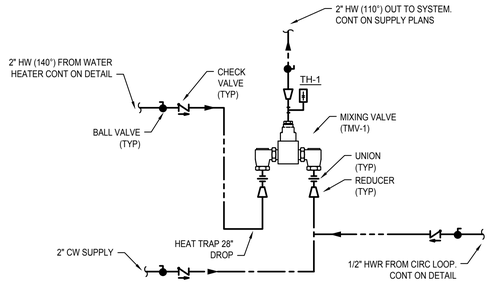
TRUE NORTH PROJECT NORTH



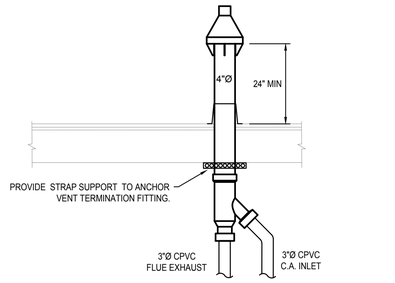
NOTES:

1. DUPLICATE PIPING FOR T&P, DRAIN AND NEUTRALIZING KIT, CONDENSATE DRAIN FOR ALL HEATERS.
2. 6"Ø CPVC C.A. INLET SEE DETAIL 3/2-501 FOR CONTINUATION.
3. 6"Ø CPVC FLUE EXHAUST SEE DETAIL 3/2-501 FOR CONTINUATION.

1 P700 WATER HEATER DIAGRAM
SCALE: NTS

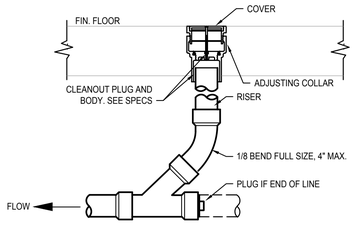


2 P700 THERMOSTATIC MIXING VALVE (TMV-1)
SCALE: NTS

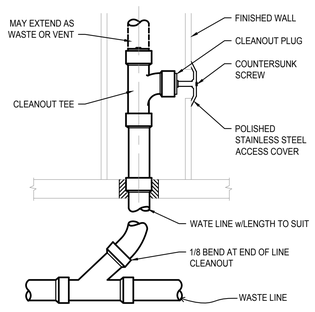


NOTES:
1. VENT TERMINATION AIR INLET SHALL BE INSTALLED A MIN OF 24" ABOVE ROOF.
2. VENT TERMINATION SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM ANY PARAPET, VERTICAL WALL OR STRUCTURE.

3 P700 CONCENTRIC VENT TERMINATION DIAGRAM
SCALE: NTS

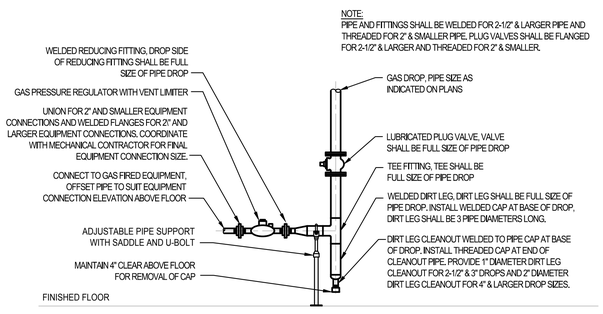


FLOOR CLEANOUT



WALL CLEANOUT

4 P700 CLEANOUT DETAILS
SCALE: NTS



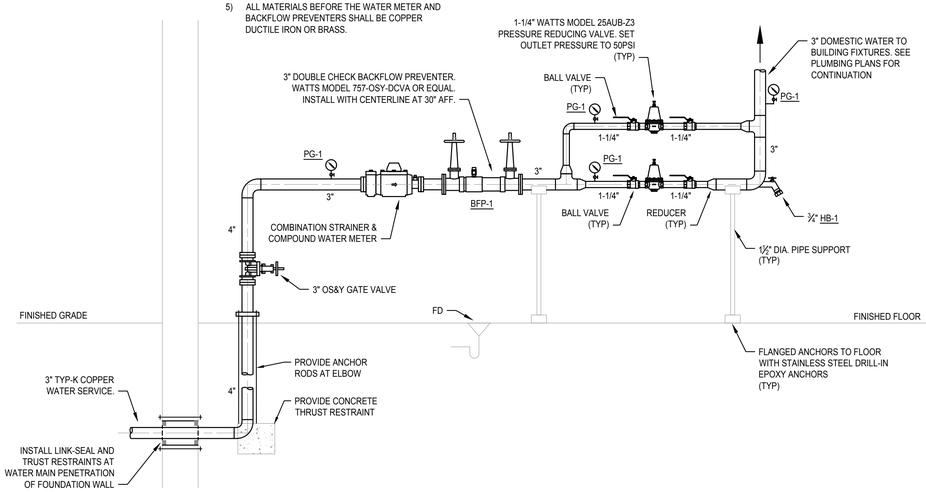
NOTE:
PIPE AND FITTINGS SHALL BE WELDED FOR 2-1/2" & LARGER PIPE AND THREADED FOR 2" & SMALLER PIPE. PLUG VALVES SHALL BE FLANGED FOR 2-1/2" & LARGER AND THREADED FOR 2" & SMALLER.

TYPICAL GAS DROP PIPING DETAIL (BOILERS & WATER HEATERS)
5 P700
SCALE: NTS

GENERAL NOTES:

1) THE 3" DOUBLE CHECK DEVICE SHOWN ON THIS DRAWING MEETS THE SYSTEMS PEAK DEMAND OF 75 GPM.
2) THIS DEVICE WILL BE INSTALLED AT A MINIMUM 1FT ABOVE THE 100 YEAR FLOOD PLAIN PER FEMA MAPS.
3) THIS ROOM WILL HAVE LIGHTING LEVELS THAT ARE ADEQUATE FOR TESTING AND MAINTENANCE OF BACKFLOW DEVICES.
4) THIS ROOM WILL HAVE ADEQUATE HEAT TO PREVENT FREEZING.
5) ALL MATERIALS BEFORE THE WATER METER AND BACKFLOW PREVENTERS SHALL BE COPPER DUCTILE IRON OR BRASS.

NOTES:
THE FOLLOWING CLEARANCES MUST BE MAINTAINED FOR THE WATER METER AND BACKFLOW PREVENTION ASSEMBLY:
- 30" CLEAR IN FRONT
- 8" FROM BACK WALL
- 12" CLEAR ABOVE AND AROUND



6 P700 WATER SERVICE DETAIL
SCALE: NTS

1

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Stamp:

Project:
ADDITIONS AND RENOVATIONS TO:
RAY WEMPLE MEMORIAL RINK
Tower Road Schenectady, NY 12302

BID DOCUMENTS

No.	REVISION #	DATE:
1	Addendum #5	12/19/23

Drawn By:	XX
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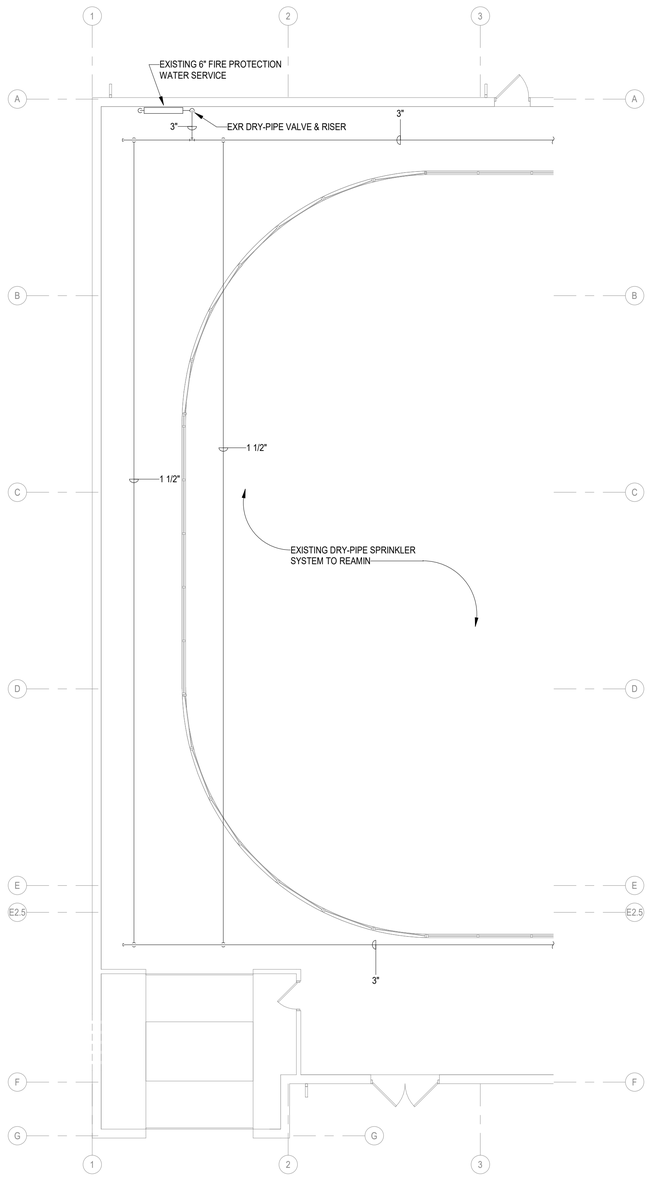
Sheet Title:
PLUMBING DETAILS

Sheet Number:
P700

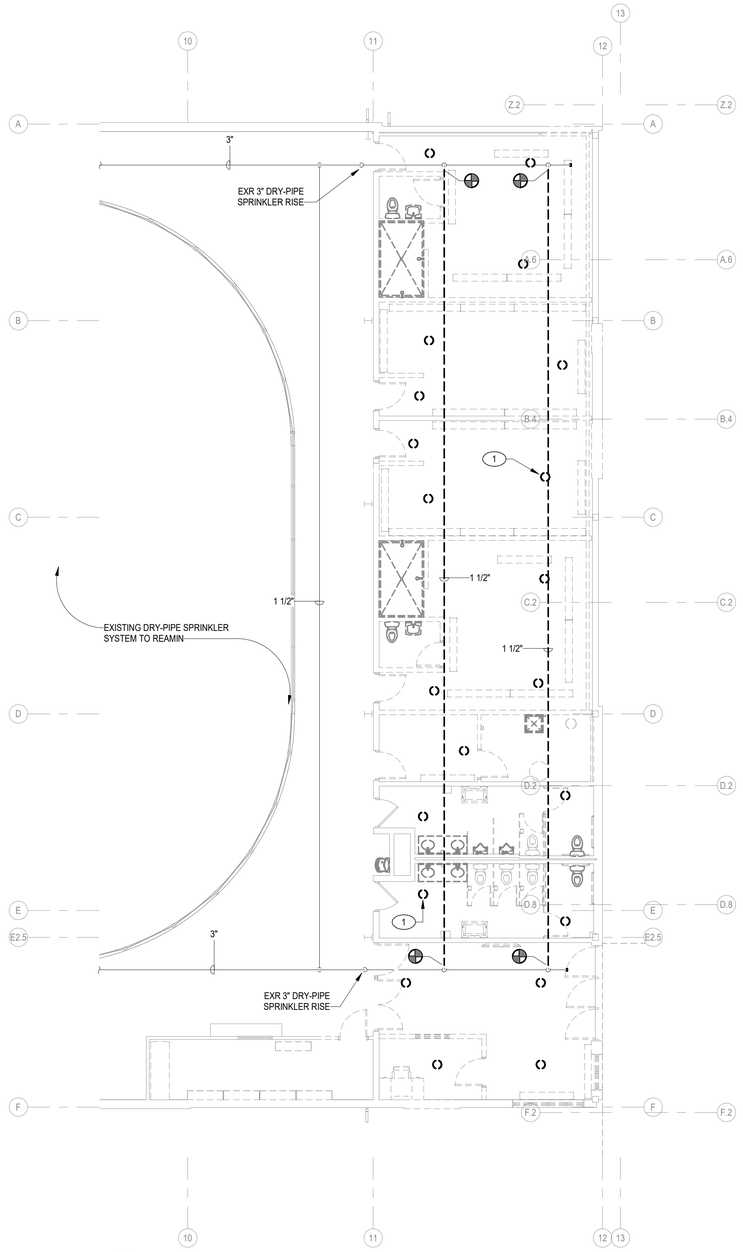
REMOVAL NOTES:

1. REMOVE SPRINKLER HEADS AND SPRINKLER PIPING BACK TO BRANCH PIPING AND CAP (TYPICAL).



2 FP201 First Floor Fire Protection Removal Plan - Left

SCALE: 1/8" = 1'-0"



1 FP201 First Floor Fire Protection Removal Plan

SCALE: 1/8" = 1'-0"

TRUE NORTH

PROJECT NORTH

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Sheet Title:

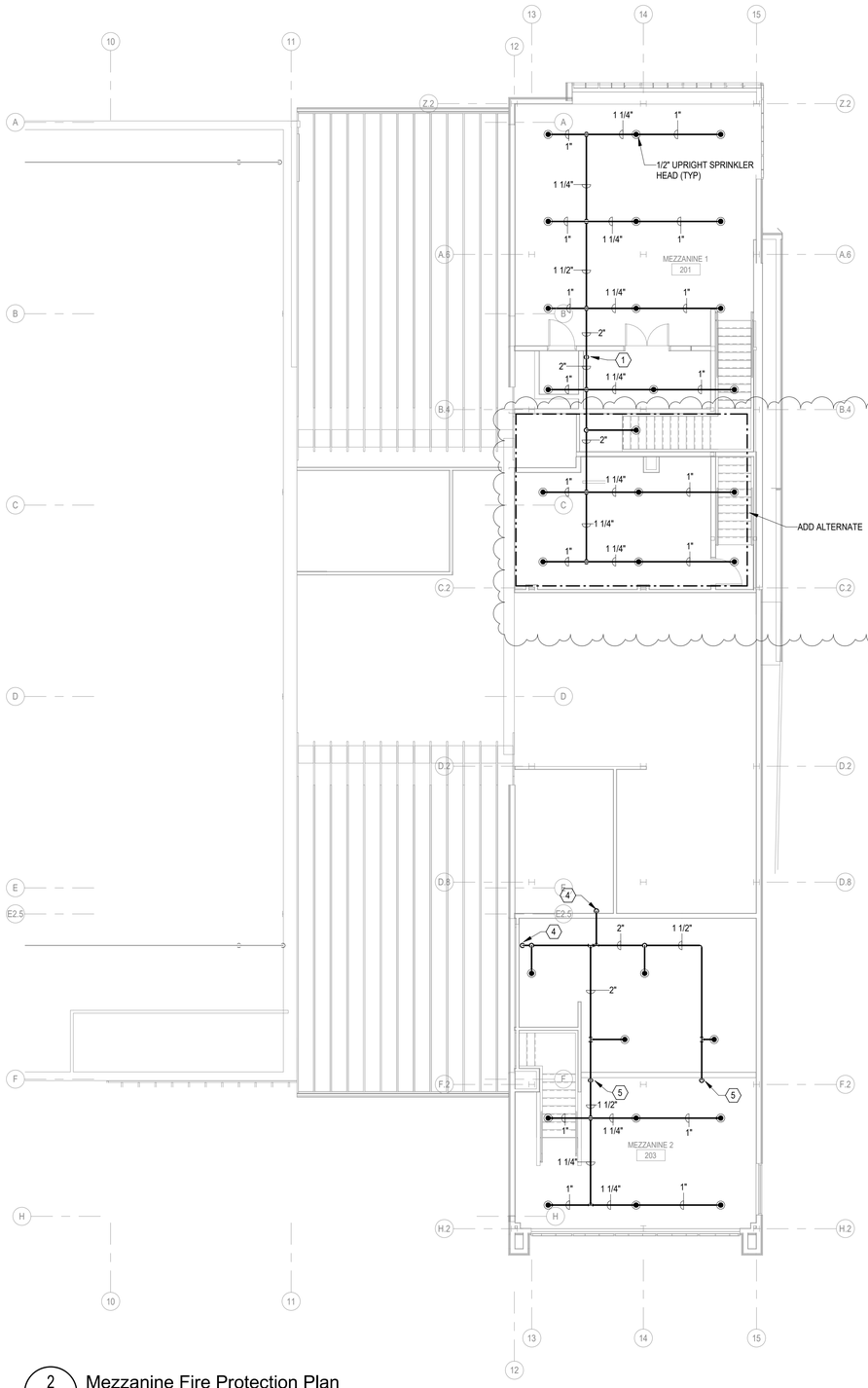
FIRST FLOOR FIRE PROTECTION REMOVALS

Sheet Number:

FP201

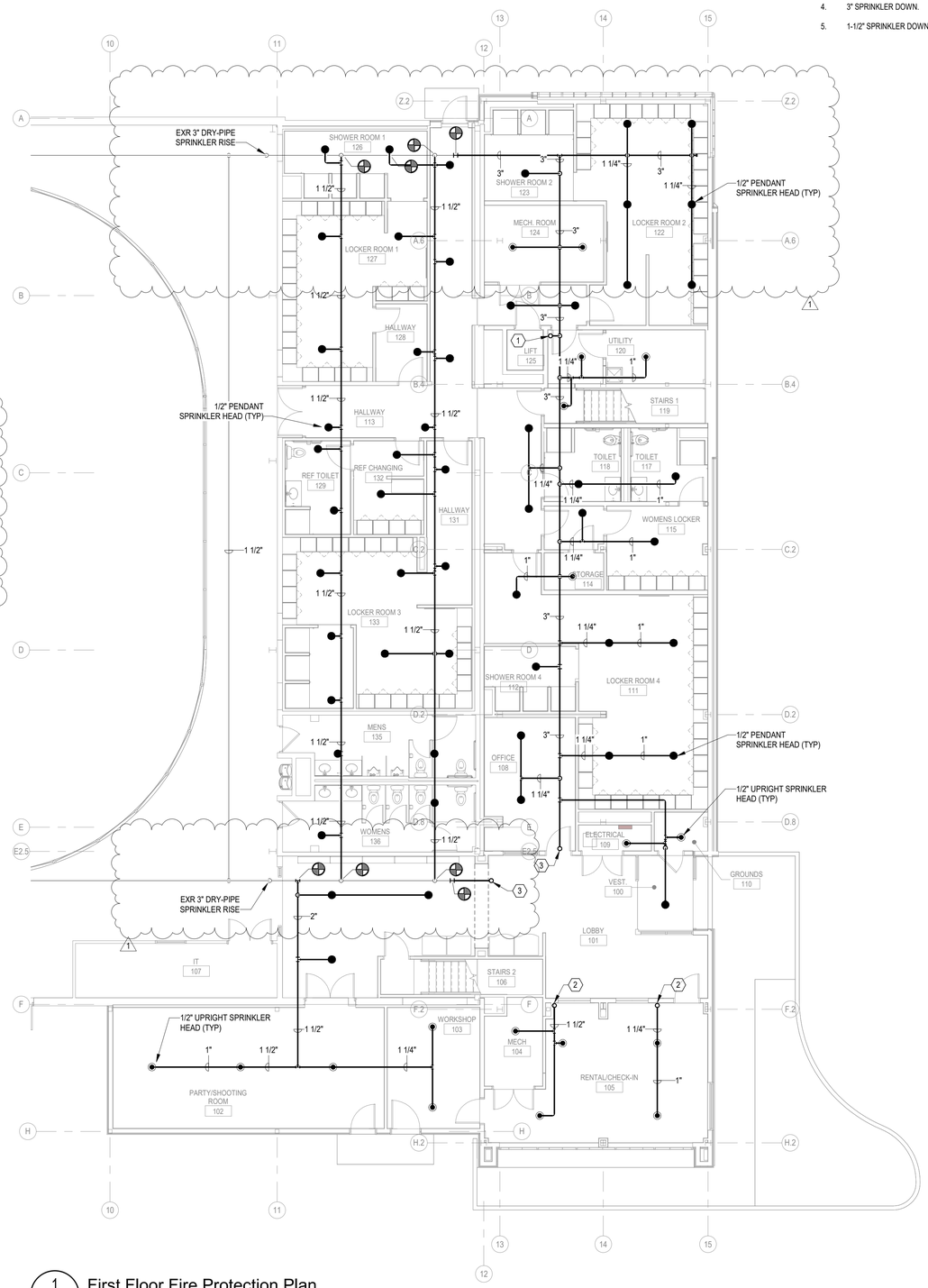
DRAWING NOTES:

1. 2-1/2" SPRINKLER UP.
2. 1-1/2" SPRINKLER UP.
3. 3" SPRINKLER DOWN.
4. 3" SPRINKLER DOWN.
5. 1-1/2" SPRINKLER DOWN.



2 FP301 Mezzanine Fire Protection Plan

SCALE: 1/8" = 1'-0"



1 FP301 First Floor Fire Protection Plan

SCALE: 1/8" = 1'-0"

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FIRST FLOOR AND MEZZANINE FIRE PROTECTION PLANS

Sheet Number:

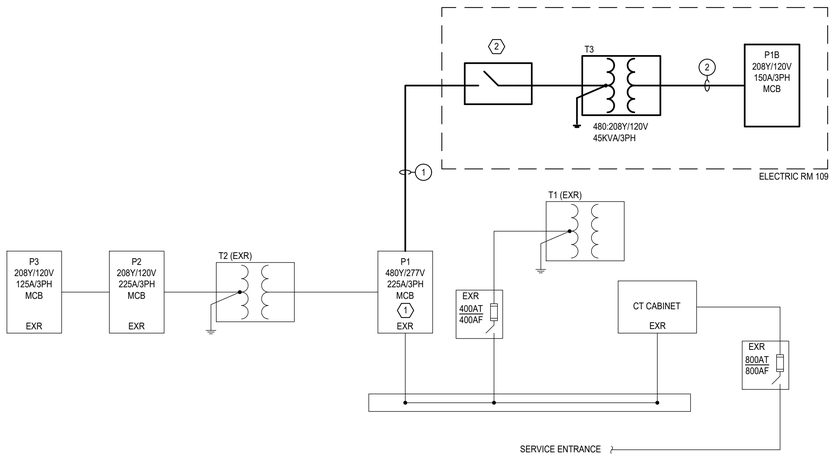
FP301

DRAWING NOTES: ⬡

1. PROVIDE 70A/3P CIRCUIT BREAKER IN SPACE OF EXISTING ELECTRICAL PANEL (GE A SERIES).
2. PROVIDE 480V/3PH 100A NON-FUSED DISCONNECT SWITCH NEMA 1.

FEEDER SCHEDULE

DESIGNATION	SOURCE	LOAD	OCPD	PHASE	NEUTRAL	GROUND	CONDUIT	NOTES
①	P1	T3	70	(3) #4	-	(1) #8	1 1/2"	
②	T3	P1B	150	(3) #1/0	(1) #1/0	(1) #6	1 1/2"	



1 ELECTRICAL ONE LINE DIAGRAM
NTS

ELECTRIC EQUIPMENT AND CONTROL SCHEDULE

	EQUIPMENT						SUPPLY				DISCONNECT			CONTROLS			
ITEM NO.	NAME	ROOM LOCATION	HP	KW	Ø	VOLTS	PANEL OR CONTROL CENTER	CIRCUIT BREAKER	WIRING FROM PANEL TO CONTROL UNIT	WIRING FROM CONTROL UNIT TO EQUIPMENT	AMPS	FUSE SIZE	NEMA RATING	MOTOR STARTER/ CONTROLLER NOTES	CONTROLLER LOCATION	NEMA RATING	NOTES
1	ELEVATOR	MECH RM. CORRIDOR	1/2	0.5	1	120	P-1B	20A/1P	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	20	20	1	10	AU	1	-
2	CH-1	LOCKERS CORR.	1/15	0.1	1	120	P-1B	15A/1P	(2) #12 & (1) #12G IN 3/4"C	-	-	-	-	10	AU	1	-
3	CH-2	RINK/LOCKERS CORR.	1/15	0.1	1	120	P-1B	15A/1P	(2) #12 & (1) #12G IN 3/4"C	-	-	-	-	10	AU	1	-
4	CH-3	VESTIBULE	1/15	0.1	1	120	P-1B	15A/1P	(2) #12 & (1) #12G IN 3/4"C	-	-	-	-	10	AU	1	-
5	CH-4	LOCKER 1 SHOWERS	1/15	0.1	1	120	P-1B	15A/1P	(2) #12 & (1) #12G IN 3/4"C	-	-	-	-	10	AU	1	-
6	CH-5	LOCKER 2 SHOWERS	1/15	0.1	1	120	P-1B	15A/1P	(2) #12 & (1) #12G IN 3/4"C	-	-	-	-	10	AU	1	-
7	EF-1	UTILITY 120	1/60	0.1	1	115	P-1B	15A/1P	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	-	-	-	1	UTILITY 120	1	-
8	EF-2	ROOF	3	3.8	3	208	P-1B	20A/3P	(3) #12 & (1) #12G IN 3/4"C	-	-	-	-	10	AU	3R	-
9	FC-1	MECH 104	-	2.1	1	120	P-1B	25A/2P	(2) #10 & (1) #10G IN 1"C	-	-	-	-	10	AU	1	1
10	ET-1	MECH RM	1/3	0.1	1	120	P-1B	15A/1P	(2) #12 & (1) #12G IN 3/4"C	-	-	-	-	1	AU	1	-
11	AHU-1	MECH 153	3	3.4	3	208	P-1B	15A/3P	(3) #12 & (1) #12G IN 3/4"C	-	-	-	-	10,16	AU	1	-
12	HWH-1	MECH 124	-	0.1	1	120	P-1B	20A/1P	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	-	-	-	1	AU	1	-
13	CP-1	MECH 124	1/40	0.1	1	120	P-1B	15A/1P	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	-	-	-	1	AU	1	-
14	B-1	MECH 124	-	0.1	1	120	P-1B	20A/1P	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	-	-	-	1	AU	1	2
15	B-2	MECH 124	-	0.1	1	120	P-1B	20A/1P	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	-	-	-	1	AU	1	-
16	BP-1	MECH 124	-	0.1	1	120	B-1	-	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	-	-	-	1	AU	1	-
17	BP-2	MECH 124	-	0.1	1	120	B-2	-	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	-	-	-	1	AU	1	-
18	P-1	MECH 124	2	2.7	1	208	P-1B	20A/2P	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	-	-	-	1,17	AU	1	-
19	P-1A	MECH 124	2	2.7	1	208	P-1B	20A/2P	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	-	-	-	1,17	AU	1	-
20	UH-1	MECH 124	1/25	0.1	1	120	P-1B	15A/1P	(2) #12 & (1) #12G IN 3/4"C	-	-	-	-	10	AU	1	-
21	HWH-2	MECH 124	-	0.1	1	120	P-1B	20A/1P	(2) #12 & (1) #12G IN 3/4"C	(2) #12 & (1) #12G IN 3/4"C	-	-	-	1	AU	1	-

ELECTRIC EQUIPMENT AND CONTROL SCHEDULE GENERAL NOTES:

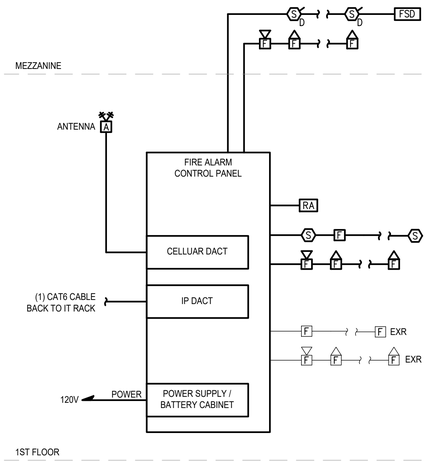
A. ALL CONTROL EQUIPMENT PROVIDED BY THE DIVISION 26 CONTRACTOR UNLESS OTHERWISE NOTED.
B. ITEM NUMBER INDICATES EQUIPMENT NUMBER.
C. ALL CONTROL DEVICES TO BE SURFACE MOUNTED UNLESS OTHERWISE NOTED.
D. PROVIDE OVERLOADS, SIZE AS REQUIRED BY DIVISION 23 CONTRACTOR.
E. "AU" INDICATES CONTROL DEVICE LOCATED AT UNIT.
F. "NF" INDICATES NON-FUSED.
G. WHERE CONTROLS ARE LOCATED REMOTE FROM MOTOR PROVIDE DISCONNECT AND MOTOR IN ADDITION TO CONTROLS.
H. WHERE DISCONNECT SIZES ARE INDICATED PROVIDE DISCONNECT.
I. WHERE VFD'S ARE REMOTE FROM MOTOR PROVIDE DISCONNECT WITH AUXILARY CONTACTS FOR INTERLOCK OF VFD AND DISCONNECT.

MOTOR STARTER/CONTROLLER NOTES:

1. MOTOR RATED SWITCH.
2. MANUAL MOTOR STARTER.
3. MANUAL MOTOR STARTER WITH RELAY.
4. MAGNETIC STARTER.
5. COMBINATION MAGNETIC STARTER.
6. VARIABLE FREQUENCY DRIVE. FURNISHED BY MC, INSTALLED BY EC.
7. COMBINATION TWO SPEED MAGNETIC STARTER. FURNISHED BY MC, INSTALLED BY EC.
8. COMBINATION REDUCED VOLTAGE MAGNETIC STARTER.
9. DUPLEX CONTROLLER WITH ALTERNATION CIRCUIT.
10. PACKAGED CONTROL UNIT.
11. H-O-A SELECTOR SWITCH IN COVER.
12. PILOT LIGHT IN COVER.
13. REMOTE START-STOP PUSHBUTTONS.
14. DUPLEX RECEPTACLE.
15. INSTALL H.C. FURNISHED LINE-VOLTAGE THERMOSTAT.
16. PROVIDE FAN SHUTDOWN RELAY AND CONNECT TO FACP FOR SHUTDOWN ON BUILDING ALARM.
17. ECM MOTOR CONNECTION.

NOTES:

1. EC TO WIRE CONDENSATE PUMP, UTILIZE 120V/1PH 20A CIRCUIT IN AREA.
2. PROVIDE EMERGENCY PUSH BUTTON FOR BOILER SHUT DOWN, REFER TO DETAIL 5/E601 FOR ADDITIONAL REQUIREMENTS.



GENERAL NOTES:

A. DRAWING IS SCHEMATIC ONLY.
B. REFER TO FLOOR PLANS FOR QUANTITIES.
C. FINAL WIRING REQUIREMENT WILL BE AS REQUIRED BY SIMPLEX.
D. INCLUDE ALL PROGRAMMING AND COMMISSIONING.
E. REFER TO PHASING PLANS. PROVIDE TEMPORARY CONNECTIONS TO THE EXISTING SYSTEM TO MAINTAIN SYSTEM THROUGHOUT CONSTRUCTION.
F. PROVIDE TEMPORARY HEAT DETECTORS IN ALL CONSTRUCTION AREAS.
G. CONTRACTOR TO CONNECT ANY EXISTING DEVICES NOT SUBJECT FOR REPLACEMENT TO NEW FACP.
H. CONTRACTOR TO ACQUIRE ALL FA DEVICES FROM SIMPLEX (KARL BACH - KARL.BACH@JCI.COM

2 FIRE ALARM RISER DIAGRAM
NTS

PANELBOARD SCHEDULE - P1B

LOCATION – ELECTRIC RM | SOURCE – T3 | MOUNTING – SURFACE | SE RATED ☐ FEED-THRU LUGS ☐
RATING (AMPS) – 150A MCB | VOLTAGE – 120/208V | PHASE/WIRE – 3-PHASE/4-WIRE | HINGED TRIM ☒ SUB FEED LUGS ☐
KAIC – 10 | DESIGN MAKE – EATON PRL1a | NEMA RATING – 1 | COMPUTER GRADE ☐ SUB-FEED BREAKER ☐ 200% NEUTRAL ☐ ISOLATED GND BUS ☐

CKT	DESCRIPTION	BREAKER	KVA LTG	KVA RCPT	KVA MOTOR	KVA HTG	KVA HTG	KVA MOTOR	KVA RCPT	KVA LTG	BREAKER	DESCRIPTION	CKT
1	LTG - 1ST FLOOR, LOBBY, MEZZANINE 2	20A/1P	1.2						1.1	1.2	20A/1P	LTG - LOCKERS 3,4	2
3	LTG - LOCKERS 1,2	20A/1P	0.8						0.4		20A/1P	RCPTS - PARTY/SHOOTING RM	4
5	RCPTS - WORKSHOP/MECH 104	20A/1P		0.9					1.4		20A/1P	RCPTS - RENTAL/CHECK-IN	6
7	RCPTS - GROUNDS/ELEC RM	20A/1P		0.5					0.4		20A/1P	RCPT - RINK RESTROOMS	8
9	FACP	20A/1P							0.2		20A/1P	RCPT - RINK WATER FOUNTAINS	10
11	RCPT - OUTDOOR GFI	20A/1P							0.2		20A/1P	LOBBY VENDING MACHINE	12
13	RCPTS - LOBBY,OFFICE	20A/1P		1.3					0.2		20A/1P	LOBBY VENDING MACHINE	14
15	RCPTS - MECH 124,CORRIDOR	20A/1P		1.1					0.2		20A/1P	LOBBY VENDING MACHINE	16
17	RCPTS - OUTDOOR GFI	20A/1P		0.4					0.2		20A/1P	LOBBY VENDING MACHINE	18
19	RCPT - LOCKER RM 4,STORAGE	20A/1P		0.5					0.2		20A/1P	RCPTS - WOMENS LOCKER, TOILETS	20
21	RCPTS - LOCKER RM 3,REF CHANGING/TOILET	20A/1P		1.3					0.7		20A/1P	RCPTS - MEZZANINES 1 & 3	22
23	RCPTS - LOCKER RM 2,UTILITY	20A/1P		0.7					0.7		20A/1P	RCPTS - MEZZANINE 2	24
25	RCPTS - LOCKER RM 1	20A/1P		0.7				0.5			20A/1P	ELEVATOR	26
27	EXTERIOR SIGN LITE	20A/1P						0.1			15A/1P	EF-1	28
29	CH-1, CH-2, CH-3	20A/1P				0.3							30
31	CH-1, CH-2, CH-3	20A/1P				0.2		3.8			20A/3P	EF-2	32
33	ET-1	15A/1P			0.1								34
35													36
37	AHU-1	15A/3P			3.4			2.1			25A/2P	FC-1	38
39							0.1				20A/1P	HWH-1	40
41	B-1	15A/1P			0.1			0.1			15A/1P	CP-1	42
43	P-1	20A/2P			2.7			2.7			20A/2P	P-1A	44
45													46
47	EV CHARGER	40A/2P			6.0					1.3	20A/2P	EXTERIOR LIGHTING	48
49													50
51	EV CHARGER	40A/2P			6.0						20A/1P	RELOCATED LOAD	52
53								0.1			25A/2P	MAU-2	54
55	LTG - MEZZANINE 1, MEZZANINE 3	20A/1P	1.1								20A/1P	NORTH RGB LTG POWER BOX	56
57	SPARE	20A/1P									20A/1P	SOUTH RGB LTG POWER BOX	58
59	SPARE	20A/1P									20A/1P	SPARE	60
LEFT SIDE SUB-TOTAL			3.1	7.4	18.3	0.5	0.1	9.4	5.5	2.5	RIGHT SIDE SUB-TOTAL		
CONNECTED SUB-TOTAL			5.6	12.9	27.7	0.6							
DEMAND FACTOR			1	10+1/2	0.8	0.8							
DEMAND SUBTOTAL			5.6	11.5	22.2	0.5							
TOTAL KVA			39.7										
TOTAL AMPS			110.2										

1

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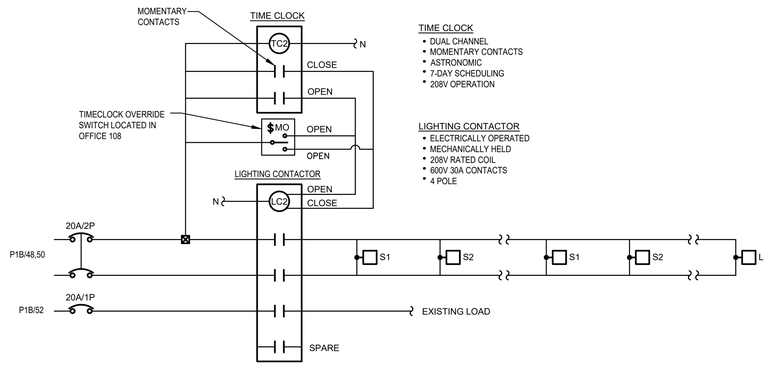
No.	REVISION #	DATE:
#1	ADDENDUM #5	12.18.2023

Drawn By: MS
Scale: As Noted
Date: 11/15/2023
Job No: 2237

Sheet Title:
ONE LINE DIAGRAM, FIRE ALARM RISER & SCHEDULES

Sheet Number:
E002



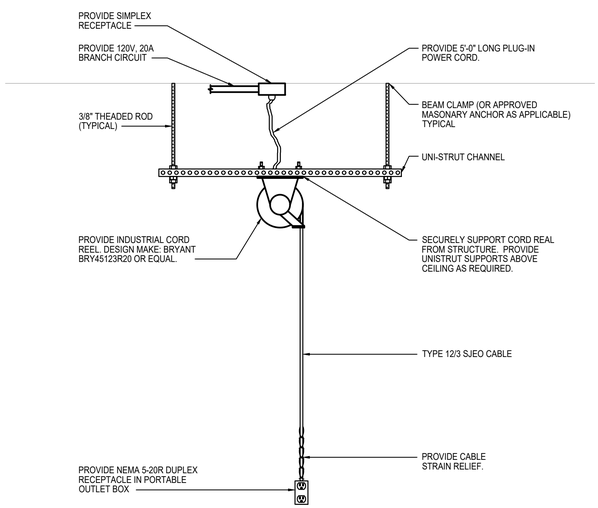
1 SITE LIGHTING CONTROL DETAIL

SCALE: NTS

NOTES

A. INSTALL IN FULL COMPLIANCE WITH MANUFACTURE'S INSTALLATION INSTRUCTIONS.

B. COORDINATE FINAL LOCATIONS WITH OWNER.



2 CORD REEL RECEPTACLE DETAIL (EXPOSED STRUCTURE)

SCALE: NTS

LIGHTING FIXTURE SCHEDULE

DESIGNATION	DIMENSIONS	TYPE	CONSTRUCTION	REFLECTOR/ BAFFLE	LENS	LIGHT SOURCE/LAMP	LUMENS	COLOR TEMPERATURE	BALLAST DRIVER	VOLTAGE	FIXTURE WATTAGE	MOUNTING/ CEILING TYPE	DESIGN MAKE	ACCEPTABLE MANUFACTURERS	NOTES
A	1'W X 4'L	1' X 4' LINEAR FIXTURE	ALUMINUM HOUSING	-	PLASTIC	LED	5600	4000K	0-10V DIM	UNV	54W	PENDANT	VISION "VPF8" SERIES	HUBBEL SIGNIFY COOPER	2
B	4' LENGTH	4' LINEAR STRIP FIXTURE WITH SWITCHABLE CCT	STEEL HOUSING	-	ACRYLIC	LED	4200	4000K	0-10V DIM	UNV	37W	SURFACE	LITHONIA "CSS" SERIES	HUBBEL SIGNIFY COOPER	-
C	2'W X 4'L	2' X 4' RECESSED PANEL WITH SWITCHABLE CCT	ALUMINUM HOUSING	-	ACRYLIC	LED	4500	3500K	0-10V DIM	UNV	39W	RECESSED	LITHONIA "CPX" SERIES	HUBBEL SIGNIFY COOPER	-
D	6" DIA.	6" DIA. ROUND DOWNLIGHT WITH SWITCHABLE CCT	STEEL HOUSING	-	-	LED	1000	3000K	0-10V DIM	UNV	14W	RECESSED	ACUITY "JPDZ" SERIES	HUBBEL SIGNIFY COOPER	-
F	2' LENGTH	2' BI-LEVEL LINEAR FIXTURE	STEEL HOUSING	-	ACRYLIC	LED	2100	3000K	0-10V DIM	UNV	20W	SURFACE/ WALL	MERCURY "L455" SERIES	HUBBEL SIGNIFY COOPER	-
G1	16' LENGTH	16' LINEAR PENDANT WITH DIRECT/INDIRECT LENS	ALUMINUM HOUSING	-	-	LED	1000 LMS/FT UP /750 LMS/FT DN	3500K	0-10V DIM	UNV	228W	PENDANT	STARTEK "BEAM" SERIES	HUBBEL SIGNIFY COOPER	1
G2	8' LENGTH	8' LINEAR PENDANT WITH DIRECT LENS	ALUMINUM HOUSING	-	-	LED	500	3500K	0-10V DIM	UNV	100W	PENDANT	STARTEK "BEAM" SERIES	HUBBEL SIGNIFY COOPER	-
G3	6' LENGTH	6' LINEAR PENDANT WITH DIRECT LENS	ALUMINUM HOUSING	-	-	LED	500	3500K	0-10V DIM	UNV	57W	PENDANT	STARTEK "BEAM" SERIES	HUBBEL SIGNIFY COOPER	-
H	1'W X 4'L	1' X 4' RECESSED PANEL WITH SWITCHABLE CCT	ALUMINUM HOUSING	-	ACRYLIC	LED	5750	3500K	0-10V DIM	UNV	40W	RECESSED	NEW STAR "NST" SERIES	HUBBEL SIGNIFY COOPER	-
J	4' LENGTH	4' LINEAR PENDANT FIXTURE	ALUMINUM HOUSING	-	ACRYLIC	LED	2500	3500K	0-10V DIM	UNV	21W	PENDANT	STARTEK "BEAM" SERIES	HUBBEL SIGNIFY COOPER	-
K	12' LENGTH	12' LINEAR FIXTURE	ALUMINUM HOUSING	-	POLYCARBONATE	LED	9000	3500K	0-10V DIM	UNV	108W	SURFACE	STARTEK "HYDROD" SERIES	HUBBEL SIGNIFY COOPER	2,6
L	4' LENGTH	4' LINEAR FIXTURE	ALUMINUM HOUSING	-	POLYCARBONATE	LED	2000	3500K	0-10V DIM	UNV	17W	RECESSED	STARTEK "RBEAM" SERIES	HUBBEL SIGNIFY COOPER	-
M	1'L X 1 1/2"W	1' LENGTH RGBW FIXTURE	ALUMINUM HOUSING	15° X 30° DISTRIBUTION	ACRYLIC	LED	400	RGBW	DMX	UNV	16W	MULLION MOUNTED	MARK "MARKLINE 101" SERIES	HUBBEL SIGNIFY COOPER	7
WL1	6"W X 36"L X 2"H	36"L VANDAL RESISTANT WALL PACK FIXTURE	ALUMINUM HOUSING	-	-	LED	2900	4000K	0-10V DIM	UNV	24W	WALL MOUNTED	LITHONIA "WPX1" SERIES	HUBBEL SIGNIFY COOPER	2,6
S1	14"W X 26"L X 7"H	EXTERIOR LIGHT FIXTURE	ALUMINUM HOUSING	TYPE 4 BACKLIGHT DISTRIBUTION	SILICONE	LED	7300	3000K	0-10V DIM	UNV	93W	POLE MOUNTED	LITHONIA "DSX0" SERIES	HUBBEL SIGNIFY COOPER	2,4
S2	14"W X 26"L X 7"H	EXTERIOR LIGHT FIXTURE	ALUMINUM HOUSING	TYPE 3 BACKLIGHT DISTRIBUTION	SILICONE	LED	7000	3000K	0-10V DIM	UNV	93W	POLE MOUNTED	LITHONIA "DSX0" SERIES	HUBBEL SIGNIFY COOPER	2,4
S3	14"W X 26"L X 7"H	EXTERIOR LIGHT FIXTURE	ALUMINUM HOUSING	MEDIUM FORWARD THROW DISTRIBUTION	SILICONE	LED	9900	3000K	0-10V DIM	UNV	93W	WALL MOUNTED	LITHONIA "DSX0" SERIES	HUBBEL SIGNIFY COOPER	2,5
EM	4"W X 12"L X 6"H	EMERGENCY LIGHT FIXTURE	THERMOPLASTIC HOUSING	-	-	LED	-	-	-	UNV	3W	SURFACE/ WALL	ISOLITE "BUG" SERIES	HUBBEL SIGNIFY COOPER	-
X1	2"W X 12"L X 8"H	EXIT SIGN WITH REMOTE HEAD CAPABILITY	THERMOPLASTIC HOUSING WITH NICAD BATTERY BACKUP	-	-	LED	-	RED	-	UNV	1W	UNIVERSAL	ISOLITE "TL2" SERIES	HUBBEL SIGNIFY COOPER	3
X2	2"W X 12"L X 8"H	EXIT SIGN	ALUMINUM AND CLEAR ACRYLIC HOUSING WITH NICAD BATTERY BACKUP	-	-	LED	-	RED	-	UNV	1W	UNIVERSAL	ISOLITE "ELTMR2" SERIES	HUBBEL SIGNIFY COOPER	3
X3	2"W X 12"L X 8"H	EXIT SIGN/EMERGENCY COMBO	THERMOPLASTIC HOUSING WITH NICAD BATTERY BACKUP	-	-	LED	-	RED	-	UNV	1W	UNIVERSAL	ISOLITE "CMB" SERIES	HUBBEL SIGNIFY COOPER	3

1

GENERAL NOTES:

1. CONFIRM FUNCTIONALITY OF ALL DIMMERS WITH LIGHT FIXTURE MANUFACTURER. PROVIDE DIMMERS APPROVED BY THE LIGHTING MANUFACTURER
2. PROVIDE COLOR CHARTS AND SAMPLES AS REQUIRED TO OBTAIN THE ARCHITECTS APPROVAL.
3. PROVIDE MIN 80 CRI FIXTURES.

LIGHT FIXTURE SCHEDULE NOTES:

1. PROVIDE A,B SWITCHING FOR DIRECT/INDIRECT LIGHTING.
2. EXTERIOR AND WET LOCATION RATED.
3. PROVIDE WALL OR CEILING MOUNT PER DRAWINGS.
4. PROVIDE 20' SQUARE STEEL LIGHTING POLE.
5. PROVIDE WALL MOUNTING BRACKET.
6. PROVIDE WITH 90 MIN. EMERGENCY BATTERY BACKUP.
7. PROVIDE MOUNTING BRACKET WITH CENTER ROTATION MOUNT.

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Project:

Additions and Renovations to:
Ray Wemple Memorial Rink

Tower Road Schenectady, NY 12302

BID DOCUMENTS

No.	REVISION #	DATE:
#1	ADDENDUM #5	12.19.2023

Drawn By:	MS
Scale:	As Noted
Date:	11/15/2023
Job No:	2237

Sheet Title:
LIGHT FIXTURE SCHEDULE

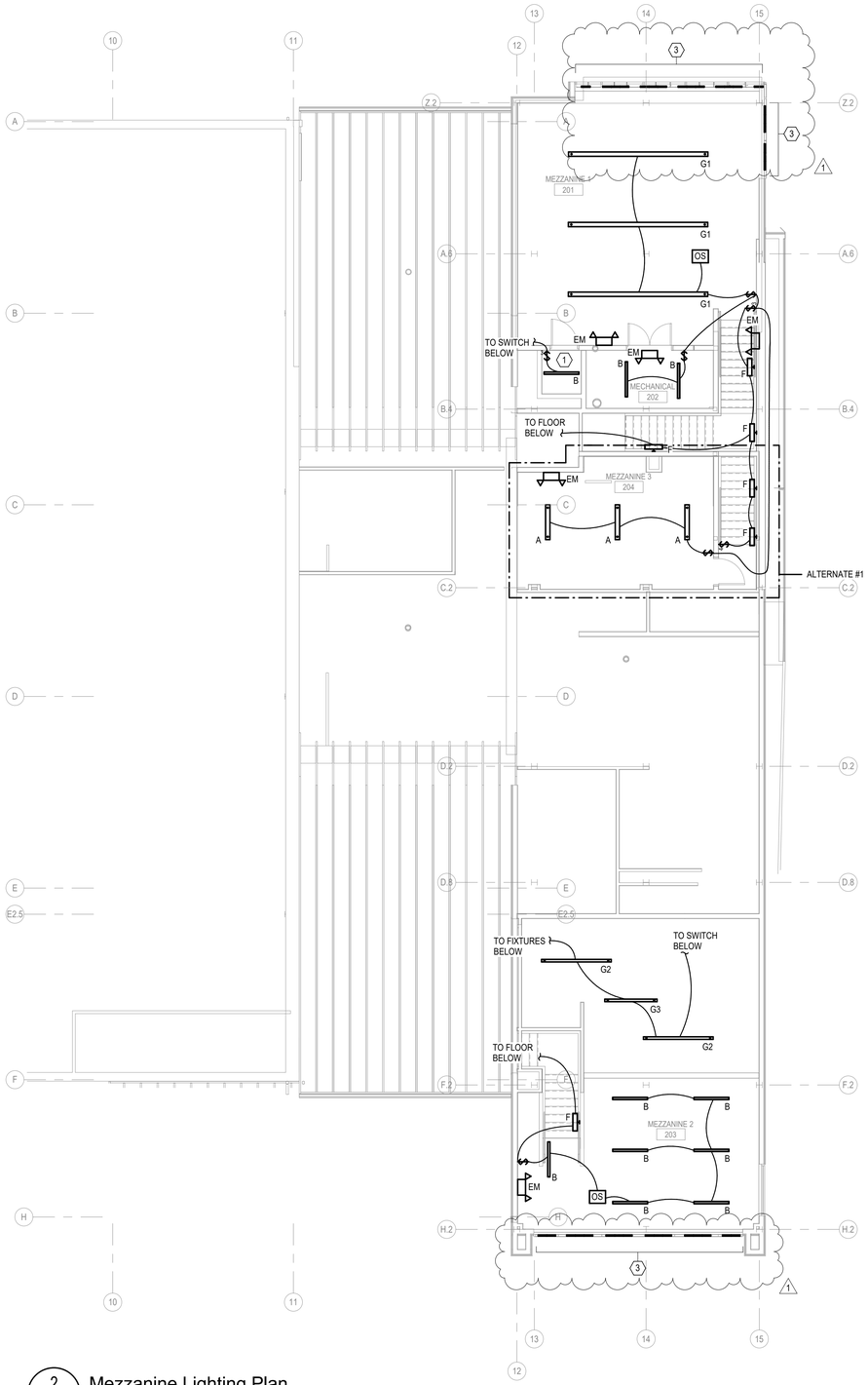
Sheet Number:
E003

GENERAL NOTE:

A. CONNECT EXIT SIGNS AND EMERGENCY LIGHTS TO CLOSEST UNSWITCHED LIGHT CIRCUIT IN AREA.

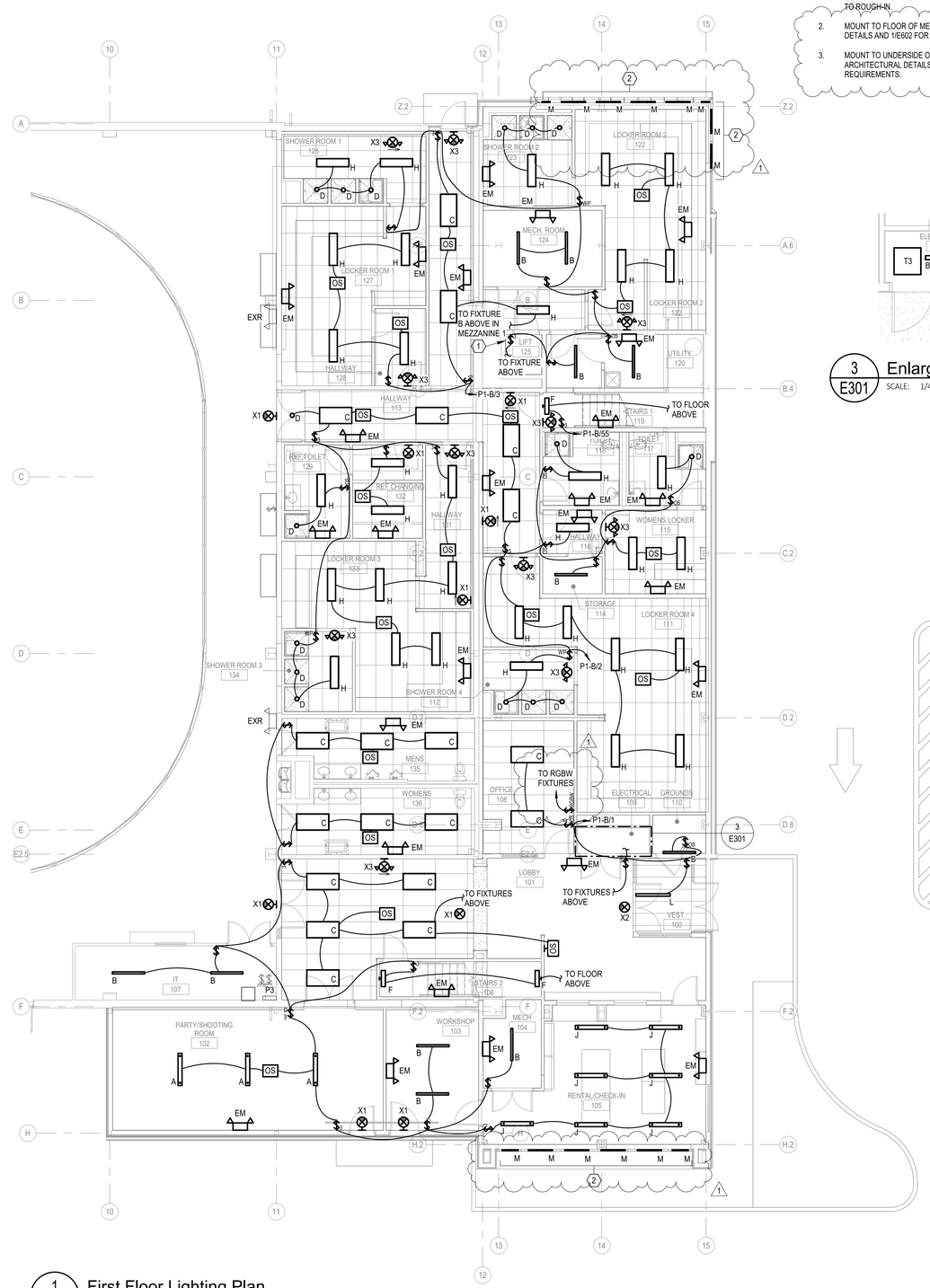
DRAWING NOTE:

1. COORDINATE SWITCH AND LIGHT LOCATION WITH GC PRIOR TO ROUGH-IN.
2. MOUNT TO FLOOR OF MEZZANINE, REFER TO ARCHITECTURAL DETAILS AND 1/E602 FOR ADDITIONAL REQUIREMENTS.
3. MOUNT TO UNDERSIDE OF MEZZANINE FLOOR, REFER TO ARCHITECTURAL DETAILS AND 1/E602 FOR ADDITIONAL REQUIREMENTS.



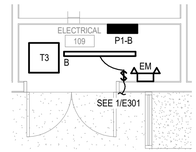
2 / E301 Mezzanine Lighting Plan

SCALE: 1/8" = 1'-0"



1 / E301 First Floor Lighting Plan

SCALE: 1/8" = 1'-0"



3 / E301 Enlarged Electric Room 109

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

TRUE NORTH

PROJECT NORTH

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ADDITIONS AND RENOVATIONS TO:

RAY WEMPLE MEMORIAL RINK

Tower Road Schenectady, NY 12302

BID DOCUMENTS

No.	REVISION #	DATE:
1	Addendum #5	12.19.2023

Drawn By:	C2 Architecture
Scale:	As Noted
Date:	11/15/2023
Job No:	2237

Sheet Title:

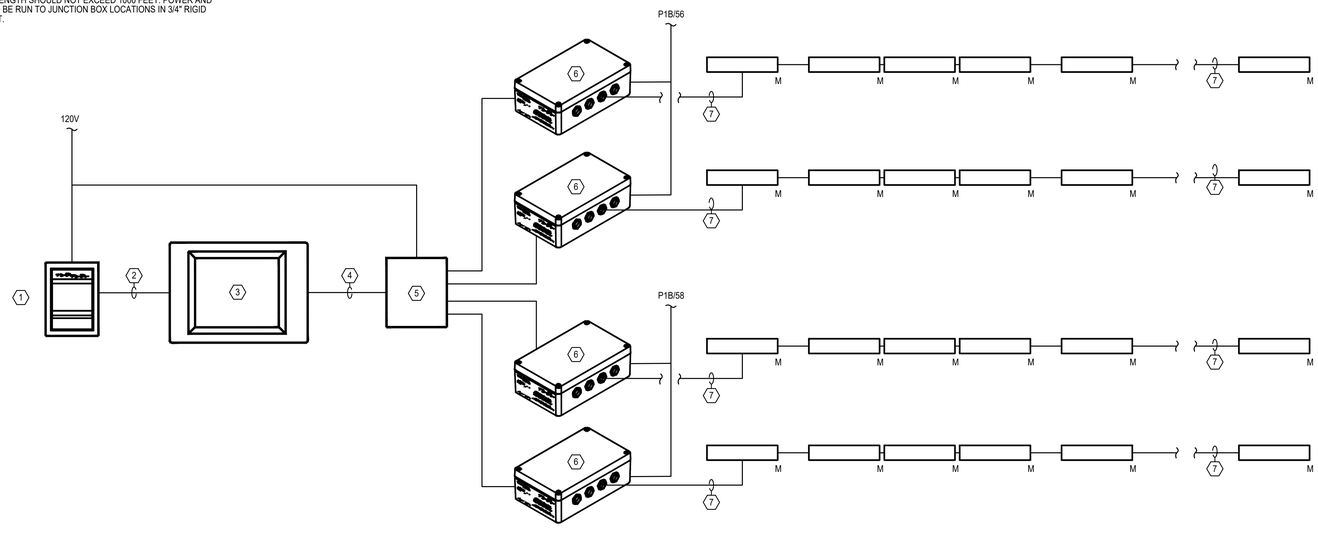
FIRST FLOOR AND MEZZANINE LIGHTING PLANS

Sheet Number:

E301

DRAWING NOTES: ⬡

1. PROVIDE LOW VOLTAGE POWER SUPPLY PACK (ACUITY FRESCO FCS PS10 OR APPROVED EQUAL).
2. PROVIDE (2) #14 & (1)14G LOW VOLTAGE WIRING FROM POWER SUPPLY PACK TO DMX CONTROLLER.
3. PROVIDE TOUCH SCREEN DMX CONTROLLER (FRESCO CONTROL SYSTEM OR APPROVED EQUAL).
4. PROVIDE BELDEN 9829 CABLE. CABLE LENGTH SHOULD NOT EXCEED 1000 FEET.
5. PROVIDE 4-PORT DMX SPLITTER (PATHWAY REPEATER IP65 OR APPROVED EQUAL).
6. PROVIDE DATA POWER INTEGRATION BOX (MDP14W OR APPROVED EQUAL).
7. PROVIDE (2) #12 & (1) #12G WIRING AND BELDEN 9829 CABLE. CABLE LENGTH SHOULD NOT EXCEED 1000 FEET. POWER AND DATA TO BE RUN TO JUNCTION BOX LOCATIONS IN 3/4" RIGID CONDUIT.



1 RGBW LIGHTING CONTROL DETAIL
SCALE: NTS

1

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BID DOCUMENTS

No.	REVISION #	DATE:
#1	ADDENDUM #5	12.19.2023

Drawn By:	XX
Scale:	As Noted
Date:	11/15/2023
Job No:	2237

Sheet Title:
DETAILS

Sheet Number:
E602