DOCUMENT 00 90 00
ADDENDUM

ADDENDUM No.: 1
DATE: August 9, 2024
RE: WESTERN TECHNICAL COLLEGE
PHYSICAL PLANT OFFICE
505 9TH STREET NORTH
LA CROSSE, WISCONSIN 54601
PROJECT NO. 24003

FROM: HSR Associates, Inc
100 Milwaukee Street
La Crosse, WI 54603
(608) 784-1830

TO: Prospective Bidders

This addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated August 2024. Acknowledge receipt of this Addendum in the space provided on the bid form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of: 6 pages, 3 documents, 21 sections and 28 Sheets.

CHANGES TO INTRODUCTORY INFORMATION AND BIDDING REQUIREMENTS:

1. Document 00 01 10 Table of Contents
    a. See the revised document included in this addendum. Disregard the previous version.
    b. Revised this table of contents to adjust it for the changes included in this addendum.
2. Document 00 11 13 Advertisement for Bids
    a. See the revised document included in this addendum. Disregard the previous version.
    b. Revised the second full paragraph to correct a mismatch between the written number and numeric number. Replace sentence: ~~"Along with the Base Bid the project will be separated into seven (8) separate primary alternates with four (4) sub-alternates in Alternate No. 7."~~ with the following; "Along with the Base Bid the project will be separated into eight (8) separate primary alternates with four (4) sub-alternates in Alternate No. 7."
3. Document 00 41 00 Bid Form
    a. See the revised document included in this addendum. Disregard the previous version.
    b. Added Unit Pricing items.

CHANGES TO GENERAL REQUIREMENTS:

4. Section 01 22 00 Unit Prices
    a. See the new section included in this addendum.
    b. This section describes unit pricing for repointing and repair of masonry.

CHANGES TO SPECIFICATIONS:

5. Section 04 01 00 Maintenance of Masonry
    a. See the new section included in this addendum.
6. Section 04 20 00 Unit Masonry
    a. See the revised section included in this addendum. Disregard the previous version.
    b. Added paragraph 1.04 C.to add requirements for samples for colored mortar.
    c. Added paragraph 2.03 I. to add wording for colored mortar.
    d. Added paragraph 2.06 E & F to add additional requirements for colored mortar and repointing mortar.
7. Section 05 31 00 Steel Decking
    a. See the revised section included in this addendum. Disregard the previous version.
    b. Removed paragraph 1.01 A. "~~Acoustical roof deck.~~". Acoustical roof deck will not be included in the project.
    c. Removed paragraph 2.02 B. "~~Acoustical Roof Dovetail~~…".
    d. Revised title for paragraph 2.02 C. from "~~Roof Deck at Canopies~~…" to "Roof Deck…"
    e. Removed paragraph 3.02 K. "~~Provide acoustical insulation to roofer for installation.~~".
8. Section 07 21 00 Thermal Insulation
    a. See the narrative, immediately below, describing revisions to the section.
    b. Added paragraph 1.01 B. to mention mineral wool insulation and vapor retarder.
    c. Added paragraph 1.02 to reference related requirements including coordination with Section 08 44 13 Glazed Aluminum Curtain Wall installer.
    d. Added paragraph 1.03 A. to mention a standard applicable to mineral wool insulation.
    e. Added paragraph 2.01 B. to mention insulation in Metal Framed Walls.
    f. Added paragraph 2.03 to add requirements for mineral wool insulation.
    g. Added paragraph 2.05 to add requirements for vapor retarder.
    h. Added paragraph 3.03 to add requirements for installing mineral wool insulation.
9. Section 07 41 13 IMETCO - Standing Seam Roof Panels
    a. See the revised section included in this addendum. Disregard the previous version.
    b. Removed paragraph 2.01 Panel Materials referencing Mill Finish Aluminum.
    c. Revised paragraph 2.01 A.5.c. Revised from "~~Color shall be selected from IMETCO'S Standard Colors.~~" to "Color shall be IMETCO's Platinum Silver."
10. Section 07 42 13 IMETCO - Metal Wall Panels
    a. See the revised section included in this addendum. Disregard the previous version.
    b. Revised paragraph 2.01 A.4. Revised from "~~To be selected by A/E from manufacturer's standard options.~~" to "Color shall be IMETCO's Platinum Silver."
11. Section 07 53 00 Elastomeric Membrane Roofing
    a. See the new section included in this addendum.
12. Section 08 36 13 Sectional Doors
    a. See the new section included in this addendum.

13. Section 08 43 13 Aluminum-Framed Storefronts
    a. See the new section included in this addendum.
14. Section 08 44 13 Glazed Aluminum Curtain Walls
    a. See the new section included in this addendum.
15. Section 08 44 35 Protective Framed Glazing Assemblies
    a. See the new section included in this addendum.
16. Section 08 80 00 Glazing
    a. See the revised section included in this addendum. Disregard the previous version.
    b. Revised paragraph 2.01 A.6. to update manufacturer name from PPG to Vitro Architectural Glass.
    c. Revised paragraph 2.04.
17. Section 09 51 00 Acoustical Ceilings
    a. See the revised section included in this addendum. Disregard the previous version.
    b. Revised 2.02 B.3.to specify USG Mars in lieu of USG Orion.
18. Section 09 54 23 Linear Metal Ceilings
    a. See the new section included in this addendum.
19. Section 09 91 23 Interior Painting
    a. See the revised section included in this addendum. Disregard the previous version.
    b. Added 2.03 D describing paint system IPS 9 for new concrete block.
20. Section 22 00 01 Plumbing Table of Contents
    a. See the revised section included in this addendum. Disregard the previous version.
    b. Removed Section 22 40 46 Mop Basins from the table of contents. The mop basin section wasn't issued and will not be issued.
    c. Added Section 22 40 48 Stainless Steel Fixtures and Trim to the table of contents.
21. Section 22 40 48 Stainless Steel Fixtures and Trim
    a. See the new section included in this addendum.
22. Section 23 00 01 Division 23 Table of Contents
    a. See the revised section included in this addendum. Disregard the previous version.
    b. Added Section 23 01 30 HVAC Air Duct Cleaning to the list of sections.
23. Section 23 01 30 HVAC Air Duct Cleaning
    a. See the new section included in this addendum.
24. Section 23 09 93 Sequence of Operations
    a. See the narrative, immediately below, describing revisions to the section.
    b. Paragraph 3.13 PRESSURE INDEPENDENT VAV CONTROL 23 36 00: Omit the occupancy sensor interlock control.
25. Section 23 21 14 Hot Water Heating System
    a. See the narrative, immediately below, describing revisions to the section.
    b. Paragraph 3.03 SYSTEM/CLEANING: Entire EXISTING heating hot water system shall be cleaned and flushed prior to project completion. Coordinate with Section 23 25 00 on products and procedures.
26. Section 31 10 00 Site Clearing
    a. See the new section included in this addendum.

CHANGES TO DRAWINGS

27. Sheet G000 COVER SHEET 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Revised index of drawings to include new mechanical sheet.
28. Sheet C100 DEMOLITION PLAN 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Revised keynote #21 regarding existing light pole.
29. Sheet C200 LAYOUT PLAN 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added keynote #12 regarding added bollard.
    c. Added bollard to North Vestibule NE corner of addition.
30. Sheet A101 FIRST FLOOR 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. See clouded changes related to contractor installation of equipment.
31. Sheet A102 SECOND FLOOR 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. See clouded changes adding detail callouts at borrowed lights.
32. Sheet A111 RCP SECOND FLOOR 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. See clouded changes adding linear metal ceiling to the Vestibules 101 and 102.
33. Sheet A112 RCP ENLARGED 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Hid extraneous MEP items in view titled Enlarged Student Lounge RCP.
34. Sheet A120 ROOF 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added Key Note #7 regarding concrete work at columns for the equipment screen.
    c. Added a section callout in Vestibule 101.
    d. Revised roof systems A and C.
35. Sheet A200 ELEVATIONS 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Revised clouded areas from spandrel glazing to vision glazing.
36. Sheet A210 INTERIOR ELEVATIONS, CASEWORK 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added Elevation Key Notes legend.
37. Sheet A300 WALL SECTIONS 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added linear metal ceiling. See clouded locations.
38. Sheet A301 WALL SECTIONS 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added linear metal ceiling. See clouded location.

39. Sheet A302 WALL SECTIONS 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added linear metal ceiling. See clouded location.
    c. Added notes regarding rooftop equipment screen.

40. Sheet A500 DETAILS 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Removed detail 3/A500.
    c. Changed reference from “EPDM” to “Membrane” in details 18/A500 and 23/A500.
    d. Revised detail 16/A500 to reference structural sheets for reinforcing.

41. Sheet A501 DETAILS 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added detail 15/A501 showing roof modifications.
    c. Revised details 1/A501, 2/A501, 3/A501 to show revised decking and linear metal ceiling.
    d. Revised curtainwall details including 9/A501 to better match the system described in section 08 44 13.
    e. Revised details 6/A501 and 10/A501 for changes in configuration at metal panels.

42. Sheet A600 WALL TYPES 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Changed reference from “EPDM” to “Membrane” wall types A9 and A9a.

43. Sheet A601 DOOR SCHEDULE 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Defined requirements for framing material at borrowed lights.
    c. Corrected detail references at sectional doors 110.2, 112.2, 112A.2, and 112A.3.

44. Sheet A602 FRAME SIZES 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Revised clouded areas from spandrel glazing to vision glazing.

45. Sheet ID104 FLOOR FINISH PLAN – SECOND FLOOR 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Revised indicated classrooms from LVT flooring to Carpet flooring.

46. Sheet S001 STRUCTURAL NOTES 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Updated Sheet List for revised sheets included in this addendum.

47. Sheet S101 FOUNDATION PLAN 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added top of pier information for canopy columns north and south towers.

48. Sheet S103 ROOF FRAMING 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Changed roof deck from Dovetail to B Deck Style.
49. Sheet S501 STEEL DETAILS & SCHEDULES 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Revised details 7 & 8 with a note regarding coordinating window framing and steel detailing.
50. Sheet FP100 FIRE PROTECTION SCOPE PLAN 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. See clouded changes.
51. Sheet P91 PLUMBING REMOVAL FIRST FLOOR PLAN 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added requirements for inspecting and cleaning the existing plumbing system.
52. Sheet P92 PLUMBING REMOVAL SECOND FLOOR PLAN 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added requirements for inspecting and cleaning the existing plumbing system.
53. Sheet P100 PLUMBING BELOW GRADE 30"x42"
    a. See the revised sheet included in this addendum. Disregard the previous version.
    b. Added requirements for inspecting and cleaning the existing plumbing system.
54. Sheet M104 EXISTING BASEMENT PLAN 30"x42"
    a. See the new sheet included in this addendum.
    b. Existing Basement HVAC Plan for reference in scope under Section 23 01 30 HVAC Air Duct Cleaning.

PRIOR APPROVALS

55. Section 23 52 16 Fire-Tube Condensing Boilers
    a. Thermal Solutions
56. Section 23 81 29 Variable Refrigerant Flow Systems
    a. Samsung
    b. Hitachi

END OF DOCUMENT 00 90 00

DOCUMENT 00 01 10

TABLE OF CONTENTS

Specifications

Division 1 - General Requirements

Division 2 – Existing Conditions

Division 3 – Concrete

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Division 5 – Metals

Division 6 – Wood, Plastics and Composites

Division 7 – Thermal and Moisture Protection

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SECTION 00 11 13
ADVERTISEMENT FOR BIDS

Sealed bids for the construction of:

WESTERN TECHNICAL COLLEGE
INNOVATION CENTER
405 8TH STREET NORTH
LA CROSSE, WISCONSIN 54601

will be received by:

WESTERN TECHNICAL COLLEGE
PHYSICAL PLANT OFFICE
505 9TH STREET NORTH
LA CROSSE, WISCONSIN 54601
GENE McCURDY - DIRECTOR, FACILITIES

until 2:00pm, August 27, 2024, after which they will be opened publicly and read aloud. Bids received after the time set for receipt of bids will not be accepted. Bids will not be accepted via electronic delivery. Bids will not be accepted from prime contractors that are not pre-qualified through the Owner's annual pre-qualification process.

Along with the Base Bid the project will be separated into eight (8) separate primary alternates with four (4) sub-alternates in Alternate No. 7. Refer to Section 01 23 00 for Alternate descriptions. All work will be awarded to the single low bidder of base bid and all alternates.

Base Bid - Interior Renovations: Remodel of 22,230 s.f. of the Business Education Center on the first and second floors. Work includes gypsum board assemblies. Openings include hollow-metal openings, aluminum storefront openings, and sectional doors. Finishes include paint, solid plastic fabrications, wood doors, glazing, tile, acoustic ceiling, linear metal ceiling, fluid applied flooring, and resilient flooring. Building services include fire suppression (basement/1st/2nd), plumbing, and electric. Work does not include the BIS Suite Renovations that is part of Alternate No. 4 and the Restroom Renovations that is part of Alternate No. 5. Work does not include HVAC Work which shall be included in Alternate No. 6.

Alternate No. 1 - Exterior Upgrades: Work includes earthwork, landscaping, paving, new water service for fire protection, exterior façade upgrades, preparation for new exterior signage, new overhead door and stairway windows. Building services include electric.

Alternate No. 2 - Additions: Single story 420 s.f. tower addition (101 Vest) to the south end (courtyard) of the existing building and a single story 295 s.f. tower addition (102 Vest) to the north end of the existing building. Work includes cast in place concrete, structural steel, cold formed metal framing, aluminum storefront framing, glazing, excavation, working around utilities on the south / sheet piling, paving adjacent to the addition / north, reworking of existing concrete pavers adjacent to the addition / south, and preparation for new building signage. Openings include aluminum doors, and aluminum storefront windows. Building services include fire suppression, plumbing, and electric. Work does not include HVAC Work, which shall be included in Alternate No. 6. Work does not include Roofing work which shall be included in Alternate No. 3 (all blocking related to roofing as detailed shall be in this alternate).

Alternate No. 3 - Roofing: Garland Roofing System (modified bitumen roofing) for the single story 420 s.f. tower addition to the south end (courtyard) of the existing building and a single story 295 s.f. tower addition to the north end of the existing building.

Alternate No. 4 – BIS Suite Interior Renovations: Remodel of 922 s.f. of the Business Education Center on the first floor. Rooms 105E Office, 105K Office, 105L Office, 105M Storage, 107 Conf Rm, and 109 Computer Lab. Work includes gypsum board assemblies. Openings include hollow-metal openings. Finishes include paint, solid plastic fabrications, wood doors, glazing, tile, acoustic ceiling, and resilient flooring. Building services include fire suppression, plumbing, and electric. Work does not include HVAC Work, which shall be included in Alternate No. 6.

Alternate No. 5 – Restroom Renovations: Remodel of 803 s.f. of the Business Education Center on the first (118 Women's, 122 Men's) and second floors (218 Women's, 221 Men's). Finishes include paint, solid plastic fabrications, wood doors, tile, and acoustic ceiling. Building services include fire suppression, plumbing, and electric. Work does not include HVAC Work, which shall be included in Alternate No. 6.

Alternate No. 6 - HVAC Remodel: Remodel HVAC for areas included in Base Bid & Alternates No. 2, 4 & 5. Work includes supply and install new equipment.

Alternate No. 7A – Exterior Building Signage: Work includes supply and install of new exterior building signage; along with connection to supplied electrical.

Alternate No. 7B – Monument Sign (La Crosse Street & 8th Street location): Work includes supply and install of new monument sign located at the intersection of La Crosse Street & 8th Street. Excavation, structural design, paving, landscaping, electrical connections, and city permits & approval shall be provided as well. Design and pricing shall be based on provided concept drawings.

Alternate No. 7C – Monument Sign (Badger Street & 8th Street location): Work includes supply and install of new monument sign located at the intersection of Badger Street & 8th Street. Excavation, structural design, paving, landscaping, electrical connections, and city permits & approval shall be provided as well. Design and pricing shall be based on provided concept drawings.

Alternate No. 7D – Interior Signage: Work includes supply and install of new interior building signage; including electrical.

Alternate No. B1 – Additional Electrical Panel Replacement: Work includes replacement of existing electrical panels.

All Work performed under this Contract shall have a 2 year Contractor obligation as specified in Section 00 73 00 Article 12.

Lump-sum Bids will be received on a SINGLE PRIME CONSTRUCTION CONTRACT FOR THE ENTIRE WORK including plumbing, fire protection, mechanical and electrical work.

The Project Drawings, Project Manual and other Bidding Documents may be examined at the following locations:

AE's Office: HSR ASSOCIATES, INC.
100 MILWAUKEE STREET
LA CROSSE, WI 54603
608-784-1830

Builder's Exchanges: LA CROSSE, WI
NORTHWEST REGIONAL (EAU CLAIRE/CHIPPEWA FALLS)
WAUSAU, WI
BUILDERS EXCHANGE OF WISCONSIN (APPLETON)
MINNEAPOLIS, MN
ROCHESTER, MN
CONSTRUCTCONNECT
DODGE DATA & ANALYTICS (WEST ALLIS, WI)

Electronic Bidding Documents (.pdf) will be available from HSR Associates, Inc. via Sharefile electronic distribution and will be distributed to the listed Builders Exchanges. Electronic versions of addenda will be distributed via the same systems.

Hardcopy Bidding Documents may be picked up at HSR Associates' office. Bidders may request shipment of hardcopies by sending a check made out to HSR Associates in the amount of $25.00. The shipping fee will not be refunded and must be received prior to shipment.

HSR Associates is responsible for distribution of addenda only to those who have requested project documents from HSR in formats described above.

HSR Associates will make AutoCAD files available to the Contractor following award of contract.

HSR Associates maintains a plan holder list at www.hsrassociates.com. This list includes only those who have requested plans from HSR and those who have requested to be added our list.

Bid Security in the amount of five percent (5%) of the maximum amount of the Bid must accompany each Bid as described in the Project Manual, Instructions to Bidders.

The Owner reserves the right to waive irregularities and to reject any or all Bids. Bids may only be withdrawn in accordance with the Project Manual, Instructions to Bidder

A mandatory pre-bid meeting will be conducted by the Owner and Architect/Engineer to answer questions and to enable bidders to examine conditions at the Project Site. Pre-Bid meeting will occur at **10:00 am August 13, 2024** at the courtyard entrance to the Business Education Center located at 405 8th Street North, La Crosse, WI.

By: Gene McCurdy Title: Director, Facilities

Publish Date: Weeks of August 5 & August 12, 2024, La Crosse Tribune.

END OF DOCUMENT 00 11 13

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DOCUMENT 00 41 00

BID FORM

BIDDER:_____

BID FOR SINGLE PRIME CONTRACT

PROJECT: **WESTERN TECHNICAL COLLEGE**
INNOVATION CENTER
405 8TH STREET NORTH
LA CROSSE, WISCONSIN 54601

TO: **WESTERN TECHNICAL COLLEGE**
PHYSICAL PLANT OFFICE
505 9TH STREET NORTH
LA CROSSE, WISCONSIN 54601
ATT: GENE McCURDY- DIRECTOR, FACILITIES

BASE BID

The undersigned, having examined the site where the Work is to be executed and become familiar with local conditions affecting the cost of the Work and carefully examined the Project Manual, the Project Drawings, all other Bidding Documents and Addenda thereto prepared by the AE, HSR Associates, Inc., hereby agrees to provide all labor, materials, equipment and services necessary for the complete and satisfactory execution of the ENTIRE WORK, in the time frame stipulated in these contract documents, for the Base Bid stipulated sum of:

_____

_____Dollars ($_____.00)

ALTERNATE BIDS

The undersigned further agrees to perform the alternative portions of the Work as described in the Project Manual, Section 01 23 00 Alternates, for the following additions to or deductions from the Base Bid sum stipulated above:

Alternate No. 1 - Exterior Upgrades

Add _____ Dollars ($_____.00)

Alternate No. 2 - Additions

Add _____ Dollars ($_____.00)

Alternate No. 3 - Roofing

Add _____ Dollars ($_____.00)

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Alternate No. 4 – BIS Suite Interior Renovations

Add _____ Dollars ($_____.00)

Alternate No. 5 – Restroom Renovations

Add _____ Dollars ($_____.00)

Alternate No. 6 – HVAC Remodel

Add _____ Dollars ($_____.00)

Alternate No. 7A – Exterior Building Signage

Add _____ Dollars ($_____.00)

Alternate No. 7B – Monument Sign (La Crosse St & 8th St)

Add _____ Dollars ($_____.00)

Alternate No. 7C – Monument Sign (Badger St & 8th St)

Add _____ Dollars ($_____.00)

Alternate No. 7D – Interior Signage

Add _____ Dollars ($_____.00)

Alternate No. B1 – Additional Electrical Panel Replacement

Add _____ Dollars ($_____.00)

UNIT PRICES

The undersigned agrees to add or deduct portions of the Work from the Contract as described in the Project Manual, Section 01 22 00 Unit Prices, for the following Unit Price amounts:

Item	Reference Section	Unit Price	Quantity included in Lump Sum Base Bid
UP-1 Repointing Mortar and Repair Masonry	04 01 00	$_____ / sq yd	80 sq yd
UP-2 Repointing Mortar at Horizontal Joints	04 01 00	$_____ / ln ft	45 ln ft

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BIDDER'S CHOICE SUBSTITUTIONS

The following Bidder's Choice Substitution is proposed for your consideration subject to the requirements set forth in Document 00 22 13 Supplementary Instructions to Bidders, Subparagraph 3.3.5:

Substitution No. S1:

For substituting_____

_____

Type, Brand, Catalog No._____

Manufacturer_____

Deduct from BASE BID _____ Dollars ($_____.00)

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In submitting this Bid, the undersigned agrees to:

1. Hold this Bid open for **30** days.
2. Accept the provisions of Instructions to Bidders regarding disposition of Bid Security.
3. Enter into and execute an Agreement, if awarded on the basis of this Bid, and to furnish Performance and Labor and Material Payment Bonds according to the Supplementary Conditions.
4. Accomplish work according to the Contract Documents.
5. Complete the work by the time stated in Section 01 10 00 Summary of the Work.

Receipt of the following Addenda and inclusion of their provisions in this Bid is hereby acknowledged:

Addendum No._____ Dated_____

Addendum No._____ Dated_____

Addendum No._____ Dated_____

Addendum No._____ Dated_____

Attached hereto are the required:

a. ( ) Bid Security

b. ( ) Certificate of Organization and Authority

c. ( ) Non-Collusive Affidavit: An affidavit in proof that the undersigned has not entered into any collusion with any person in respect to this Bid or any other bid or the submitting of bids for the contract for which this bid is submitted.

d. ( ) Certification of Non-segregated Facilities

FIRM NAME: _____

(Affix seal if Corporation)

By: _____

Title: _____

By: _____

Title: _____

Date: _____

Official Address: _____

_____

Telephone: _____

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SECTION 01 22 00
UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. List of unit prices, for use in preparing Bids.

B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

1.02 RELATED REQUIREMENTS

A. Document 00 21 13 - Instructions to Bidders: Instructions for preparation of pricing for Unit Prices.

B. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 COSTS INCLUDED

A. Unit prices shall be used in determining additions to or deductions from the Contract amount when changes in the Work as shown on the Drawings or in the Project Manual are directed. They will apply only when the changes involve materials, specifications, methods, and designs that are the same as those required in the work shown and/or specified. This will not be applied to changes requiring the use of materials, specifications, methods or design of different character from those shown or specified. The unit prices shall include full compensation for all required labor, products, tools, equipment, plant, transportation, inspections, measurements, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.04 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.05 MEASUREMENT OF QUANTITIES

A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.

B. Assist by providing necessary equipment, workers, and survey personnel as required.

C. Measurement by Area: Measured by square dimension using mean length and width or radius.

D. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

1.06 PAYMENT

A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.

B. Payment will not be made for any of the following:
   1. Products wasted or disposed of in a manner that is not acceptable.
   2. Products determined as unacceptable before or after placement.
   3. Products not completely unloaded from the transporting vehicle.
   4. Products placed beyond the lines and levels of the required Work.
   5. Products remaining on hand after completion of the Work.
   6. Loading, hauling, and disposing of rejected Products.

1.07 SCHEDULE OF UNIT PRICES

A. Unit Price UP-1: (Repointing Mortar and Repair Masonry).
   1. State the amount per square yard foot to repoint mortar and repair masonry in existing exterior brick masonry walls. Remove and restore sealants. Restore weeps. Include replacement of damaged brick with salvaged brick at a rate of one per square yard. Perform work as described in Section 04 01 00 Maintenance of Masonry.
   2. Include 80 square yards of UP-1 in base bid.

B. Unit Price UP-2: (Repointing Mortar at Horizontal Joints).
   1. State the amount per linear foot to repoint mortar in existing exterior brick masonry walls at horizontal joints above metal flashings and/or lintels. Remove sealants. Restore weeps. Repoint mortar in adjacent head joints as required to provide smooth continuous mortar joints. Perform work as described in Section 04 01 00 Maintenance of Masonry.
   2. Include 45 linear feet of UP-2 in base bid.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 04 01 00
MAINTENANCE OF MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Re-pointing mortar joints.

B. Repair of damaged masonry.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern work under this Section.

B. Section 04 20 00 - Unit Masonry: Brick masonry units.

1.03 REFERENCE STANDARDS

A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2022, with Errata (2024).

B. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.

C. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.

D. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.

E. ACI 530.1/ASCE 6/TMS 602 - Specification for Masonry Structures; American Concrete Institute International; 2008.

1.04 UNIT PRICES

A. Work of this Section is related to unit prices specified in Section 01 22 00 Unit Prices.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Provide data on mortar if different than mortar in Section 04 20 00.

D. Review Submittals - Samples:
   1. Samples: Submit 3 samples of mortar to illustrate matching color, texture and extremes of color range.

E. Information Submittals - Preparatory:
   1. Contractor Qualification Information.

1.06 QUALITY ASSURANCE - MASONRY WORK

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.
   1. Maintain one copy of each document on project site.

B. Restoration Specialist Qualifications: Firm shall have 5 years experience and completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience installing standard unit masonry is not sufficient experience for masonry restoration work.

C. Field Supervision: Restoration specialist firms shall maintain experienced full-time supervisors on Project site during times that clay masonry restoration and cleaning work is in progress. Supervisors shall not be changed during Project except for causes beyond the control of restoration specialist firm.

D. Restoration Worker Qualifications: Persons who are experienced in restoration work of types they will be performing.

1.07 MOCK-UPS

A. See Section 01 40 00 - Quality Requirements for additional requirements.

B. Mockups: Prepare mockups of restoration and cleaning to demonstrate aesthetic effects and set quality standards for materials and execution and for fabrication and installation.
   1. Re-pointing: Rake out joints in 2 separate areas, each approximately 36 inches high by 48 inches wide for each type of re-pointing required. Include a brick replacement in the re-pointing area.
   2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

C. Mock-up may remain as part of the Work.

1.08 PRE-INSTALLATION MEETING

A. Require attendance of parties directly affecting work of this section.

B. Review conditions of installation, installation procedures, and coordination with related work.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Deliver masonry neatly stacked and tied on pallets. Store clear of ground with adequate waterproof covering.

1.10 FIELD CONDITIONS - MASONRY WORK

A. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

B. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit masonry restoration and cleaning work to be performed according to manufacturers' written instructions and specified requirements.

C. Repair masonry units and repoint mortar joints only when air temperature is between 40 and 90 deg F and is predicted to remain so for at least 7 days after completion of the Work unless otherwise indicated.

D. Cold-Weather Requirements: Comply with the following procedures for masonry repair and mortar-joint pointing unless otherwise indicated:
   1. When air temperature is below 40 deg F, heat mortar ingredients, masonry repair materials, and existing masonry walls to produce temperatures between 40 and 120 deg F.
   2. When mean daily air temperature is below 40 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 7 days after repair and pointing.

E. Hot-Weather Requirements: Protect masonry repair and mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials. Provide artificial shade and wind breaks and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F (32 deg C) and above unless otherwise indicated.

PART 2 PRODUCTS

2.01 MORTAR MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or Type II, white and/or gray where required for color matching of exposed mortar.
   1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C 114.

B. Hydrated Lime: ASTM C207, Type S.

C. Mortar Sand: ASTM C144 unless otherwise indicated.
   1. Color: Provide natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color.
      a. Provide color additives to the mortar if necessary to match the existing.
   2. For pointing mortar, provide sand with rounded edges.

3. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.

D. Water: Potable.

2.02 MORTAR MIXES

A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.
   1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.

B. Do not use admixtures in mortar unless otherwise indicated.

C. Mortar Proportions: Mix mortar materials in the following proportions:
   1. Pointing Mortar for Brick: 1 part portland cement, 1 part lime, and 8 parts sand. Adjust as required to match existing color.

2.03 MASONRY MATERIALS

A. Salvaged Brick: Salvage brick from locations of removed brick. Clean off residual mortar for brick to be re-used for this section.

PART 3 EXECUTION

3.01 PREPARATION

A. Protect surrounding elements, including but not limited to motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from damage due to restoration procedures.

B. Carefully remove and store removable items located in areas to be restored, including fixtures, fittings, finish hardware, and accessories; reinstall upon completion.

C. Separate areas to be protected from restoration areas using means adequate to prevent damage.

D. Mask immediately adjacent surfaces with material that will withstand cleaning and restoration procedures.

E. Protect adjacent metal roof areas from damaging overspray with waterproof tarps.

3.02 REBUILDING

A. Cut out damaged and deteriorated masonry with care in a manner to prevent damage to any adjacent remaining materials.

B. Support structure as necessary in advance of cutting out units.

C. Cut away loose or unsound adjoining masonry as directed.

D. Salvage whole units for reconstruction. Clean bricks of mortar and debris.

E. Mortar Mix: Colored and proportioned to match existing work.

F. Ensure that anchors are correctly located and built in.

G. Match and align with existing, with joints and coursing true and level, faces plumb and in line.

H. Prevent mortar from staining face of surrounding masonry and other surfaces.
   1. Cover sills, ledges, and projections to protect from mortar droppings.
   2. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.
   3. Immediately remove mortar in contact with exposed masonry and other surfaces.
   4. Clean mortar splatters from scaffolding at end of each day.

3.03 RE-POINTING

A. Contractor shall inspect all wall areas and quantify repair locations over and above those identified on drawings. See Section 01 22 00 Unit Prices.

B. Rake out and repoint joints to the following extent:
   1. All joints in areas indicated.
   2. Joints where mortar is missing or where they contain holes.
   3. Cracked joints where cracks are visible to the eye during routine inspection and of any depth.
   4. Joints where they sound hollow when tapped by metal object.
   5. Joints where they are worn back 1/4 inch or more from surface.
   6. Joints where they are deteriorated to point that mortar can be easily removed by hand, without tools.
   7. Joints where they have been filled with substances other than mortar.
   8. Joints indicated as sealant-filled joints.

C. Cut out loose or disintegrated mortar in joints to minimum 1/2 inch depth or until sound mortar is reached. Provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, use air jet or flush joints to remove dust and loose debris.

D. Use power tools only after test cuts determine no damage to masonry units will result.

E. Do not damage masonry units.

F. Pre-moisten joint and apply mortar. Pack tightly in maximum 1/4 inch layers. Form a smooth, compact concave joint to match existing.

G. Moist cure for 72 hours.

H. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

3.04 REMOVAL OF SEALANT AND EXPANSION JOINT PREPARATION

A. Remove existing sealant and backer rod from locations identified on Drawings. Prepare joint in accordance with new sealant manufacturer's recommendations. Sealant and backer rod installation per Section 07 92 00.

3.05 PROGRESS AND FINAL CLEANING

A. Immediately remove stains, efflorescence or other excess as a result of the work of this section.

B. Remove excess mortar, smears and droppings as work proceeds and upon completion.

C. Clean surrounding surfaces.

D. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof.

E. Sweep and rake adjacent pavement and grounds to remove mortar and debris. Where necessary, pressure wash pavement surfaces to remove mortar, dust, dirt, and stains.

END OF SECTION

SECTION 04 20 00
UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete block.

B. Salvage and re-lay brick.

C. Mortar and grout.

D. Reinforcement and anchorage.

E. Accessories.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern work under this Section.

B. Section 01 40 00 - Quality Requirements: Requirements for Contractor's Design-Related Professional Design Service.

C. Section 03 20 00 - Concrete Reinforcing: Reinforcing steel for grouted masonry.

D. Section 05 50 00 - Metal Fabrications: Loose steel lintels.

E. Section 07 92 00 - Joint Sealants: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

A. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2019.

B. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement; 2022.

C. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.

D. ASTM C5 - Standard Specification for Quicklime for Structural Purposes; 2018.

E. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2023.

F. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.

G. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.

H. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019a, with Editorial Revision.

I. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2024.

J. ASTM C476 - Standard Specification for Grout for Masonry; 2023.

K. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete; 2016.

L. ASTM C1714/C1714M - Standard Specification for Preblended Dry Mortar Mix for Unit Masonry; 2019a.

M. BIA Technical Notes No. 13 - Ceramic Glazed Brick Exterior Walls; 2017.

N. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2022, with Errata (2024).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Review Submittals - Preparatory:
   1. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

C. Review Submittals - Samples:
   1. Samples: Submit samples of mortar to illustrate color, texture, and extremes of color range.

D. Information Submittals - Preparatory:
   1. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

2. Manufacturer's Certificate: Certify that water repellent admixture manufacturer has certified masonry unit manufacturer as an approved user of water repellent admixture in the manufacture of concrete block.
3. Test Reports: Concrete masonry manufacturer's test reports for units with integral water repellent admixture.

1.05 QUALITY ASSURANCE

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depths as indicated on drawings for specific locations.
   2. Special Shapes: Provide nonstandard blocks configured for corners.
      a. Provide bullnose units for outside corners.
   3. Load-Bearing Units: ASTM C90, normal weight.
      a. Hollow block, as indicated.
      b. Required compressive strength: as indicated on structural drawings.

2.02 BRICK UNITS

A. Salvage and reuse existing.

2.03 MORTAR AND GROUT MATERIALS

A. At Contractor's option, mortar and grout may be field-mixed from packaged dry materials, made from factory premixed dry materials with addition of water only, or ready-mixed.
   1. Spec Mix, Inc. (licensed manufacturers only) using the same materials and proportions of material specified above.
   2. Licensed Manufacturers:
      a. Minnesota: Twin City Concrete Products [800-642-3887], Amcon Block [320-251-6030], Mankato Brick [507-345-7200], Rochester Brick [507-252-1129], Standard Brick [218-628-2231].
      b. Wisconsin: Twin City Concrete Products [800-642-3887], Quickrete Wisconsin [800-657-0789], Tews Company [800-686-8401].
   3. Material shall be delivered to jobsite in manufacturer's prepackaged bags indicating manufacturer's name, materials and proportions of materials.
   4. Use manufacturer's proprietary dispensing silo.

B. Packaged Dry Material for Grout for Masonry: Premixed cementitious materials and dried aggregates; capable of producing grout of the specified strength in accordance with ASTM C476 with the addition of water only.

C. Hydrated Lime: ASTM C207, Type S.

D. Quicklime: ASTM C5.

E. Mortar Aggregate: ASTM C144.

F. Grout Aggregate: ASTM C404.

G. Masonry Sand: Shall be clean, sharp, free from loam, silt, vegetable matter, salts, and other injurious substances, and shall conform to ASTM C144. Sand is further subject to approval of the A/E, based on mortar color desired and obtainable by use of local sands readily available, and shall be from one source.

H. Water: Clean and potable.

I. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.
   1. Color(s): Match the existing adjacent mortar. Submit sample for approval.

2.04 REINFORCEMENT AND ANCHORAGE

A. Manufacturers:
   1. Heckmann Building Products: www.heckmannbuildingprods.com.
   2. Hohmann & Barnard, Inc: www.h-b.com.
   3. Masonry Reinforcing Corporation of America: www.wirebond.com.
   4. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

B. Reinforcing Steel: Type specified in Section 03 30 00; size as indicated on drawings; uncoated finish.

C. Joint Reinforcement: ASTM A951/A951M.
   1. Type: Ladder.
   2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
   3. Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.

2.05 ACCESSORIES

A. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.06 MORTAR AND GROUT MIXING

A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
   1. Concrete masonry unit masonry: Type S.
   2. Exterior, non-loadbearing brick masonry: Type N.

B. Conventional Job Mixed Mortar in accordance with ASTM C270: Measure materials for mortars by volume, in a manner whereby proportions can be controlled within two percent. Mix materials dry and then water to bring to proper consistency for use. Mix materials in the approved type machine mixer of adequate capacity for 3 to 5 minutes after all materials have been introduced, until materials are evenly distributed throughout the batch and the mixture is uniform in color with a workable consistency.

C. Silo Metered and Bulk Container Mortar: Shall comply with ASTM C1714/C1714M. Use materials specified hereinbefore and proportion mixes as specified hereinafter. Add water and mix according to system manufacturer’s recommendations.

D. Maintain sand uniformly damp immediately before the mixing process.

E. Colored Mortar: Proportion selected pigments and other ingredients to match Architect's sample, without exceeding manufacturer's recommended pigment-to-cement ratio.

F. New Mortar for Old Brick: Proportion by volume only; no more than 20 percent of the total volume of Portland cement and lime combined to be Portland cement.
   1. Sand: Match original mortar as closely as possible in color, size, and texture, without use of other additives.
   2. Repointing Mortar: Use proportions from 1 part lime to 2 parts sand with no Portland cement, up to 2 parts Portland cement to 3 parts lime to 6 parts sand.
   3. Use mortar within 30 minutes after final mixing; do not add more water after the initial mix is prepared.

G. Admixtures: Add to mixture at manufacturer's recommended rate and in accordance with manufacturer's instructions; mix uniformly.

H. If water is lost by evaporation, re-temper only within two hours of mixing.

I. Use mortar within two hours after mixing at temperatures of 90 degrees F, or two-and-one-half hours at temperatures under 40 degrees F.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COLD AND HOT WEATHER REQUIREMENTS

A. Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

3.04 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
   1. Bond: Running, unless noted otherwise.
   2. Coursing: One unit and one mortar joint to equal 8 inches.
   3. Mortar Joints: Concave.

D. Brick Units:
   1. Bond: Running.
   2. Mortar Joints: Concave.
   3. Head joints shall receive full bed of mortar.

3.05 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units with face shell bedding on head and bed joints.

C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

D. Face brick head joints shall receive a full bed of mortar.

E. Remove excess mortar and mortar smears as work progresses.

F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

3.06 WEEPS/CAVITY VENTS

A. Install weeps in veneer and cavity walls at 24 inches on center horizontally on top of through-wall flashing above shelf angles and lintels and at bottom of walls.

3.07 REINFORCEMENT AND ANCHORAGE - GENERAL AND SINGLE WYTHE MASONRY

A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches on center.

B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

C. Place continuous joint reinforcement in first and second joint below top of walls.

D. Lap joint reinforcement ends minimum 6 inches.

3.08 REINFORCEMENT AND ANCHORAGES - MULTIPLE WYTHE UNIT MASONRY

A. Use individual metal ties installed in horizontal joints to bond wythes together.

3.09 LINTELS

A. Install loose steel lintels as noted on plans over non-bearing wall openings, unless noted otherwise.

B. At steel lintels install bond break under bearing portion of lintel.

C. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled.

3.10 CLEANING

A. Remove excess mortar and mortar droppings.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution as recommended by brick supplier. If no recommendation contact A/E for direction.

D. Use non-metallic tools in cleaning operations.

3.11 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

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SECTION 05 31 00
STEEL DECKING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Roof deck.

B. Supplementary framing for openings up to and including 18 inches.

C. Bearing plates and angles.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Refer to Structural Drawings for additional design information.

C. Section 01 40 00 - Quality Requirements: Requirements for Contractor's Design-Related Professional Design Service.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

B. ASTM A510/A510M - Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, and Alloy Steel; 2020.

C. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2023, with Editorial Revision.

D. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2023.

E. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2023).

F. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel; 2018, with Errata (2022).

G. ICC-ES AC43 - Acceptance Criteria for Steel Deck Roof and Floor Systems; 2022.

H. ICC-ES AC70 - Acceptance Criteria for Power-Actuated Fasteners Driven into Concrete, Steel and Masonry Elements; 2019, with Editorial Revision (2021).

I. SDI (DM) - Publication No.30, Design Manual for Composite Decks, Form Decks, and Roof Decks; 2007.

J. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Use a single transmittal for related submittal items. Do not combine submittal items from more than one of the following categories into a single transmittal: review, information, closeout, and maintenance materials.

C. Coordinate the submittals for this section with related sections within Division 5 Metals. It is permissible to combine submittal items from a single supplier into a combined transmittal. For any combined submittal list all sections that are included in the combined submittal.

D. Review Submittals - Preparatory:
   1. Product Data: Provide deck profile characteristics, dimensions, structural properties, and finishes.
   2. Shop Drawings: Indicate deck plan, support locations, projections, openings, reinforcement, pertinent details, and accessories.

E. Information Submittals - Preparatory:
   1. Certificates: Certify that products furnished meet or exceed specified requirements.
   2. Submit manufacturer's installation instructions.
   3. Welders Certificates: (Upon request) Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

A. Design deck layout, spans, fastening, and joints under direct supervision of a Professional Engineer experienced in design of this work and licensed in the state in which the project is located.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Cut plastic wrap to encourage ventilation.

B. Separate sheets and store deck on dry wood sleepers; slope for positive drainage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Steel Deck:
   1. Canam Steel Corporation: www.cscsteelusa.com.
   2. Cordeck, Inc: www.cordeck.com.
   3. New Millennium Building Systems: www.newmill.com.
   4. Nucor-Vulcraft Group: www.vulcraft.com.
   5. Wheeling Corrugating Co: www.wheelingcorrugating.com.
   6. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 STEEL DECK

A. All Deck Types: Select and design metal deck in accordance with SDI Design Manual.
   1. Calculate to structural working stress design and structural properties specified.

B. (Paragraph not used.)

C. Roof Deck: Type B (Wide Rib); Non-composite type, fluted steel sheet:
   1. Galvanized Steel Sheet: ASTM A653/A653M, Structural Steel (SS) Grade 33/230, with G90/Z275 galvanized coating.
   2. Structural Properties:
      a. Span Design: 3 span condition minimum.
      b. Minimum Metal Thickness: See Structural Documents.
      c. Nominal Height: 1-1/2 inch.
      d. Profile: Fluted; SDI B.
   3. Formed Sheet Width: 36 inch.
   4. Side Joints: Lapped mechanically fastened.
   5. End Joints: Lapped, welded.

2.03 ACCESSORY MATERIALS

A. Bearing Plates and Angles: ASTM A36/A36M steel unfinished.

B. Welding Materials: AWS D1.1/D1.1M.

C. Fasteners: Galvanized hardened steel, self tapping.

D. Powder Actuated Mechanical Fasteners: Steel; with knurled shank and forged ballistic point. Comply with applicable requirements of ICC-ES AC70.
   1. Design Requirements: Provide number and type of fasteners that comply with the applicable requirements of SDI (DM) design method for roof deck and floor deck applications and ICC-ES AC43.
   2. Material: Steel; ASTM A510/A510M.
      a. Hardness: Rockwell C 54.5, minimum.
      b. Tensile Strength: 285 kips per square inch, minimum.
      c. Shear Strength: 175 kips per square inch, minimum.
      d. Corrosion Resistance:
         1) Steel Bar Joist Framing Applications: ASTM B 633, SC1, Type III.
         2) Exposed Roof Deck Applications: Provide manufacturer's standard stainless steel sealing caps with bonded neoprene washer over each fastener.

E. Mechanical Fasteners: Steel; hex washer head, self-drilling, self-tapping. 12 Teks/4, #12 Teks/5 or #12 Stitch Teks as required for condition of use.

F. Weld Washers: Mild steel, uncoated, 3/4 inch outside diameter, 1/8 inch thick.

G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

H. End Closures: Where detailed shall be 16 gauge galvanized steel.

I. Side Closures: As required shall be same gauge and finish as deck.

J. Flute Closures: Closed cell foam rubber, 1 1/2 inch thick; profiled to fit tight to the deck.

2.04 FABRICATED DECK ACCESSORIES

A. Sheet Metal Deck Accessories: Metal closure strips and cover plates, 20 gage, 0.0359 inch thick sheet steel; of profile and size as indicated; finished same as deck.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions prior to beginning work.

3.02 INSTALLATION

A. Erect metal deck in accordance with SDI Design Manual and manufacturer's instructions. Align and level.

B. On steel supports provide minimum 1-1/2 inch bearing.

C. Fasten deck to steel support members at ends and intermediate supports at 12 inches on center maximum, parallel with the deck flute and at each transverse flute using methods specified.
   1. Welding: Use fusion welds through weld washers.

D. At mechanically fastened male/female side laps fasten at 24 inches on center maximum.

E. Drive mechanical sidelap connectors completely through adjacent lapped sheets; positively engage adjacent sheets with minimum three-thread penetration.

F. At welded male/female side laps weld at 18 inches on center maximum.

G. Weld deck in accordance with AWS D1.3/D1.3M.

H. At deck openings from 6 inches to 18 inches in size, provide 2 by 2 by 1/4 inch steel angle reinforcement. Place angles perpendicular to flutes; extend minimum two flutes beyond each side of opening and fusion weld to deck at each flute.

I. Close openings above walls and partitions perpendicular to deck flutes with double row of foam cell closures.

J. Immediately after welding deck and other metal components in position, coat welds, burned areas, and damaged surface coating, with touch-up primer.

END OF SECTION

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SECTION 07 21 00
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Board insulation at perimeter foundation wall and slab thermal breaks.

B. Mineral wool insulation and vapor retarder in exterior wall construction.

C. Low rise expanding foam for joint and crevice filling.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 07 27 00 - Air Barriers: Separate air barrier materials.

C. Section 08 44 13 - Glazed Aluminum Curtain Walls: Coordinate installation of mineral wool insulation in voids in the curtain wall.

1.03 REFERENCE STANDARDS

A. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).

B. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2023.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal packages that contain all the information identified in the submittal groups identified below. Follow any instructions regarding coordinating submittal timing between submittals of different sections.

C. Review Submittals - Preparatory:
   1. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.05 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

1.06 SEQUENCING

A. Sequence work to ensure air barrier materials are in place before beginning or continuation of work in this section.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Insulation at Perimeter of Foundation: Extruded polystyrene board.

B. Insulation in Metal Framed Walls and voids in curtainwall: Batt insulation with separate vapor retarder.

2.02 FOAM BOARD INSULATION MATERIALS

A. Extruded Polystyrene Board Insulation (Foundation): ASTM C 578, Type VI; at foundation walls. Extruded polystyrene board with either natural skin or cut cell surfaces; with the following characteristics:
   1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
   2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
   3. Thermal Resistance, R-Value: 5.0 per inch.
   4. Board Thickness: As noted on drawings.

5. Products:
    a. DuPont de Nemours, Inc: www.dupont.com.
    b. Kingspan Insulation LLC: www.kingspan.com.
    c. Owens Corning Corporation: www.ocbuildingspec.com.
    d. DiversiFoam Products: www.diversifoam.com.
    e. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.03 MINERAL WOOL THERMAL INSULATION MATERIALS

A. Mineral Wool Thermal Insulation: Complying with ASTM C612 or ASTM C553.
    1. Smoke Developed Index: 0 (zero), with flame spread index of 25 or less, when tested in accordance with ASTM E84.
    2. Board Thickness: Fill Cavity.
    3. Maximum Density: 8 pcf, nominal.
    4. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.04 FOAMED-IN PLACE JOINT AND CREVICE FILLER INSULATION

A. Insulation joint and gap filler:
    1. PUR FILL Fireblock Foam: www.todol.com.
    2. BASF Polyurethane Foam Enterprises LLC; CF-178 Series and Zerodraft: www.foamenterprises.com.
    3. Demilec (USA) LLC; SEALection 500: www.demilecusa.com.
    4. North Carolina Foam Industries; ThermalStop: www.ncfi.com.
    5. Dow; Great Stuff Pro: www.greatstuff.dow.com.
    6. Convenience Products: Touch 'n Seal. 800-325-6180.
    7. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.05 ACCESSORIES

A. Sheet Vapor Retarder: Black polyethylene film for above grade application, 10 mil, 0.010 inch thick.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation and adhesive.

B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

A. Adhere a 6 inch wide strip of polyethylene sheet over construction, control, and expansion joints with double beads of adhesive each side of joint.
    1. Tape seal joints.
    2. Extend sheet full height of joint.

B. Install boards horizontally on foundation perimeter.
    1. Place boards to maximize adhesive contact.
    2. Install in running bond pattern.
    3. Apply expanding sealant to edges or install board with shiplap edges.
    4. Butt edges and ends tightly to adjacent boards and to protrusions.

C. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane. Fill all gaps and voids with expanding foam insulation.

3.03 MINERAL WOOL THERMAL INSULATION INSTALLATION

A. Install insulation and vapor retarder in accordance with manufacturer's instructions.

B. Install in exterior wall spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. At metal framing, place vapor retarder in the inside of the building; lap and seal sheet retarder joints over face of member.

F. Tape seal tears or cuts in vapor retarder.

G. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane; tape seal in place.

H. Coordinate work of this section with construction of air barrier seal, see Section 07 27 00.

3.04 JOINT AND CREVICE FILLING FOR AIR SEALING

A. Low Rise Expanding Foam: Where applicable install low rise foam to fill gaps and crevices. Follow manufacturer recommendations at windows and doors to prevent swelling of frames and causing doors or windows to become inoperable.

3.05 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

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SECTION 07 41 13

IMETCO - STANDING SEAM ROOF PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work described in this section includes pre-formed metal roofing system complete with clips, perimeter and penetration flashing, closures.

1.02 RELATED DOCUMENTS

A. Applicable provisions of Division 1 govern work under this Section.

B. Coordinate the work of this section with the work of the Owner's roofing contractor.

C. Section 05 40 00 - Cold Formed Metal Framing: Structure for sheathing.

D. Section 06 10 00 - Rough Carpentry: Sheathing and roof blocking.

E. Section 07 26 50 - IMETCO - Water Resistive Barrier: component of rainscreen system.

F. Section 07 27 00 – Air Barriers – Coordination of air barrier assemblies.

G. Section 07 62 00 - Sheet Metal Flashing and Trim: Connections at adjacent materials.

H. Section 07 92 00 - Joint Sealants: Sealants for connections to adjacent materials.

1.03 REFERENCE STANDARDS

A. AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure; 2017.

B. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members; 2016, with Supplement (2020).

C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

D. ASTM D1056 - Standard Specification for Flexible Cellular Materials—Sponge or Expanded Rubber; 2020.

E. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2023).

F. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2005 (Reapproved 2017).

G. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Current Edition, Including All Revisions.

H. UL 790 - Standard for Standard Test Methods for Fire Tests of Roof Coverings; Current Edition, Including All Revisions.

1.04 DEFINITIONS

A. American Architectural Manufacturer Association (AAMA):
   1. AAMA 501.1-05: Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure.
   2. AAMA 621-96: Voluntary/Standard Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) & Zinc-Aluminum Coated Steel Substrates.

B. American Iron and Steel Institute (AISI):
   1. S100-07: 2007 Edition of the North American Specification for the Design of Cold-Formed Steel Structural Members.

C. American Society of Civil Engineers (ASCE):
   1. ASCE 7-05: Minimum Design Loads for Buildings and Other Structures.

D. American Society for Testing and Materials (ASTM):
   1. A653-03: Specification for Steel Sheet, Zinc-coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   2. A755–03: Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
   3. A792-03: Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
   4. B209-02a: Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
   5. D1056-00: Specification for Flexible Cellular Materials - Sponge or Expanded Rubber.
   6. D3575-00e1: Standard Test Methods for Flexible Cellular Materials made from Olefin Polymers.
   7. E283-04: Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
   8. E331-00(2009): Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
   9. E1514-98(2003) Standard Specification for Structural Standing Seam Steel Roof Panels.
   10. E1592-01: Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
   11. E1637-98(2003) Standard Specifications for Structural Standing Seam Aluminum Roof Panel Systems.
   12. E1886-02: Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
   13. E1996-09 Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.

E. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
   1. Architectural Sheet Metal Manual, 6th edition.

F. Underwriters Laboratory (UL):
   1. UL 580, 4th Ed.: Standard for Tests for Uplift Resistance of Roof Assemblies.
   2. UL 790, 7th Ed.: Standard for Tests for Fire Resistance of Roof Covering Materials.

G. National Association of Architectural Metal Manufacturers (NAAMM).
   1. Metal Finishes Manual for Architectural and Metal Products.

1.05 DESIGN AND PERFORMANCE CRITERIA.

A. Thermal Expansion and Contraction.
   1. Completed metal roofing and flashing system shall be capable of withstanding expansion and contraction of components caused by changes in temperature without buckling, or reducing performance ability.
   2. The design temperature differential shall be not less than 220 degrees Fahrenheit.
   3. Interface between panel and clip shall provide for adequate thermal movement in each direction along the longitudinal direction.

B. Uniform Wind Uplift Load Capacity.
   1. Installed roof system shall withstand negative wind uplift pressures complying with the following criteria.
      a. See structural sheets for design criteria.
   2. The ultimate capacity of the panel system shall be determined based on performance testing in accordance with ASTM E1592. The allowable load carrying capacity shall be calculated in accordance with AISI S100 section D6.2.1, except the provisions of Section D6.2.1a of Appendix A shall NOT be applicable for this project.

C. Uniform Positive Load Capacity.
   1. See structural sheets for design criteria.

D. Fire Resistance Classification: The panel system shall be listed as a Class A Roof Covering, as determined by UL 790.

E. Air infiltration: The panel system shall be tested in accordance with ASTM E283, and meet or exceed the following performance requirements:
    a. Area Leakage Rate.
    b. 0.006 cfm/sq.ft.

F. Static air pressure water infiltration: The panel system shall be tested in accordance with ASTM E331, and meet or exceed the following performance requirements:
    a. Result.
    b. No Leakage.
    c. Pressure of 15.0 psf for 15 minutes.

G. Dynamic pressure water penetration. Demonstrate performance in accordance with one of the following test methods:
    1. AAMA 501.1: Pass with no water penetration, other than condensation, when exposed to 8” per hour of dynamic rain and 70 mph wind velocities for not less than five (5) minutes duration.
    2. FBC TAS 100: Pass with no water penetration, other than condensation, when exposed to 8.8” per hour of dynamic rain and 110 mph wind velocities for not less than five (5) minutes duration.

1.06 SUBMITTALS.

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals – Preparatory:
    1. Product Data: Provide manufacturer’s information sheets for each panels, clips, trim, underlayment, fasteners, adhesives and sealants.
    2. Shop drawings: Show roof panel system with flashings and accessories in plan view; sections and details. Include metal thicknesses and finishes, panel lengths, joining details, anchorage details, flashings and special fabrication provisions for termination and penetrations. Indicate relationships with adjacent and interfacing work. Shop drawings to be prepared by metal roof panel manufacturer and sealed by a professional engineer registered in the state of the project location.
    3. Samples.
        a. Submit sample of panel section, at least 6" x 6" showing seam profile with sealant.
        b. Submit a flat metal panel sample of color selected.
        c. Submit sample of panel clip, gable clip, preformed metal closures, and foam closures.

D. Information Submittals – Preparatory:
    1. Design Test Reports.
        a. Submit copies of design test reports for each of the performance testing standards.
        b. Test reports shall be performed by independent, accredited testing laboratories, and shall bear the seal of a registered professional engineer.
    2. Warranty: Provide unexecuted specimen warranty documents for each warranty as required in this section.

E. Closeout Submittals:
    1. Submit documentation of warranty.

1.07 QUALITY CRITERIA/INSTALLER QUALIFICATIONS.

A. Engage an experienced metal roofing contractor (erector) to install standing seam system who has a minimum of three (3) years experience specializing in the installation of structural standing seam metal roof systems.

B. Contractor must be certified by manufacturer specified as a supplier of standing seam system and obtain written certification from manufacturer that installer is approved for installation of the specified system.

C. Successful contractor must obtain all components of roof system from a single manufacturer. Any secondary products that are required which cannot be supplied by the specified manufacturer must be recommended and approved in writing by primary manufacturer prior to bidding.

D. Fabricator/Installer shall submit work experience and evidence of adequate financial responsibility. Architect reserves the right to inspect fabrication facilities in determining qualifications.

1.08 DELIVERY, STORAGE, AND HANDLING.

A. Inspect materials upon delivery.

B. Handle materials to prevent damage.

C. Store materials off ground providing for drainage; under cover providing for air circulation; and protected from any debris.

1.09 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed according to manufacturer's written instructions and warranty requirements.

B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.10 COORDINATION

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

B. Coordinate metal roof panels with rain drainage work, flashing, trim, and construction of decks, walls and other adjoining work to provide a leak proof, secure, and noncorrosive installation.

1.11 WARRANTIES

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Endorse and forward to owner the following warranties:
   1. Manufacturer’s standard 20 year roof system weathertightness warranty, jointly signed by the installer and manufacturer. The warranty shall not place any limitations on wind speed, up to a maximum design wind speed as given in Article 1.4 of this specification.
   2. Manufacturer's standard 20 year finish warranty covering checking, crazing, peeling, chalking, fading, and adhesion of the prepainted sheet metal materials.
   3. Installer's 3 year warranty covering roof panel system installation and watertightness.

C. Warranties shall commence on date of substantial completion.

PART 2 PRODUCTS

2.01 PANEL MATERIALS

A. Painted Aluminum Sheet.
   1. Recycle Content: Provide steel sheet with average recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content is at least 45 percent.
   2. Thickness 0.040 inch aluminum alloy 3003, 3004, 3005, or 3105 with H14 or H24 heat treatment, as per ASTM B209/209M.
   3. Texture:Smooth Surface.
   4. (Paragraph not used).
   5. Exposed Coil-Coated Finish:
      a. 2-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Manufacturers’ approved applicator to prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers’ written instructions.
      b. Coating system shall provide nominal 1.0 mil dry film thickness, consisting of primer and color coat.
      c. Color shall be IMETCO’s Platinum Silver.

6. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

B. Panel Sealants:
   1. Seam Sealant: Factory applied hot melt, high viscosity, pressure sensitive adhesive with high heat resistance.

2.02 FIELD-INSTALLED THERMAL INSULATION

A. Faced, Polyisocyanurate Board Insulation: ASTM C 1289,Type II, Class 2 glass-fiber mat, Grade 3, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, based on tests performed on unfaced core.

2.03 UNDERLAYMENT MATERIALS

A. Self-Adhering with reinforcing scrim, High-Temperature Sheet: 60 mils thick minimum, consisting of slip-resisting top surface laminated to SBS-modified asphalt adhesive, with release-paper backing; cold applied.
   1. Thermal Stability: Stable after testing at 250 deg F (121 deg C); ASTM D 1970.
   2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.
   3. Seams shall be lapped in accordance with manufacturer’s recommendations.
   4. Underlayment shall be approved for 90 days (minimum) of exposure to UV and weather penetrations.
   5. Products: Subject to compliance with requirements, provide one of the following:
      a. Aqua Block 60 by IMETCO of Norcross, GA.

2.04 MISCELLANEOUS METAL FRAMING

A. Fasteners for Miscellaneous Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten miscellaneous metal framing members to substrates.

2.05 MISCELLANEOUS MATERIALS

A. Concealed fasteners: Corrosion resistant steel screws, #10 minimum diameter x length appropriate for substrate, hex washer head or pancake head. Use self-drilling, self-tapping for metal substrate or A-point for plywood substrate.

2.06 STANDING-SEAM METAL ROOF PANELS

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats and accessories required for weathertight installation.
   1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.
   2. Aluminum Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1637.

B. Vertical-Rib, Standing-Seam Metal Roof Panels Formed with striations between panel edges, designed for sequential installation by mechanically attaching panels to supports using concealed clips located over the male side of one panel and under the female side of the opposite panel, and mechanically seaming panels 180°.
   1. Basis-of-Design System: Panel shall be IMETCO TwinLok 2.0 (TL 2.0) roof panel system as manufactured by Innovative Metals Company, Inc. (IMETCO), Norcross, Georgia, telephone 1-800-646-3826.
   2. Alternate manufacturers are subject to full compliance with specification requirements, and shall be submitted for approval as follows.
      a. Manufacturers not listed above must submit for approval, ten (10) days prior to bid date, each of the following: Manufacturer's literature; certification of testing in accordance with specification requirements and article 1.4; sample warranties in accordance with specification article 1.10; installer qualifications in accordance with specification article 1.6, and a list of five (5) similar projects in size and scope of work.

b. No substitutions will be permitted after the bid date of this project.

3. Material: Aluminum sheet, 0.040 inch.
4. Characteristics:
   a. The same panel profile from a single manufacturer shall be used for ALL standing seam roof areas.
   b. Configuration: Interlocking standing seams incorporating concealed anchor clips allowing thermal movement. Snap-on separate seam caps are not acceptable.
      1) Profile of panel shall be striated throughout the flat portion on the panel.
      2) (if required and approved) and trim details (as per manufacturer's guidelines).
      3) Panels must be furnished in continuous lengths from ridge to eave with no overlaps, unless shown on contract documents.
   c. Seam: 2 inch minimum height. Seam shall allow for expansion and contraction of panels due to thermal changes.
   d. Sealant: Female seam shall have a factory applied hot melt sealant bead. Clip shall be designed to insure that normal expansion and contraction of panel will not cause damage to the integrity of the seal.
   e. A clearance of 7/16 inch high between the panel and the roof substrate is required to conceal telegraphing of the supporting structure and to aid in venting the roof system.
   f. Site Formed Panels: Bidder will not be allowed to supply panels formed at the job-site on portable rollformers; metal panels must be factory pre-manufactured and engineered for this project.
   g. Concealed Standard Anchor Clips: Clips base must be 18 gauge galvanized steel with 22 gauge galvanized steel sliding top. Clips must be two (2) piece design to provide for a minimum of three (3) inches of total thermal movement in the longitudinal dimension. One-piece clips are NOT acceptable.
   h. Standing Seam Panel Width: 12 inch (nominal).

2.07 ACCESSORIES

A. Roof Panel Accessories: Provide components approved by roof panel manufacturer and as required for a complete metal roof panel assembly including trim, copings, fasciae, corner units, ridge closures, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.
   1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal roof panels.
   2. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch thick, flexible closure strips meeting ASTM D1056 and/or D3575; cut or premolded to match metal roof panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
   3. Fixed panel clips: One piece clips used to rigidly fix the panels to the roof substrate shall be 22 gauge galvanized steel.
   4. Gable anchor clips: 18 gauge galvanized steel.

B. Flashing and Trim: Formed from same material and gauge as roof panels, prepainted with coil coating. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal roof panels.

2.08 SNOW GUARDS

A. Snow Guards: Prefabricated, noncorrosive units designed to be installed without penetrating metal roof panels, and complete with predrilled holes, clamps, or hooks for anchoring. Snow guards shall be illustrated with the panel manufacturer’s installation drawings, and shall be designed to resist the sliding force of snow in accordance with the requirements of ASCE-7. Confirming calculations shall be provided by the panel manufacturer.
   1. Seam-Mounted, Bar-Type Snow Guards: Extruded Aluminum rods or bars held in place by aluminum clamps attached to vertical ribs of standing-seam metal roof panels.
      a. Aluminum Finish: Mill finish.

b. Products: Subject to compliance with requirements, provide Metal Roof Innovations, Ltd.; S-5! ColorGard®.

2.09 FABRICATION

A. Fabricate and finish metal roof panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes and as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal roof panel with factory-installed hot melt, high viscosity, pressure sensitive adhesive with high heat resistance, in a manner that will seal weathertight.

D. Form flashing components from full single width sheet in minimum 10’-0” sections. Provide mitered corners, joined using closed end pop rivets and butyl-based, solvent released one-part sealant.

E. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.
   1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
   2. Sealed Joints: Form nonexpanding but movable joints in metal to accommodate butyl-based sealant to comply with SMACNA standards.
   3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
   4. Fabricate cleats and attachment devices of size and metal thickness recommended by SMACNA's "Architectural Sheet Metal Manual" or by metal roof panel manufacturer for application, but not less than thickness of metal being secured.

2.10 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

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

C. 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

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal roof panel supports, and other conditions affecting performance of the Work.

B. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.

C. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.

D. Examine roughing-in for components and systems penetrating metal roof panels to verify actual locations of penetrations relative to seam locations of metal roof panels before metal roof panel installation.

E. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

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

3.02 PREPARATION

A. Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment.

B. Substrate Board: Install substrate boards over roof [deck] [sheathing] on entire roof surface. Attach with substrate-board fasteners.
   1. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
   2. Comply with [UL] [FMG] requirements for fire-rated construction.

C. Miscellaneous Framing: Install subpurlins, eave angles, furring, and other miscellaneous roof panel support members and anchorage according to metal roof panel manufacturer's written instructions.
   1. Soffit Framing: Wire tie furring channels to supports, as required to comply with requirements for assemblies indicated.

D. Establish straight, side and crosswise benchmarks.

E. Use proper size and length fastener for strength requirements. Approximately 5/16 inch is allowable for maximum fastener head size beneath the panel.

F. Rectangular roofs shall be checked for square and straightness. Gable ends may not be straight; set a true line for the gable clips and flashing with string line.

G. Measure the roof lengthwise to confirm panel lengths, overhangs, coverage of flashings at eaves and ridges and verify clearances for thermal movement.

3.03 THERMAL INSULATION INSTALLATION

A. Polyethylene Vapor Retarder: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Repair tears or punctures immediately before concealment by other work.

B. Board Insulation: Extend insulation in thickness indicated to cover entire roof.

3.04 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply over entire roof surface, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Wrap fascia and overlap adjacent air barrier not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 90 days.

B. Install flashings to cover underlayment to comply with requirements specified in Division 07 Section " IMETCO - Metal Wall Panels."

3.05 STANDING SEAM METAL ROOF PANEL INSTALLATION

A. All details will be shown on in accordance with approved shop drawings and manufacturer's product data, within specified erection tolerances.

B. Directly over the completed roof substrate, install two-piece clips. All anchor clips will be set on 16 gauge galvanized pre-punched bearing plates to distribute the loads on the board insulation. All anchor clips will be fastened into the structural roof substrate based on the manufacturer's design.

C. Installation of Roof Panels: Roof panels can be installed by starting from one end and working towards the opposite end.
   1. Two (2) 1/8 inch stainless steel rivets shall be secured through the male panel leg and the one piece fixed panel clip located at the ridge of the system. The female panel leg will conceal these fasteners.
      a. Be sure to capture all drilling debris during this operation with a rag or cloth placed on the panels at the drilling operation.
      b. Panels are not securely attached to the roof until they are fixed to the anchor clip. To avoid damage and injury, all panels shall be fixed to the anchor clip immediately as they are installed.

2. Install five (5) #14- diameter fasteners to anchor the panel to the substrate at the ridge of the system. Position the fasteners to be concealed behind the sheet metal zee closure.
    a. Utilize a 7/16 inch shim positioned underneath the panel to maintain a square and level zee closure installation.
    b. Uniformly seal the entire perimeter of the zee closure.
    c. Panels are not securely attached to the roof until they are fixed to the anchor clip. To avoid damage and injury, all panels shall be fixed to the anchor clip immediately as they are installed.
3. Seam panels 180 degrees (double-fold) with manufacturer's mechanical seaming tool.

D. Isolate dissimilar metals and masonry or concrete from metals with bituminous coating. Use gasketed fasteners where required to prevent corrosive action between fastener, substrate, and panels.

E. Limit exposed fasteners to extent indicated on contract drawings.

F. Seal laps and joints in accordance with roofing system manufacturer's product data.

G. Coordinate flashing and sheet metal work to provide weathertight conditions at roof terminations. Fabricate and install in accordance with standards of SMACNA Manual.

H. Provide for temperature expansion/contraction movement of panels at roof penetrations and roof mounted equipment in accordance with system manufacturer's product data and design calculations.

I. Installed system shall be true to line and plane and free of dents, and physical defects. In light gauge panels with wide flat surfaces, some oil canning may be present. Oil canning does not affect the finish or structural integrity of the panel and is therefore not cause for rejection.

J. At joints in linear sheet metal items, set sheet metal items in two ¼-inch- (6-mm-) beads of butyl sealant. Extend sealant over all metal surfaces. Mate components for positive seal. Allow no sealant to migrate onto exposed surfaces.

K. Remove damaged work and replace with new, undamaged components.

L. Touch up exposed fasteners using paint furnished by roofing panel manufacturer and matching exposed panel surface finish.

M. Clean exposed surfaces of roofing and accessories after completion of installation. Leave in clean condition at date of substantial completion. Touch up minor abrasions and scratches in finish.

3.06 SNOW GUARD INSTALLATION

A. Bar-Type Snow Guards: Attach bar supports to vertical ribs of standing-seam metal roof panels with clamps or set screws. Do not use fasteners that will penetrate metal roof panels.
    1. Provide 1 row of snow guards, at locations indicated on Drawings beginning 1.5 feet up from drip edge.

3.07 ERECTION TOLERANCES

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

3.08 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect metal roof panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal roof panels where inspections indicate that they do not comply with specified requirements.

C. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.09 CLEANING

A. Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion

of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer. Maintain in a clean condition during construction.

B. Replace metal roof panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 42 13

IMETCO - METAL WALL PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work described in this section includes single-skin, labyrinth-joint metal cladding panels for rainscreen-principle wall system, complete with sub-structural metal framing, perimeter and penetration flashing, and closures.

B. Work includes sheet metal flashing and trim, scuppers, cap, coping, fascia, soffit.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern work under this Section.

B. Coordinate the work of this section with the work of the Owner's roofing contractor.

C. Section 05 40 00 - Cold Formed Metal Framing: Structure for sheathing.

D. Section 06 10 00 - Rough Carpentry: Sheathing and roof blocking.

E. Section 07 26 50 - IMETCO - Water Resistive Barrier: component of rainscreen system.

F. Section 07 62 00 - Sheet Metal Flashing and Trim: Connections at adjacent materials.

G. Section 07 92 00 - Joint Sealants: Sealants for connections to adjacent materials.

1.03 DEFINITIONS

A. American Architectural Manufacturer Association (AAMA):
   1. AAMA 509-09: Voluntary Test and Classification Method for Drained and Back Ventilated Rain Screen Wall Cladding Systems.
   2. AAMA 508-07: Voluntary Test and Specification for Pressure Equalized Rain Screen Wall Cladding Systems.
   3. AAMA 621-96: Voluntary/Standard Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) & Zinc-Aluminum Coated Steel Substrates.
   4. AAMA 2605-11: Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
   5. American Iron and Steel Institute (AISI):
      a. S100-07: 2007 Edition of the North American Specification for the Design of Cold-Formed Steel Structural Members.
   6. American Society for Testing and Materials (ASTM):
      a. A240-12: Standard Specification for Chromium and Chromium Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications.
      b. A653-03: Specification for Steel Sheet, Zinc-coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
      c. A755–03: Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
      d. A792-03: Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
      e. B69-08: Standard Specification for Rolled Zinc.
      f. B209-02a: Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
      g. B370-11e1: Standard Specification for Copper Sheet and Strip for Building Construction.
      h. D968-05e1: Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasion.
      i. E330-02(2010): Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
      j. E1886-02: Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
      k. E1996-09 Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.

7. National Association of Architectural Metal Manufacturers (NAAMM).
    a. Metal Finishes Manual for Architectural and Metal Products.
8. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
    a. Architectural Sheet Metal Manual, 7th edition.

1.04 DESIGN AND PERFORMANCE CRITERIA.

A. General Performance: Metal wall panel assemblies shall be furnished and installed without failure due to defective manufacture, fabrication, installation, or other defects in construction.

B. Rainscreen Wall System Performance Rating. The metal wall panel assemblies, and the substructural furring/framing system supporting the panels shall be tested in accordance with AAMA 509 and achieve the following performance results:
    1. Water Infiltration: The water infiltration performance of the metal wall panel assembly shall not exceed the classification of W-1.
    2. Back Ventilation: The air ventilation performance of the rainscreen cavity air space shall have a minimum classification of V-4.

C. Rainscreen Wall System Performance Rating. The metal wall panel assemblies, and the substructural furring/framing system supporting the panels shall be tested in accordance with AAMA 508-07 and achieve the following performance results: PASS.

D. Thermal Expansion and Contraction.
    1. Completed metal wall panel and flashing system shall be capable of withstanding expansion and contraction of components caused by changes in temperature without buckling, or reducing performance ability.
    2. The design temperature differential shall be not less than 220 degrees Fahrenheit.
    3. Interface between panel and clip shall provide for unlimited thermal movement in each direction along the longitudinal direction.

E. Uniform Wind Load Capacity.
    1. Installed wall system shall withstand negative wind pressures complying with the following criteria.
        a. Design Code: ASCE 7-05, Method 2 for Components and Cladding.
        b. Safety Factor: The metal panel system shall be tested to proof load of 1.5 times the design service load condition, as required by the ASTM E330 method.
    2. The ultimate capacity of the panel system shall be determined based on performance testing in accordance with ASTM E330. The system shall be tested to a proof load that shall be 1.5 times the allowable design service load.

1.05 SUBMITTALS.

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. General, Rainscreen Wall Assembly Components: Complete submittals shall be made jointly and simultaneously for all components of the Rainscreen wall assembly, including:
    1. Exterior wall sheathing board, if applicable.
    2. Air and water resistive barrier.
    3. Rainscreen wall continuous exterior insulation.
    4. Metal rainscreen wall cladding panels and subframing components.
    5. All other trim, flashing, sealants, and components necessary for a complete rainscreen wall assembly as required by these specifications.

D. Review Submittals - Preparatory:
    1. Shop drawings.
        a. Show complete rain screen wall system with air and water barrier(s), vapor retarder (if applicable), continuous exterior insulation, subframing system, metal cladding panels, ventilation components, flashings and accessories in elevation, sections, and details. Include metal thicknesses and finishes, panel lengths, joining details, anchorage details, flashings and special fabrication provisions for termination and penetrations. Indicate relationships with adjacent and interfacing work.

b. All components shall be integrated into a single comprehensive and compete shop drawing set prepared by the metal cladding system manufacturer.
c. Shop drawings shall identify each product and component by manufacturer, product name, and thickness, size, style, or other uniquely distinguishing characteristics.
d. Shop drawings shall be signed and sealed by a Professional Engineer or Registered Architect authorized to practice in the jurisdiction of the project location.

E. Review Submittals - Samples:
1. Submit sample of panel section, at least 6" x 6" showing seam profile, and also a sample of color selected.
2. Submit sample field applied sealants and all other system components.

F. Information Submittals - Preparatory:
1. Warranty: Provide unexecuted specimen warranty documents for each warranty as required in specification article 1.10.
2. Design Test Reports.
a. Submit copies of design test reports for each of the performance testing standards listed in specification article 1.04.
b. Test reports shall be performed by independent, accredited testing laboratories, and shall bear the seal of a registered professional engineer.

G. Closeout Submittals:
1. Submit documentation of warranty.

1.06 QUALITY CRITERIA/INSTALLER QUALIFICATIONS.

A. Engage an experienced metal wall panel contractor (erector) to install wall panel system who has a minimum of three (3) years experience specializing in the installation of Rainscreen metal wall systems.

B. Contractor must be certified by manufacturer specified as a supplier of the metal wall system and obtain written certification from manufacturer that installer is approved for installation of the specified system.

C. Successful contractor must obtain all components of Rainscreen wall system from a single manufacturer. Any secondary products that are required which cannot be supplied by the specified manufacturer must be recommended and approved in writing by primary manufacturer prior to bidding.

D. Fabricator/Installer shall submit work experience and evidence of adequate financial responsibility. Architect reserves the right to inspect fabrication facilities in determining qualifications.

1.07 DELIVERY, STORAGE, AND HANDLING.

A. Inspect materials upon delivery.

B. Handle materials to prevent damage.

C. Store materials off ground providing for drainage; under cover providing for air circulation and preventing direct UV exposure; and protected from any debris.

1.08 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit metal wall panel work to be performed according to manufacturer's written instructions and warranty requirements.

B. Field Measurements: Verify actual dimensions of construction contiguous with metal wall panels by field measurements before fabrication.

1.09 COORDINATION

A. Coordinate sizes and locations of windows, doors, and wall penetrations with actual equipment provided.

B. Coordinate metal wall cladding system with wall sheathing, masonry, air and water resistive barriers, thermal insulation, rain drainage work, flashing, trim, and construction of other adjoining work to provide a leak proof, secure, and noncorrosive installation.

1.10 WARRANTIES

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Special Manufacturer's Rainscreen Wall Assembly Warranty: The metal wall cladding system must be approved for use in the Rainscreen wall assembly in conjunction with the air and water resistive barrier and exterior continuous insulation system; the use the of specified metal wall cladding system shall not nullify any manufacturers' warranties required elsewhere in this specification. In particular, the use of the specified, substitute, or alternate metal wall cladding panel system shall be certified prior to bid by the air and water resistive barrier manufacturer as acceptable for furnishing the warranty required of the air and water resistive barrier manufacturer.

C. The Manufacturer shall furnish the following warranties for materials and finishes:
   1. Exterior metal cladding system Manufacturer's 10 year warranty against defective materials and fabrication.
   2. Exterior metal cladding system Manufacturer's warranty for performance of Post-painted aluminum finishes. The finish warranty shall provide coverage for the following:
      a. Fade Resistance: For a period of 10-years from date of first exposure to UV or weathering, the post-painted material finishes shall exhibit no more than a 5 "delta E" rating for color change from original color standard.
      b. Chalk Resistance: For a period of 10-years from date of first exposure to UV or weathering, the post-painted material finishes shall exhibit a chalk rating of 8 or less, in accordance with ASTM D4214, Method A.
      c. Gloss Retention: For a period of 10-years from date of first exposure to UV or weathering, the post-painted material finishes shall retain at least 50% of original Specular Gloss, as measured in accordance with ASTM D523.
      d. Film Integrity: For a period of 20-years from date of first exposure to UV or weathering, the post-painted material finishes shall not chip, peel, crack, or blister as a result of defective coatings, improper preparation of the substrate, improper application of the coatings, or improper curing of the coating system.
   3. Installer's 3 year warranty covering wall panel system installation and watertightness.
   4. Warranties shall commence on date of substantial completion.

PART 2 PRODUCTS

2.01 PANEL MATERIALS

A. Painted Aluminum Sheet.
   1. 0.040 inch aluminum alloy 3003, 3004, 3005, or 3105 with H14 or H24 heat treatment, as per ASTM B209/209M.
   2. Texture: Smooth surface.
   3. Prefinished Painted Aluminum:
      a. Exposed Surfaces: 2-Coat Fluoropolymer finish in accordance with AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Manufacturers' approved applicator to prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
      b. Exposed surface coating system shall provide nominal 1.0 mil dry film thickness, consisting of primer and color coat.
      c. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.
   4. Color shall be IMETCO's Platinum Silver.

B. Sealants:
   1. Sealant Tape: Non-curing, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1-inch wide and 1/16-inch thick.
   2. Exposed Sealant: ASTM C 920; elastomeric tripolymer, polyurethane, or other advanced polymer sealant; of type, grade, class, and use classifications required to seal joints in metal wall panels and remain weathertight; and as recommended in writing by metal wall panel manufacturer.

3. Concealed Sealant: ASTM C 1311: Butyl-Based, Solvent-Release, One-Part Sealant.

2.02 METAL SUBFRAMING

A. Miscellaneous Metal Framing, General: ASTM C 645, cold-formed metallic-coated steel sheet, ASTM A 653, G90 (Z275) hot-dip galvanized.

B. Horizontal Hat-shaped Vented Girts:
   1. Dimensions:
      a. Nominal Thickness: 0.043-inch (18 gauge) nominal thickness.
      b. Depth: 1-inch nominal.
      c. Top flange: 2-1/2 inches nominal.
      d. Bottom Flanges: 1-3/8 inches nominal with 1/4 inch holes punched at 8” on center in each flange.
      e. Free air flow: The vented girt shall not restrict chimney effect air convection in the vertical direction. The vented girt webs shall have slotted holes providing for 31% free air flow and weep holes for water drainage.
      f. Drainage: Web segments of vented girt shall be formed such that when installed in the horizontal orientation the web segments are inclined at least 15 degrees from horizontal to promote drainage and prevent retention of standing water.
      g. Provide certified testing report by 3rd party independent testing lab showing the loading of the subgirt attached directly through the insulation. The max deflection of such test should be no more than 1/16”.
   2. Fasteners for Metal Subraming: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten miscellaneous metal subframing members through insulation and sheathing boards into structural wall framing or substrates.

2.03 CONCEALED CLIP – REVEAL JOINT METAL WALL PANELS

A. General: Provide factory-formed metal wall panels designed to be field assembled by interlocking seams and incorporating concealed fasteners.

B. Concealed clip, longitudinal lap-seam panel with labyrinth-joint and reveal on four sides.
   1. Panel shall be IMETCO ELEMENT Wall system as manufactured by Innovative Metals Company, Inc. (IMETCO); Norcross, Georgia; telephone 1-800-646-3826.

C. Material: Aluminum sheet, 0.080 inch thick.

D. Characteristics.
   1. Fabrication: Panels shall be factory formed from specified metal.
   2. The standard profile shall be flat pans with reveal joints on all four sides.
   3. Panel orientation: Horizontal.
   4. Configuration (Horizontal): See drawings for panel dimensions. Provide panels with interlocking seams incorporating concealed fasteners.
   5. Panel Depth (Concealed Leg Height): 1 1/4 inch, nominal.
   6. Reveal Joint: Panel seams shall join such that adjacent panels form vertical and horizontal reveal joints 3/4 inch wide.
      a. Horizontal reveal joints shall be aligned from panel to panel, as shown on drawings.
      b. Vertical reveal joints shall be staggered from panel to panel, as shown on drawings.

2.04 VENTED AND NON-VENTED SOFFIT

A. General: Provide factory-formed metal soffit panels designed to be field assembled by interlocking seams and incorporating concealed fasteners.

B. Concealed fastener, interlocking flush seam soffit panels.
   1. Panel shall be IMETCO SP soffit panel system as manufactured by Innovative Metals Company, Inc. (IMETCO), Norcross, Georgia, telephone 1-800-646-3826.

C. Material: Aluminum sheet, 0.032 inch thick.

D. Color Finish: To match other panels described in this section.

E. Characteristics.
   1. Fabrication: Panels shall be factory formed from specified metal.

2. The standard profile shall be shall have one (1) vee groove in the center of the pan, and shall have side seams that simulation a vee groove when panels are joined together.
3. Panel orientation: Perpendicular to wall.
4. Configuration: Panel shall be 12-inches wide nominal, with interlocking seams incorporating concealed fasteners.
5. Panel Depth: 3/8 inch, nominal.

F. Panel Ventilation.
1. Provide vented panels with a minimum free open air flow of 3% for those panels which are vented.
2. Every other panel shall be vented where vented panels are indicated.

2.05 ACCESSORIES

A. Wall Panel Accessories: Provide components approved by panel manufacturer and as required for a complete metal wall panel assembly including trim, corner units, closures, clips, flashings, sealants, gaskets, fillers, and similar items. Match material and finish of metal wall panels unless otherwise indicated.
1. Anchor Clips: Clips shall be 18 gauge [galvanized] [stainless] steel designed to allow thermal movement of the panel in each direction along the longitudinal dimension.
2. Gutter Splice at Vertical Reveal: At the vertical reveal joint, a sheet metal gutter splice shall be provided in the same material type and finish as the metal cladding panels for all visible space at the reveal joint. Gutter splice material thickness shall be as recommended by manufacturer based on panel height.
3. Corner Units: Provide factory fabricated mitered corner units of the same profile(s) as specified. Corner units shall be furnished for outside and inside corner conditions.
4. Ventilation strips shall be provided at top of wall panels, window sills, and transitions between metal panels and other exterior finish materials to allow for air exhaust at top of wall cavity. Vent strips shall be internally baffled to prevent wind driven rain from freely entering the wall cavity.
5. Ventilation strips shall be provided at base of wall panels, window head, and transitions between metal panels and other exterior finish materials to allow for air intake and water weep holes at bottom of wall cavity.

B. Flashing and Trim: Formed from same material, finish, and gauge as wall panels. Provide flashing and trim as required to provide finished appearance. Locations include, but are not limited to, head, sill, corners, jambs, framed openings, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal wall panels.

C. Scuppers: Flash/form per SMACNA standards. Flash/form per wall panel manufacturer's details to for a similar appearance of SMACNA Figure 1-27A. Submit style to A/E for approval. Coordinate tie-in to roof system with Owner's roofer.
1. Scuppers: Size for rainfall intensity determined by a storm occurrence of 1 in 10 years in accordance with SMACNA (ASMM).

2.06 FABRICATION

A. Fabricate and finish metal wall panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes and as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Form flashing components from full single width sheet in minimum 10’-0” (3 m) sections. Provide mitered trim corners, joined using closed end pop rivets and butyl-based, solvent released one-part sealant.

D. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.
   1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
   2. Sealed Joints: Form nonexpanding but movable joints in metal to accommodate butyl-based sealant to comply with SMACNA standards.
   3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
   4. Fabricate cleats and attachment devices of size and metal thickness recommended by SMACNA's "Architectural Sheet Metal Manual" or by metal wall panel manufacturer for application, but not less than thickness of metal being secured.

2.07 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

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

C. Prevent unpainted metals from contact with oils or solvents, including fingerprints, which may cause staining of the natural finishes.

D. 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. Note that some variation is anticipated and acceptable when natural (unpainted) material finishes are specified.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal wall panel supports, and other conditions affecting performance of the Work.

B. Examine primary and secondary wall framing to verify that girts, studs, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal wall panel manufacturer.

C. Examine solid wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.

D. Examine roughing-in for components and systems penetrating metal wall panels to verify actual locations of penetrations relative to seam locations of metal wall panels before metal wall panel installation.

E. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

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

3.02 PREPARATION

A. Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment.

B. Establish straight, side and crosswise benchmarks.

C. All walls shall be checked for square and straightness. Inside and outside corners may not be plumb; set a true line for the corner flashing with string line.

D. Measure the wall lengthwise to confirm panel lengths and verify clearances for thermal movement.

3.03 METAL SUBFRAMING INSTALLATION

A. Install metal subframing directly over continuous thermal insulation. Metal subframing shall attach to the structural wall elements with screw fasteners. Metal subframing shall be spaced as necessary to accommodate the required clip spacing for the metal cladding panels.

B. Attachments shall be as recommended by the metal claddings system manufacturer’s approved shop drawings.

3.04 METAL WALL PANEL INSTALLATION

A. All details will be shown on in accordance with approved shop drawings and manufacturer's product data, within specified erection tolerances.

B. Directly over the completed wall substrate, fasten the top flange of the panel to the metal subframing using panel clips. All panels clips will be fastened into the metal subframing as indicated on the metal cladding panel manufacturer’s approved shop drawings.

C. Installation of Wall Panels: Wall panels can be installed by starting from one end and working towards the opposite end (vertical orientation), or from the bottom of wall working towards the top of the wall (horizontal orientation).

D. Metal wall panels and trim must be installed only in accordance with the manufacturer’s recommendation for acceptable temperature range.

E. Isolate dissimilar metals and masonry or concrete from metals with bituminous coating. Use gasketed fasteners where required to prevent corrosive action between fastener, substrate, and panels.

F. Limit exposed fasteners to extent indicated on contract drawings.

G. Seal laps and joints in accordance with metal cladding panel system manufacturer's product data.

H. Coordinate flashing and sheet metal work to provide weathertight conditions at wall terminations. Fabricate and install in accordance with standards of SMACNA Manual.

I. Provide for temperature expansion/contraction movement of panels at wall penetrations and wall mounted equipment in accordance with system manufacturer's product data and design calculations.

J. Installed system shall be true to line and plane and free of dents, and physical defects. In light gauge panels with wide flat surfaces, some oil canning may be present. Oil canning does not affect the finish or structural integrity of the panel and is therefore not cause for rejection.

K. At joints in linear sheet metal items, other than metal cladding panels which are intended to provide ventilation, set sheet metal items in two 1/4-inch beads of butyl sealant. Extend sealant over all metal surfaces. Mate components for positive seal. Allow no sealant to migrate onto exposed surfaces.

L. Remove damaged work and replace with new, undamaged components.

M. Touch up exposed fasteners using paint furnished by the panel manufacturer and matching exposed panel surface finish.

N. Clean exposed surfaces of wall panels and accessories after completion of installation. Leave in clean condition at date of substantial completion. Touch up minor abrasions and scratches in finish.

3.05 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal wall panel units within installed tolerance of 1/4 inch in 20 feet at location lines as indicated and within 1/16-inch offset of adjoining faces and of alignment of matching profiles.

3.06 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect metal wall panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal wall panels where inspections indicate that they do not comply with specified requirements.

C. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.07 CLEANING

A. Remove temporary protective coverings and strippable films, if any, as metal wall panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion

of metal wall panel installation, clean finished surfaces as recommended by metal wall panel manufacturer. Maintain in a clean condition during construction.

B. Replace metal wall panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074113

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SECTION 07 53 00
ELASTOMERIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Elastomeric roofing membrane, adhered conventional application.

B. Insulation, tapered.

1.02 RELATED REQUIREMENTS

A. Section 05 31 00 - Steel Decking.

1.03 REFERENCE STANDARDS

A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2023a.

B. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane; 2015, with Editorial Revision (2022).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Provide data indicating membrane materials, flashing materials, insulation, surfacing, and fasteners.

D. Information Submittals - Preparatory:
   1. Certification that roof system meets 72 mph wind warranty in accordance with applicable manufacturer requirements.
   2. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.
   3. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, and supplementary instructions given.
   4. Installer's qualification statement.
   5. Submit letter from manufacturer stating that the installer is in good standing with the flooring manufacturer.

E. Closeout Submittals:
   1. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

B. Applicator Qualifications: Company specializing in performing the work of this section:
   1. With minimum five years documented experience.
   2. Approved by membrane manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact.

B. Store materials in weather protected environment, clear of ground and moisture.

C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.

D. Protect foam insulation from direct exposure to sunlight.

1.07 FIELD CONDITIONS

A. Do not apply roofing membrane during unsuitable weather.

B. Do not apply roofing membrane when ambient temperature is below 40 degrees F.

C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

E. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

1.08 WARRANTY

A. See General Requirements, for additional warranty requirements.

B. Type/Term:
   1. Provide a 20 year Roofing System (NDL) Warranty. Warranty shall include membrane, roof insulation, and all other products supplied by manufacturer/installer. (ALL DETAILS TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIAL REQUIREMENTS FOR 20 YEAR WARRANTY.)

C. Correct defective work within a two year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. EPDM Manufacturers/Installers:
   1. Any of the following are acceptable using comparable systems and materials to the Firestone system as described herein.
   2. “Sure Seal Black" (60 mil), Class “A”, Carlisle SynTec Inc.
   3. "RubberGard" (60 mil), Class “A”, Holcim Elevate. Contractor option; RubberGard EPDM SA Membrane with Secure Bond Technology.
   4. “Versigard Adhered” (60 mil), Class “A”, Versico.
   5. “Ultragard Adhered” (60 mil), Class "A", Johns Manville.
   6. "Standard Black EPDM Membrane" (60 mil), Mule-Hide Products. Contractor option; Mule-Hides SA EPDM Membrane.
   7. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 ROOFING - UNBALLASTED APPLICATIONS

A. Elastomeric Membrane Roofing: One ply membrane fully adhered .

2.03 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

A. Membrane: Ethylene-propylene-diene-terpolymer (EPDM); non-reinforced; complying with minimum properties of ASTM D4637. (Low slope FR).

B. Seaming Materials: As recommended by membrane manufacturer.

C. Flexible Flashing Material: Material approved by manufacturer for warranty compliance.

2.04 INSULATION

A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, complying with ASTM C1289.
   1. Classifications:
      a. Type II: Faced with either cellulosic facers or glass fiber mat facers on both major surfaces of the core foam.
         1) Class 1 - Faced with glass fiber reinforced cellulosic felt facers on both major surfaces of core foam.
         2) Compressive Strength: Classes 1-2-3, Grade 1 - 20 psi, nominal.
   2. Roof Areas with flat structure which require Tapered Insulation:
      a. Tapered Layer:
         1) Nominal Thickness: tapered at ¼" per foot unless noted otherwise.

2) Nominal Size: 48" x 48".
3) Crickets where indicated on drawings.

b. Crickets:
1) Tapered polyisocyanurate.

2.05 ACCESSORIES

A. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
1. Length as required for thickness of insulation material and penetration of deck substrate ,a minimum of 1/2" for steel .

B. Membrane Adhesive: As recommended by membrane manufacturer to meet stated warranty.

C. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.

D. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.

E. Insulation Adhesive: As recommended by insulation manufacturer.

F. Roofing Nails: Galvanized, hot-dipped type, size and configuration as required to suit application.

G. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.

H. Sealants: As recommended by membrane manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify deck is supported and secure.

C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.

D. Verify deck surfaces are dry and free of snow or ice.

E. Verify that roof openings, curbs, including those provided by mechanical contractor, and penetrations through roof are solidly set, and wood blocking/nailers are in place.

3.02 INSULATION - UNDER MEMBRANE

A. Attachment of Insulation:
1. Mechanically fasten insulation to deck in accordance with roofing manufacturer's instructions.
2. Embed additional layer(s) of insulation into full bed of adhesive in accordance with roofing and insulation manufacturers' instructions.

B. Lay subsequent layers of insulation with joints staggered minimum 6 inch from joints in both directions of preceding layer. Use manufacturer's recommended adhesive.

C. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.

D. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

E. Do not apply more insulation than can be covered with membrane in same day.

3.03 INSTALLATION - MEMBRANE

A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

B. Shingle joints on sloped substrate in direction of drainage.

C. Fully Adhered Application: Apply adhesive to substrate at rate in accordance to manufacturer's recommendations. Fully embed membrane in adhesive except in areas directly over or within 3 inches of expansion joints. Fully adhere one roll before proceeding to adjacent rolls.

D. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches. Seal permanently waterproof. Apply uniform bead of sealant to joint edge.

E. At intersections with vertical surfaces:
   1. Fully adhere flexible flashing over membrane and up to reglets.
F. At roof edge flashings, extend membrane under gravel stop and to the outside face of the wall.
G. Coordinate installation of roof scuppers, downspouts and related flashings.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements for related requirements.
B. Field inspection and testing shall be performed as required by the manufacturer.
C. Correct identified defects or irregularities.

3.05 CLEANING

A. See Section 01 78 00 - Closeout Submittals for additional information regarding documenting warranties.
B. Remove bituminous markings from finished surfaces.
C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
D. Repair or replace defaced or damaged finishes caused by work of this section.

3.06 PROTECTION

A. Protect installed roofing and flashings from construction operations.
B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

3.07 INSPECTION/CERTIFICATION

A. Contact A/E within 48 hours of manufacturer's representatives' inspection.
B. Provide owner with certificate of compliance with warranty upon completion of inspection.

END OF SECTION

SECTION 08 36 13
SECTIONAL DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Overhead sectional doors, electrically operated.

B. Operating hardware and supports.

C. Electrical controls.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 04 20 00 - Unit Masonry; Prepared opening in masonry.

C. Section 05 50 00 - Metal Fabrications: Steel channel opening protection.

D. Division 26: Equipment wiring.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

B. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).

C. DASMA 102 - American National Standard Specifications for Sectional Doors; 2018.

D. ITS (DIR) - Directory of Listed Products; Current Edition.

E. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts; 2008 (Reaffirmed 2020).

F. NEMA MG 1 - Motors and Generators; 2021.

G. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2020.

H. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. UL (DIR) - Online Certifications Directory; Current Edition.

J. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Shop Drawings: Indicate opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.
   2. Product Data: Show component construction, anchorage method, and hardware. When glass is installed include unit u-value, center of glass u-value, visual light transmittance and solar heat gain coefficient.

D. Review Submittals - Samples:
   1. Samples: Submit two panel finish samples, 12 by 12 inch in size, illustrating color and finish.

E. Information Submittals - Preparatory:
   1. Manufacturer's Installation Instructions: Include any special procedures required by project conditions.

F. Closeout Submittals:
   1. Operation Data: Include normal operation, troubleshooting, and adjusting.

2. Maintenance Data: Include data for motor and transmission, shaft and gearing, lubrication frequency, spare part sources.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of type specified and with at least three years documented experience.

C. Comply with applicable code for motor and motor control requirements.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for warranty requirements.

B. Extended Correction Period: Correct defective work within a 2-year period commencing on Date of Substantial Completion.

C. Manufacturer Warranty: Provide 5-year manufacturer warranty for electric operating equipment. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Sectional Doors:
1. C.H.I. Overhead Doors: www.chiohd.com.
2. Clopay Building Products: www.clopaydoor.com.
3. Cornell Ironworks: www.cornelliron.com.
4. Overhead Door Co.: www.overheaddoor.com.
5. Raynor Garage Doors: www.raynor.com.
6. Wayne-Dalton, a Division of Overhead Door Corporation; Thermospan 125: www.wayne-dalton.com.
7. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 STEEL DOORS - EXTERIOR

A. Exterior Steel Doors: Stile and rail steel with solid and glazed panels; standard lift operating style with track and hardware; complying with DASMA 102, Commercial application.
1. Door Panels: Stile and rail construction, of steel sheet 0.058 inch minimum thickness, with welded joints; rabbeted weather joints at meeting rails.
2. Door Nominal Thickness: 2 inches thick.
3. Exterior Finish:
   a. Factory finished with acrylic baked enamel; color as selected by Architect.
4. Interior Finish:
   a. Factory finished with acrylic baked enamel; color as selected by Architect.
5. Glazed Lites: Full panel width, each row; set in place with resilient glazing channel.
   a. Glazing: Fully tempered glass; insulated glass units; clear; 5/8 inch nominal overall thickness.
6. Electric Operation: Electric control station.

2.03 STEEL DOORS - INTERIOR - GLAZED

A. Interior Steel Doors: Stile and rail steel with glazed panels; standard lift operating style with track and hardware; complying with DASMA 102, Commercial application.
1. Door Panels: 24 gauge.
2. Finish Both Sides: Factory finished with acrylic baked enamel; color as selected from manufacturers standard line.
3. Glazed Lights: Full panel width, each row; set in place with resilient glazing channel.
4. Interior Glazing: Fully tempered glass; single pane; clear; 1/8 inch overall thickness.
5. Electric Operation: Electric control station.

2.04 STEEL DOORS - INTERIOR - FLUSH

A. Interior Steel Doors: Flush steel, insulated; standard lift operating style with track and hardware; complying with DASMA 102, Commercial application.
   1. Door Panels: 24 gauge.
   2. Finish Both Sides: Factory finished with acrylic baked enamel; color as selected from manufacturers standard line.
   3. Interior Glazing: Fully tempered glass; single pane; clear; 1/8 inch overall thickness.
   4. Electric Operation: Electric control station.

2.05 COMPONENTS

A. Track: Rolled galvanized steel, 0.060 inch minimum thickness; 2 inch wide, continuous one piece per side; galvanized steel mounting brackets 1/4 inch thick.

B. Hinge and Roller Assemblies: Heavy duty hinges and adjustable roller holders of galvanized steel; floating hardened steel bearing rollers, located at top and bottom of each panel, each side.

C. Lift Mechanism: Torsion spring on cross head shaft, with braided galvanized steel lifting cables.

D. Sill Weatherstripping: Resilient hollow rubber strip, one piece; fitted to bottom of door panel, full length contact.

E. Jamb Weatherstripping: Roll formed steel section full height of jamb, fitted with resilient weatherstripping, placed in moderate contact with door panels.

F. Head Weatherstripping: EPDM rubber seal, one piece full length.

G. Panel Joint Weatherstripping: Neoprene foam seal, one piece full length.

2.06 MATERIALS

A. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G60/Z180 coating, plain surface.

B. Insulation: Rigid polyurethane, bonded to facing. Minimum total R14.

2.07 ELECTRIC OPERATION

A. Operator, Controls, Actuators, and Safeties: Conform to UL 325; provide products listed by ITS (DIR) or UL (DIR).
   1. Provide interlock switches on motor operated units.

B. Electric Operators:
   1. Mounting: Center mounted on cross head shaft.
   2. Motor Enclosure:
      a. Exterior Doors: NEMA MG 1, Type 4; open drip proof.
      b. Interior Doors: NEMA MG 1, Type 1; open drip proof.
   3. Motor sized as required for door size.
   4. Motor Voltage: 120 volts, single phase, 60 Hz.
   5. Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.
   6. Controller Enclosure: NEMA 250, Type 1.
   7. Opening Speed: 12 inches per second.
   8. Brake: Adjustable friction clutch type, activated by motor controller.
   9. Manual override in case of power failure.

C. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated; enclose terminal lugs in terminal box sized to comply with NFPA 70.

D. Control Station: Provide standard three button (Open-Close-Stop) continuous-contact control device for each operator conforming to UL 325.
   1. 24 volt circuit.
   2. Surface mounted, at interior door jamb.
   3. Entrapment Protection Devices: Provide sensing devices and safety mechanisms complying with UL 325.
      a. Light bar attached to door frame.

b. Height: 3 feet.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

B. Verify that electric power is available and of the correct characteristics.

3.02 PREPARATION

A. Prepare opening to permit correct installation of door unit to perimeter air and vapor barrier seal.

3.03 INSTALLATION

A. Install door unit assembly in accordance with manufacturer's instructions.

B. Anchor assembly to wall construction and building framing without distortion or stress.

C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.

D. Fit and align door assembly including hardware.

E. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

F. Install warning placard provided by supplier at each door.

3.04 TOLERANCES

A. Maximum Variation from Plumb: 1/16 inch.

B. Maximum Variation from Level: 1/16 inch.

C. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch from 10 ft straight edge.

D. Maintain dimensional tolerances and alignment with adjacent work.

3.05 ADJUSTING

A. Adjust door assembly for smooth operation and full contact with weatherstripping.

3.06 CLEANING

A. Clean doors and frames.

B. Remove temporary labels and visible markings.

3.07 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

B. Clean doors, frames.

C. Remove temporary labels and visible markings.

D. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

END OF SECTION

SECTION 08 43 13
ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum-framed storefront, with vision glass.

B. Aluminum doors and frames.

C. Weatherstripping.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 07 21 00 - Thermal Insulation: Insulation gap filler for opening perimeter.

C. Section 07 27 00 - Air Barriers: Sealing assemblies to weather barrier installed on adjacent construction.

D. Section 07 92 00 - Joint Sealants: Sealing joints between frames and adjacent construction.

E. Section 08 44 13 - Glazed Aluminum Curtain Walls: Single Source the work of these sections.

F. Section 08 44 35 - Protective Framed Glazing Assemblies.

G. Section 08 71 00 - Door Hardware: Hardware items other than specified in this section.

H. Section 08 80 00 - Glazing: Glass and glazing accessories.

I. Division 26 and 28: Connection to related powered and access control accessories.

1.03 REFERENCE STANDARDS

A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.

B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020.

1.04 SUBMITTALS

A. See Conditions of the Contract and General Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. It is permissible for a single supplier to combine submittal items for multiple sections within Division 8 Openings. This permission applies to sections that describe requirements for glazing, hardware, any passage door and windows that are framed using the same systems as the passage doors. Identify all sections that are included in the transmittal on the coversheet.

D. Coordinate submittals for the following sections so they are submitted available for review by the Architect for the full duration of the review period.
   1. Section 07 92 00 - Joint Sealants.
   2. Section 08 11 13 - Hollow Metal Doors and Frames.
   3. Section 08 14 16 - Flush Wood Doors.
   4. Section 08 44 13 - Glazed Aluminum Curtain Walls: Curtain wall framing to comply with single source requirement and aluminum doors to be installed in curtainwall framing.
   5. Section 08 71 00 - Door Hardware / Finish Hardware.
   6. Section 08 80 00 - Glazing.

E. Review Submittals - Preparatory:
   1. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill.
   2. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.
   3. Design Data: Provide framing member structural and physical characteristics, dimensional limitations.

F. Review Submittals - Samples:
   1. Samples: Submit one sample illustrating finished aluminum surface.

G. Closeout Submittals:
   1. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.07 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.08 WARRANTY

A. See Conditions of the Contract and General Requirements for additional warranty requirements.

B. Correct defective Work within a one year period after the Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Aluminum-Framed Storefront and Doors: High Performance Thermal Break.for Window Framing.
   1. Kawneer North America: Trifab 451UT, www.kawneer.com.
   2. Tubelite, Inc.: TU24000, www.tubeliteinc.com.
   3. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 ALUMINUM-FRAMED STOREFRONT

A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
   1. Glazing Position: Centered (front to back).
   2. Vertical Mullion Dimensions: 2 inches wide x 4 1/2 inches deep.
   3. Frame Member Wall Thickness: 1/8 inch.
   4. Finish: Class I natural anodized.
      a. Factory finish all surfaces that will be exposed in completed assemblies.
      b. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.
   5. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
   6. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
   7. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.
   8. Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.
   9. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.

10. Maintain continuous air barrier and/or vapor retarder seal throughout assembly, primarily in line with inside pane of glazing and inner sheet of infill panel, and heel bead of glazing compound.

2.03 DOOR COMPONENTS

A. Interior Aluminum Door Framing Members: Tubular aluminum sections, non-thermally broken, drainage holes and internal weep drainage system.
   1. Glazing stops: Applied.

2.04 WINDOW AND SIDELIGHT COMPONENTS

A. Aluminum Framing Members: Tubular aluminum sections, drainage holes and internal weep drainage system.
   1. Framing members for interior applications need not be thermally broken.
   2. Glazing Stops: Applied.

B. Glazing: See Section 08 80 00.

C. Swing Doors: Glazed aluminum.
   1. Thickness: 1-3/4 inches.
   2. Wide Stile: 5 inch minimum stiles and top rail.
   3. Bottom Rail: 10 inches wide minimum single rail design.
   4. Glazing Stops: Square.
   5. Finish: Same as storefront.

2.05 FINISHES

A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

2.06 HARDWARE

A. Other Door Hardware: See Section 08 71 00.

2.07 FABRICATION

A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.

C. Prepare components to receive anchor devices. Fabricate anchors.

D. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.

E. Arrange fasteners and attachments to conceal from view.

F. Reinforce components internally for door hardware and door operators.

G. Reinforce framing members for imposed loads.

H. Finishing: Apply factory finish to all surfaces that will be exposed in completed assemblies.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install wall system in accordance with manufacturer's instructions.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Coordinate installation of conduit box at head of frame and flexible conduit in frame to electric strike at electrified doors identified in Hardware Schedule with Division 26.

F. Coordinate attachment and seal of perimeter air and vapor barrier materials.

G. Pack fibrous insulation or apply expanding foam in shim spaces at perimeter of assembly.

H. Install glass in accordance with Section 08 80 00.

I. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.02 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 0.06 inch per 10 feet, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.03 FIELD QUALITY CONTROL

A. Provide services of storefront manufacturer's field representative to observe for proper installation of system and submit report.

3.04 ADJUSTING

A. Adjust operating hardware for smooth operation.

3.05 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.

END OF SECTION

SECTION 08 44 13
GLAZED ALUMINUM CURTAIN WALLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum-framed curtain wall, with vision glazing and glass infill panels. Product from this section and Section 08 43 13 shall be single sourced.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 05 40 00 - Cold Formed Metal Framing: Substrate for applying break metal panels adjacent to curtainwall framing.

C. Section 07 21 00 - Thermal Insulation: Insulation gap filler for opening perimeter.

D. Section 07 27 00 - Air Barriers: Sealing assemblies to weather barrier installed on adjacent construction.

E. Section 07 92 00 - Joint Sealants: Sealing joints between frames and adjacent construction.

F. Section 08 11 13 - Hollow Metal Doors and Frames.

G. Section 08 14 16 - Flush Wood Doors.

H. Section 08 43 13 - Aluminum-Framed Storefronts: Entrance framing and doors. Single source the work of these sections.

I. Section 08 44 35 - Protective Framed Glazing Assemblies.

J. Section 08 71 00 - Door Hardware.

K. Section 08 80 00 - Glazing.

1.03 REFERENCE STANDARDS

A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.

B. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems; 2015.

C. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.

D. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

E. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

F. ASTM E283/E283M - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2019.

G. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2023).

H. DASMA 102 - American National Standard Specifications for Sectional Doors; 2018.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. It is permissible for a single supplier to combine submittal items for multiple sections within Division 8 Openings. This permission applies to sections that describe requirements for glazing, hardware, any passage door and windows that are framed using the same systems as the passage doors. Identify all sections that are included in the transmittal on the coversheet.

D. Coordinate submittals for the following sections so they are submitted available for review by the Architect for the full duration of the review period.
   1. Section 07 92 00 - Joint Sealants.
   2. Section 08 43 13 - Aluminum-Framed Storefronts.
   3. Section 08 44 13 - Glazed Aluminum Curtain Walls: Curtain wall framing to comply with single source requirement and aluminum doors to be installed in curtainwall framing.
   4. Section 08 44 35 - Protective Framed Glazing Assemblies.
   5. Section 08 71 00 - Door Hardware.
   6. Section 08 80 00 - Glazing.

E. Review Submittals - Preparatory:
   1. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, internal drainage details, glazing, unit u-value, center of glass u-value, visual light transmittance and solar heat gain coefficient, and infill.
   2. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required. Large scale details of vertical and horizontal stacking joints. Large scale details for conditions at adjacent and dissimilar construction, including jamb terminations, sill sections, parapets, soffits, head sections, anchor type, size and location at jambs and/or head/sill. Profiles, thickness, and construction of members, custom extrusion, panel systems within curtainwall. Detail rain screen and weepage system. Indicate glass types, sizes, and edge clearances.
   3. Shop Drawings: Provide details of proposed structural sealant glazing (SSG) and weather sealant joints indicating dimensions, materials, bite, thicknesses, profile, and support framing.
   4. Design Analysis (for “Record Only”): Submit letter indicating that a registered engineer performed detailed calculations to determine component sizes, strengths, temper, deflection, and differential movement within system and between curtainwall and adjacent construction, including the following.
      a. Structural analysis of loads and reactions on system.
      b. Differential movement and deflection of system.
      c. Glazing analysis for structural and thermal resistance (glass thickness and temper).
      d. Submit letter confirming design analysis has been completed and design is in conformance thereto.
         1) Registered Professional Engineer shall sign and seal letter.
         2) Attach back-up information and separate letters confirming sealant applications and glass type and strength have been reviewed by the respective manufacturers and are appropriate for this project.
      e. Do not submit actual design calculations.

F. Review Submittals - Samples:
   1. Samples: Submit two samples 12 4 inches in size illustrating finished aluminum surface, glazing, infill panels, and glazing materials.

G. Information Submittals - Preparatory:
   1. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.
   2. Design Data: Provide framing member structural and physical characteristics and engineering calculations, and identify dimensional limitations; include load calculations at points of attachment to building structure.
   3. Structural Sealant Glazing (SSG): Submit product data and calculations showing compliance with performance requirements.

H. Information Submittals - During Execution:
   1. Test Reports: Submit results of full-size mock-up testing. Reports of tests previously performed on the same design are acceptable.
   2. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.

I. Closeout Submittals:
   1. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Designer Qualifications: Design curtain wall and its structural support framing components under direct supervision of a Professional Engineer experienced in design of this work and licensed in the state in which the project is located.

B. Verify that each component is appropriate for use in structural sealant glazing (SSG) application in regards to at least the following properties: size, shape, dimensions, material, durability, storage conditions, and color.

C. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with not less than three years of documented experience.

D. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.07 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.08 WARRANTY

A. See Conditions of the Contract and General Requirements for additional warranty requirements.

B. Provide 10 year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.

C. The Prime Contractor is to provide a written guarantee warranting all window and related work under Contract to be free from defects in materials and workmanship for extended periods of time as stipulated in the guarantee form. The Prime Contractor's Performance-Payment Bond is not required to apply to any extended guarantee period beyond the first year, required for all work under Contract.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Glazed Aluminum Curtain Walls Manufacturers:
   1. Kawneer North America: www.kawneer.com.
   2. Tubelite, Inc: www.tubeliteinc.com.
   3. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 CURTAIN WALL

A. Aluminum-Framed Curtain Wall: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
   1. Basis of Design: Kawneer Aluminum Curtain Wall Systems (Contractor option for the following two types):
      a. Clearwall (SSI):
         1) Sightline: 2-1/2 inches.
         2) Outside glazed with metal interfaced insulating glass (interface shop applied with structural silicone).
         3) System depth: 6 inches.
      b. Clearwall (SSIT):
         1) Sightline: 2-1/2 inches.

2) Outside glazed with metal interfaced insulating glass (interface shop applied with 3M VHB structural glazing tape).
3) System depth: 5-7/8 inches.

2. Finish: Class I natural anodized.
   a. Factory finish surfaces that will be exposed in completed assemblies.
   b. Touch-up surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.
   c. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.
3. Provide flush joints and corners, weathersealed, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for imposed loads.
4. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
5. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
6. Air and Vapor Seal: Maintain continuous air barrier and vapor retarder throughout assembly, primarily in line with inside pane of glazing and heel bead of glazing compound.
7. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.

B. Structural Performance Requirements: Design and size components to withstand the following load requirements without damage or permanent set.
   1. Design Wind Loads: Comply with the requirements of ASCE 7.
      a. Member Deflection: For spans less than 13 feet 6 inches, limit member deflection to flexure limit of glass in any direction, and maximum of 1/175 of span or 3/4 inch, whichever is less and with full recovery of glazing materials.
      b. Member Deflection: For spans over 13 feet 6 inches and less than 40 feet, limit member deflection to flexure limit of glass in any direction, and maximum of 1/240 of span plus 1/4 inch, with full recovery of glazing materials.
   2. Movement: Accommodate the following movement without damage to components or deterioration of seals:
      a. Expansion and contraction caused by 180 degrees F surface temperature.
      b. Expansion and contraction caused by cycling temperature range of 170 degrees F over a 12 hour period.
      c. Movement of curtain wall relative to perimeter framing.
      d. Deflection of structural support framing, under permanent and dynamic loads.
   3. Structural Sealant Glazing (SSG) System: For individual glass lites, design framing members to not exceed a deflection normal to the wall of L/175 between supports with 3/4 inch maximum, and a deflection parallel to the wall of L/360 with 1/8 inch maximum, whichever is less.

C. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on indoor face when tested as follows:
   1. Test Pressure Differential: 15 psf.
   2. Test Method: ASTM E331.

D. Air Leakage: 0.06 cfm/sq ft maximum leakage of wall area when tested in accordance with ASTM E283/E283M at 6.24 psf pressure difference across assembly.

E. Thermal Performance Requirements:
   1. Condensation Resistance Factor of Framing: 70, minimum, measured in accordance with AAMA 1503.
   2. Overall System U-value Including Glazing: 0.31 Btu/(hr sq ft deg F), maximum, measured in accordance with NFRC 100.

F. Solar Heat Gain Coefficient: As calculated by NFRC 200.

2.03 COMPONENTS

A. Curtain Wall Framing:
   1. Framing Members: Manufacturer's standard extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
   2. Glazing System: Retained mechanically with toggles on four sides, vertical SSG, horizontal SSG.
   3. Glazing Plane: Front.
   4. Clearwall SSI:
      a. Outside glazed with metal interfaced 1 inch insulating glass.
      b. Interface shop applied with structural silicone.
   5. Clearwall SSIT:
      a. Outside glazed with metal interfaced 1 inch insulating glass.
      b. Interface shop applied with 3M VHB structural glazing tape.

B. Brackets and Reinforcements:
   1. Manufacturer's standard high-strength aluminum with non-staining, non-ferrous shims for aligning system components.
      a. Brake Metal Clips: Manufacturer's suggested product.

C. Framing Sealants:
   1. Shall be suitable for glazed aluminum curtain wall as recommended by sealant manufacturer.

D. 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.
   3. Toggle Assembly: As tested by manufacturer.

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

F. Glazing:
   1. Glazing: See Section 08 80 00.
   2. System: Outside toggle glazed format with 1 inch double glazed insulating glass.
   3. Clearwall SSI: Outside glazed with metal interfaced 1 inch insulating glass. Apply interface in shop with structural silicone. Field apply interface at infill panels notched for structural penetrations.
   4. Clearwall SSIT: Outside glazed with metal interfaced 1 inch insulating glass. Apply interface in shop with 3M VHB structural glazing tape. 3M™ to conduct application review prior to start of each project. Field apply interface at infill panels notched for structural penetrations.
   5. Glazing Gaskets:
      a. Gaskets to meet requirements of ASTM C864.
   6. Spacers and Setting Blocks:
      a. Manufacturer's standard elastomeric type.
   7. Bond-Breaker Tape:
      a. Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.
   8. Glazing Sealants:
      a. As recommended by manufacturer for joint type.

G. Infill Panels: Insulated, aluminum sheet face and back, with sealed edges formed to be sealed to adjacent glazing.
   1. Basis of Design: Mapes - SSG:
      a. Four-Sided Structural Glazing [Pan-in-Pan].
      b. Face Sheets: Aluminum, Clear Anodized Class 1.
      c. Face Sheet Substrates and Core: Non-Combustible.
      d. R-Value: Minimum 2.

2. Fabricate panels to site measurements for notched and patching panels to fit around structural penetrations. Field assemble notched and patching panels to interface channel.

H. Clear Anodized Aluminum Panel: Minimum 0.063 inch thick clear anodized breakmetal panels where specified including at cold formed metal framing adjacent to curtainwall.
   1. Provide manufacturer's clips for attaching panels to curtainwall framing members.

I. Doors: See Section 08 43 13.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other related work.

B. Verify that curtain wall openings and adjoining water-resistive and air barrier seal materials are ready to receive work of this section.

C. Verify that anchorage devices have been properly installed and located.

3.02 INSTALLATION

A. Install wall system in accordance with manufacturer's instructions and in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 and NFRC.

B. Coordinate timing of installing windows prior to installation of air barrier with 07 27 00 contractor.

C. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

D. Provide alignment attachments and shims to permanently fasten system to building structure.

E. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

F. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation or apply foam insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

G. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

H. Coordinate attachment and seal of perimeter air and vapor barrier materials.

I. Pack fibrous insulation or expanding foam sealant in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

J. Structural Sealant Glazing (SSG) Adhesive: Install structural sealant glazing adhesive and weatherseal sealant in accordance with manufacturer's instructions.

K. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inch per 3 feet noncumulative or 0.5 inches per 100 feet, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

C. Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 3/4 inch and minimum of 1/4 inch.

3.04 FIELD QUALITY CONTROL

A. Provide services of curtain wall manufacturer's field representative to observe for proper installation of system and submit report.

B. See Section 01 40 00 - Quality Requirements for independent field testing and inspection requirements, and requirements for monitoring quality of specified product installations.

C. Water-Spray Test: Provide water spray quality test of installed curtain wall components in accordance with AAMA 501.2 using uniform pressure Test Method B during construction process and before installation of interior finishes.
   1. Perform a minimum of two tests in each designated area as indicated on drawings.

2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.
3. Tests performed when owner determines a questionable installation has occurred.
4. If test passes, owner shall pay for testing.
5. If test fails, contractor shall pay for testing.

D. Repair or replace curtain wall components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.05 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, take care to remove dirt from corners, and wipe surfaces clean.

3.06 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

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SECTION 08 44 35
PROTECTIVE FRAMED GLAZING ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior protective framed glazing assembly.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 07 92 00 - Joint Sealants: Sealing joints between frames and adjacent construction.

C. Section 08 71 00 - Door Hardware: Hardware and hardware installation requirements.

1.03 REFERENCE STANDARDS

A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.

B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020.

C. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

D. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

E. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

F. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

G. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

H. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

I. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.

J. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.

K. ITS (DIR) - Directory of Listed Products; Current Edition.

L. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

M. UL (DIR) - Online Certifications Directory; Current Edition.

N. UL 263 - Standard for Fire Tests of Building Construction and Materials; Current Edition, Including All Revisions.

1.04 PERFORMANCE REQUIREMENTS

A. Fire Rating: 90 minutes.

B. Fire Resistive Wall Assembly Certifications: Fire resistive wall assemblies tested in accordance with ASTM E119 and UL 263, rated per schedule.

C. Testing Laboratory: Fire test shall be conducted by a nationally recognized independent testing laboratory.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. It is permissible for a single supplier to combine submittal items for multiple sections within Division 8 Openings. This permission applies to sections that describe requirements for glazing, hardware, any passage door and windows that are framed using the same systems as the passage doors. Identify all sections that are included in the transmittal on the coversheet.

D. Coordinate submittals for the following sections so they are submitted available for review by the Architect for the full duration of the review period.
   1. Section 07 92 00 - Joint Sealants.
   2. Section 08 11 13 - Hollow Metal Doors and Frames.
   3. Section 08 14 16 - Flush Wood Doors.
   4. Section 08 43 13 - Aluminum-Framed Storefronts.
   5. Section 08 44 13 - Glazed Aluminum Curtain Walls: Curtain wall framing to comply with single source requirement and aluminum doors to be installed in curtainwall framing.
   6. Section 08 71 00 - Door Hardware / Finish Hardware.
   7. Section 08 80 00 - Glazing.

E. Review Submittals - Preparatory:
   1. Product Data: Provide evidence of compliance with fire performance criteria and manufacturer's published product data on framing components, glazing, anchorage and fasteners, and doors, if any.
   2. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.
   3. Design Data: Submit framing member structural and physical characteristics and engineering calculations, and identify dimensional limitations.
   4. Test Reports: Submit results of full-size mock-up testing for criteria other than fire performance. Reports of tests previously performed on the same design are acceptable.

F. Review Submittals - Samples:
   1. Samples: Submit samples as follows illustrating each exposed metal finish of interior and exterior project-specific applications.
      a. For color anodized aluminum, submit minimum of three samples illustrating expected range of color in actual production.

G. Closeout Submittals:
   1. Warranty Documentation: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Designer Qualifications: Perform design under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the state in which the project is located.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with at least ten years documented experience.

C. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

1.08 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F, and maintain above this minimum temperature during and for 48 hours after installation.

1.09 WARRANTY

A. See Conditions of the Contract and General Requirements for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

C. Provide 20 year manufacturer warranty against excessive degradation of exterior PVDF finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 INTERIOR PROTECTIVE FRAMED GLAZING ASSEMBLIES

A. Manufacturers:
   1. SAFTIFIRST, a division of O'Keeffe's Inc: www.safti.com.
   2. Technical Glass Products: www.fireglass.com.
   3. Vetrotech North America: www.vetrotechusa.com.
   4. Aluflam: www.aluflam.com.
   5. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

B. Provide factory fabricated, factory finished framing members with glazing and related flashings, anchorage and attachment devices.

C. Structural Performance: Design to support dead loads and horizontal live loads equivalent to the following; coordinate connection to main structural members.
   1. Design Live Loads: Comply with requirements of ASCE 7.
   2. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
   3. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths or 3/4 inch, whichever is less, under specified design load.

D. Fire Performance: Provide hourly fire-resistance-rating as indicated; tested as an assembly including glazing in compliance with ASTM E119 or UL 263 and requirements of local authorities having jurisdiction.
   1. Acceptable evidence of compliance includes listing by UL (DIR), ITS (DIR), or testing agency acceptable to authorities having jurisdiction.

2.02 COMPONENTS

A. Framing Members: Formed steel structural members with aluminum cladding and non-combustible thermally-resistive material as required for fire rating.
   1. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for imposed loads.
   2. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.

2.03 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

B. Structural Steel Sections: ASTM A36/A36M; galvanized in accordance with requirements of ASTM A123/A123M.

C. Fasteners: Stainless steel.

D. Sealants Within Fire-Rated Assembly: As required by fire-rating and manufacturer's assembly.

E. Sealants: See Section 07 92 00 for additional information.

F. Insulation: The framing system shall insulate against the effects of fire, smoke and heat transfer from either side. The perimeter of the framing system to the rough opening shall be firmly packed with mineral wool fire stop insulation or appropriately rated intumescent sealant.

G. Touch-Up Primer for Galvanized Steel Surfaces: SSPC-Paint 20, zinc rich.

2.04 GLAZING

A. Assemblies shall be glazed with product meeting ASTM E119.

B. Individual lites shall be permanently identified with a listing mark.

C. Glazing material installed in “Hazardous Locations” (subject to human impact) shall be certified to meet the applicable requirements for fire rated assemblies referenced in ANSI Z97.1 Standard for Safety Glazing Materials Used In Buildings and/or CPSC 16 CFR 1201 Safety Standard for Architectural Glazing Materials.

D. The glazing material shall be separated from the perimeter framing system with approved flame retardant glazing tape. The glazing panel shall be sealed to the frame continuously at perimeter with silicone sealant specified in 07 92 00.

E. Temperature rise on the unexposed side of glazing material shall be limited to 250 degrees Fahrenheit when required.

F. Logo: Each piece of fire rated glazing shall be labeled with a permanent logo.

2.05 FINISHES

A. Finishing: Apply factory finish to surfaces that will be exposed in completed assemblies.
   1. Touch-up surfaces cut during fabrication so that no natural metal surfaces are visible in completed assemblies, including joint edges.

B. Aluminum Finish: Class I natural anodized.
   1. Apply factory finish to surfaces that will be exposed in completed assemblies.
   2. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.

C. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other work.

B. Verify that wall openings and adjoining water-resistive barrier materials are ready to receive work of this section; see Section 07 25 00 for additional information.

C. Verify that anchorage devices have been properly installed and located.

3.02 INSTALLATION

A. Installer shall be licensed by manufacturer.

B. Install wall system in accordance with limitations of fire rating and with manufacturer's instructions.

C. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

D. Provide alignment attachments and shims to permanently fasten system to building structure.

E. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

F. Provide thermal isolation where components penetrate or disrupt building insulation.

G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.

H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

I. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 1/16 inch every 3 feet non-cumulative or 1/2 inch per 100 ft, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

C. Sealant Space Between Mullions and Adjacent Construction: Maximum of 3/4 inch and minimum of 1/4 inch.

3.04 FIELD QUALITY CONTROL

A. Provide services of manufacturer's field representative to observe installation and submit report.

3.05 CLEANING

A. Remove protective material from pre-finished surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

C. Remove excess sealant by method acceptable to sealant manufacturer.

3.06 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

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SECTION 08 80 00
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Insulating glass units.

B. Glazing units.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 07 27 00 - Air Barriers: Sealing assemblies to weather barrier installed on adjacent construction.

C. Section 07 92 00 - Joint Sealants: Sealants for other than glazing purposes.

D. Section 08 11 13 - Hollow Metal Doors and Frames: Glazed lites in doors and borrowed lites.

E. Section 08 14 16 - Flush Wood Doors: Glazed lites in doors.

F. Section 08 43 13 - Aluminum-Framed Storefronts: Glazing provided as part of storefront assembly.

G. Section 08 44 13 - Glazed Aluminum Curtain Walls: Glazing provided as part of wall assembly.

H. Section 08 44 35 - Protective Framed Glazing Assemblies: Glazing fire-tested as part of wall assembly.

1.03 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

D. ASTM C1036 - Standard Specification for Flat Glass; 2021.

E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.

F. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2019.

G. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).

H. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass; 2021a.

I. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.

J. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.

K. ASTM F1233 - Standard Test Method for Security Glazing Materials And Systems; 2021.

L. GANA (GM) - GANA Glazing Manual; 2022.

M. GANA (SM) - GANA Sealant Manual; 2008.

N. GANA (LGRM) - Laminated Glazing Reference Manual; 2019.

O. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

P. IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use; 1990 (2016).

Q. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.

R. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.

S. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2023.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. It is permissible for a single supplier to combine submittal items for multiple sections within Division 8 Openings. This permission applies to sections that describe requirements for glazing, hardware, any passage door and windows that are framed using the same systems as the passage doors. Identify all sections that are included in the transmittal on the coversheet.

D. Coordinate submittals for the following sections so they are submitted available for review by the Architect for the full duration of the review period.
   1. Section 07 92 00 - Joint Sealants.
   2. Section 08 16 13 - Fiberglass Doors.
   3. Section 08 43 13 - Aluminum-Framed Storefronts.
   4. Section 08 44 13 - Glazed Aluminum Curtain Walls: Curtain wall framing to comply with single source requirement and aluminum doors to be installed in curtainwall framing.
   5. Section 08 71 00 - Door Hardware / Finish Hardware.
   6. Section 08 80 00 - Glazing.
   7. Section 08 88 13 - Fire-Rated Glazing.

E. Review Submittals - Preparatory Group:
   1. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
   2. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors. Coordinate the following information with product in Section 08 43 13 and 08 44 13; unit u-value, center of glass u-value and solar heat gain coefficient.

F. Closeout Submittals:
   1. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with GANA (GM), GANA (SM), and IGMA TM-3000 for glazing installation methods. Maintain one copy on site.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

1.06 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 40 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

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

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Float Glass Manufacturers:
   1. AGC Glass Company North America, Inc: www.us.agc.com.
   2. Cardinal Glass Industries: www.cardinalcorp.com.
   3. Guardian Industries Corp: www.sunguardglass.com.
   4. Oldcastle Glass: www.oldcastleglass.com.
   5. Pilkington North America Inc: www.pilkington.com/na.

6. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com.

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

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

B. Weather-Resistive Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure water-resistive barrier, vapor retarder, and/or air barrier.
   1. In conjunction with weather barrier related materials described in other sections, as follows:
      a. Water-Resistive Barriers: See Section 07 25 00.

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

2.03 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.
   1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
   2. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
   3. Kind FT - Fully Tempered Type: Complies with ASTM C1048.
   4. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.
   5. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.

B. Laminated Glass: Float or Tempered glass laminated in accordance with ASTM C1172.
   1. Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category II impact test requirements.
   2. Polyvinyl Butyral (PVB) Interlayer: 0.030 inch thick, minimum.

2.04 INSULATING GLASS UNITS

A. Manufacturers:
   1. Glass: Any of the manufacturers specified for float glass.
   2. Fabricator certified by glass manufacturer for type of glass, coating, and treatment involved and capable of providing specified warranty.
   3. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

B. Insulating Glass Units: Types as indicated.
   1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
   2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
   3. Metal-Edge Spacers: Aluminum, bent and soldered corners.
   4. Spacer Color: Aluminum.
   5. Edge Seal:
      a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.

6. Color: Black.
7. Purge interpane space with dry air, hermetically sealed.
8. Configured for compatibility with curtainwall mounting as applicable.

C. GLT-12 Insulating Glass Units: Security glazing.
1. Applications:
   a. Glazed lites in exterior doors.
   b. Glazed sidelights and panels next to doors.
   c. Other locations required by applicable federal, state, and local codes and regulations.
2. Space between lites filled with argon.
3. Outboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
   a. Tint: Gray. To be selected to match A/E's sample of Vitro Architectural Glass OptiGray.
   b. Low-E Coating, Basis of Design: Vitro Architectural Glass, Solarban 60 on #2 surface.
4. Inboard Lite: Laminatedfloat glass, 1/4 inch thick, minimum. 0.030 PVB layer.
   a. Tint: Clear
5. Total Thickness: 1 inch.
6. Thermal Transmittance (U-Value), Summer - Center of Glass: 0.24, nominal.
7. Visible Light Transmittance (VLT): 70 percent, nominal.
8. Solar Heat Gain Coefficient (SHGC): 0.38, nominal.

D. GLT-13 Insulating Glass Units: Vision glass, double glazed. Safety Glazing.
1. Applications: Ground floor windows away from doors and as scheduled.
2. Space between lites filled with argon.
3. Outboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
   a. Tint: Gray. To be selected to match A/E's sample of Vitro Architectural Glass OptiGray.
   b. Low-E Coating, Basis of Design: Vitro Architectural Glass, Solarban 60 on #2 surface.
4. Inboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
   a. Tint: Clear
5. Total Thickness: 1 inch.
6. Thermal Transmittance (U-Value), Summer - Center of Glass: 0.24, nominal.
7. Visible Light Transmittance (VLT): 70 percent, nominal.
8. Solar Heat Gain Coefficient (SHGC):.38, nominal.
9. Glazing Method: Dry glazing method, gasket glazing.

E. GLT-16 Insulating Glass Units: Spandrel glazing.
1. Applications: Exterior spandrel glazing unless otherwise indicated.
2. Space between lites filled with argon.
3. Outboard Lite: Heat-strengthened float glass, 1/4 inch thick, minimum.
   a. Tint: Gray.
   b. Low-E Coating, Basis of Design: Vitro Architectural Glass, Solarban 60 on #2 surface.
   c. Ceramic frit, on #2 surface.
4. Inboard Lite: Annealed float glass, 1/4 inch thick.
   a. Tint: Clear.
   b. Opacifier: Ceramic frit, on #3 surface.
   c. Opacifier Color: As selected by A/E.
5. Total Thickness: 1 inch.
6. Thermal Transmittance (U-Value), Summer - Center of Glass: 0.24, nominal.
7. Glazing Method: Dry glazing method, gasket glazing.

2.05 GLAZING UNITS

A. GLT-4 - Monolithic Safety Glazing: Non-fire-rated:
1. Applications:
   a. Glazed lites in doors, except fire doors.
   b. Glazed sidelights to doors, except in fire-rated walls and partitions.
   c. Other locations required by applicable federal, state, and local codes and regulations.
   d. Other locations indicated on drawings.
2. Glass Type: Fully tempered safety glass as specified.

3. Tint: Clear.
4. Thickness: 1/4 inch, nominal.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.02 PREPARATION

A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

C. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.

D. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.

E. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.

F. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, and paint.

3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.

B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.05 CLEANING

A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

B. Remove nonpermanent labels immediately after glazing installation is complete.

C. Clean glass and adjacent surfaces after sealants are fully cured.

D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.06 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

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SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Mechanical Supply and Return Devices Division 26.

C. Electrical Light Fixtures Division 26.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

C. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.

D. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2023.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Review Submittals - Preparatory:
   1. Product Data: Provide data on suspension system components and acoustical units.

C. Review Submittals - Samples:
   1. Samples: Submit two samples 12 by 12 inch in size illustrating material and finish of acoustical units.

D. Maintenance Materials:
   1. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
      a. See Section 01 60 00 - Product Requirements, for additional provisions.
      b. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.05 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.06 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acoustic Tiles/Panels:
   1. Armstrong World Industries, Inc: www.armstrongceilings.com.
   2. Acoustic Ceiling Products, Inc: www.acpideas.com.
   3. CertainTeed Corporation: www.certainteed.com/ceilings-and-walls.
   4. USG Corporation: www.usg.com/ceilings.
   5. Roxul Rockfon. www.rockfon.com.
   6. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

B. Steel Suspension Systems:
   1. Armstrong World Industries, Inc: www.armstrongceilings.com.
   2. CertainTeed Corporation: www.certainteed.com/ceilings-and-walls.

3. Rockfon, LLC: www.rockfon.com.
4. USG Corporation: www.usg.com/ceilings.
5. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

C. Aluminum Suspension Systems:
1. Armstrong World Industries, Inc; Prelude Plus: www.armstrong.com.
2. Acoustic Ceiling Products, Inc.; comparable: www.acpideas.com.
3. CertainTeed Corporation; 15/16" Classic Aluminum Hook System: www.certainteed.com.
4. Rockfon Chicago Metallic; 830 All Aluminum 15/16": www.rockfon.com.
5. USG: www.usg.com.
6. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 ACOUSTICAL UNITS

A. Acoustical Units - General: ASTM E1264, Class A.

B. BOARD TYPE ACT-2: 2'x2' Tegular, Min NRC.75:
1. Armstrong: Ultima.
2. Certainteed Corp: Symphony.
3. USG Corporation: Mars.
4. Rockfon: Artic #660.
5. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

C. BOARD TYPE ACT-3: 2'x2' Vinyl Faced Gyp Bd:
1. Certainteed Corp: Capual Vinylrock-X.
2. USG Corporation: USG Sheetrock Brand Lay-In Gypsum Ceiling Panels.
3. National Gypsum: Gridstone.
4. Rockfon: Koral #1100.
5. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.03 SUSPENSION SYSTEM(S)

A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with stabilizer bars, clips, splices, and perimeter moldings as required.
1. Materials:
a. Steel Grid: ASTM A653/A653M, G30 coating, unless otherwise indicated.
b. Aluminum Grid: Aluminum sheet, ASTM B209/B209M.

B. Steel Suspension Systems:
1. Application(s): Locations with ACT-2.
2. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
3. Profile: Tee; 15/16 inch face width.
4. Finish: Baked enamel.
5. Manufacturers:
a. Armstrong World Industries, Inc: www.armstrongceilings.com.
b. CertainTeed Corporation: www.certainteed.com.
c. Rockfon, LLC: www.rockfon.com.
d. USG Corporation: www.usg.com/ceilings.
e. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

C. Aluminum Grid Suspension Systems:
1. Application(s): Restrooms.
2. Structural Classification: Light-duty, when tested in accordance with ASTM C635/C635M.
3. Profile: Tee; 15/16 inch face width.
4. Finish: Baked enamel.
5. Products:
a. Armstrong World Industries, Inc; Prelude Plus XL - Aluminum: www.armstrong.com.
b. USG: USG Donn Brand AX Acoustical Suspension System: www.usg.com.
c. Rockfon Chicago Metallic 830 All Aluminum 15/16" Exposed: www.rockfon.com.

d. Structural Design and Calculations: As described in Section 10 71 13.43 - Fixed Sun Screens.
e. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.04 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application and ceiling system flatness requirement specified.

B. Hanger Wire: 12 gauge, 0.08 inch galvanized steel wire.

C. Perimeter Moldings: Same metal and finish as grid.
1. Angle Molding: L-shaped, for mounting at same elevation as face of grid.

D. Metal Edge Trim for Suspension Systems: Steel or extruded aluminum; provide attachment clips, splice plates, and preformed corner pieces for complete trim system.
1. Trim Height: 6 inch.
2. Finish: Baked enamel.
3. Color: White.
4. Products:
a. USG Corporation; Compasso Suspension Trim: www.usg.com/ceilings.
b. Armstrong: Axiom Classic. www.armstrongceilings.com.
c. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM

A. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

B. Locate system on room axis according to reflected plan.

C. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
1. Use longest practical lengths.
2. Miter corners.

D. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

H. Do not eccentrically load system or induce rotation of runners.

3.03 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

E. Cutting Acoustical Units:
1. Cut to fit irregular grid and perimeter edge trim.

2. Make field cut edges of same profile as factory edges.

F. Where round obstructions occur, provide preformed closures to match perimeter molding.

G. Provide tegular edge at walls and other abutting vertical surfaces. Field paint cut edges to surface color and sheen.

3.04 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

END OF SECTION

SECTION 09 54 23
LINEAR METAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Linear metal ceilings.

B. Suspended metal support system and perimeter trim.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 01 govern the work of this section.

B. Section 09 51 00 - Acoustical Ceilings.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.

C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2022.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate work of this section with installation of mechanical and electrical components and with other construction activities affected by work of this section.

B. Sequencing: Supply hanger clips during steel deck erection. Supply additional hangers and inserts as required.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Furnish for component profiles.
   2. Shop Drawings: Indicate reflected ceiling plan.

D. Review Submittal - Samples:
   1. Samples: Submit two samples 4 by 12 inch in size illustrating color and finish of exposed to view components.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements for additional provisions.

1.06 QUALITY ASSURANCE

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

B. Installer Qualifications: Company specializing in performing the work of this section.
   1. Minimum 3 years documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 01 74 19 - Construction Waste Management and Disposal for packaging waste requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Linear Metal Ceilings: Basis of Design; Armstrong Ceilings, Metalworks Linear - Synchro.
   1. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 LINEAR METAL CEILINGS

A. Board Type LMC-1: Linear Metal Ceiling System: Panels, suspension members, trim and accessories as required to provide a complete system.

B. Performance Requirements:
   1. Design to support imposed loads of indicated items without eccentric loading of supports.
   2. Design for maximum deflection of 1/360 of span.
   3. Noise Reduction Coefficient (NRC): 70, measured in accordance with ASTM C423 with insulation installed.

2.03 COMPONENTS

A. Acoustical Backer: Manufacturer's standard non-woven fabric; as required to achieve specified acoustic performance.

B. Linear Panels:
   1. Profile: Channel shape, 6 inch width.
   2. Length: Continuous. Panel lengths joined with internal integral splices as required.
   3. Sight-exposed Surface Finish: Silver Grey selected from from manufacturer's standard range. Microperforated for acoustical properties.

C. Edge Molding and Splices: Same material, thickness, and finish as linear panels.

D. End Caps: Formed metal; same color and finish as sight-exposed surfaces of linear panels.

E. Accessories: Stabilizer bars as required for suspended grid system; sight-exposed surfaces same color and finish as sight-exposed surfaces of linear panels.

F. Suspension Members: Formed steel sections, with integral attachment points; galvanized finish; size and type to suit application and ceiling system flatness requirement specified.

G. Suspension Wire: Steel, annealed, galvanized finish, 9 gauge, 0.1144 inch diameter.

H. Subgirt Members: Hot-dip galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating; formed to resist imposed loads and to provide attachment for linear ceiling and accessories.

2.04 FABRICATION

A. Shop cut linear panels to accommodate mechanical and electrical items.

B. Factory-form internal and external corners of same material, thickness, finish, and profile to match exposed linear panels; back brace internal corners.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

C. Verify that required utilities are available, in proper location, and ready for use.

D. Verify that field measurements are as indicated.

3.02 INSTALLATION

A. Suspension Components:
   1. Install after above-ceiling work is complete in accordance with ASTM C636/C636M, ASTM E580/E580M, ASTM C636/C636M, ASTM E580/E580M, ASTM C636/C636M, and ASTM E580/E580M.
   2. Hang carrying members independent of walls, columns, ducts, light fixtures, pipe, and conduit; where carrying members are spliced, avoid visible displacement of face panels with adjacent panels.
   3. Where ducts or other equipment prevent regular spacing of hangers, reinforce nearest adjacent hangers to span the required distance.
   4. Locate suspension system for linear panel layout parallel to building lines according to reflected plan.

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B. Linear Metal Ceiling:
   1. Install linear panels, baffles, and other system components in accordance with manufacturer's instructions.
   2. Align end joints.
   3. Install filler strips between linear panels at interior locations.
   4. Install edge moldings at junctions with other finishes and at vertical surfaces; use maximum piece lengths.
   5. Exercise care when site cutting sight-exposed finished components to ensure surface finish is not defaced.

C. Insulation: Install above panel members; fit tight between grid members.

3.03 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation From Dimensioned Position: 1/4 inch.

3.04 CLEANING

A. Clean surfaces.

B. Replace damaged or abraded components.

END OF SECTION

SECTION 09 91 23
INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Identification of rated walls.

D. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
   1. Refer to Architectural Drawings for metal fabrications to be painted.
   2. Refer to Interior Drawings for wall and ceiling paint scope.
   3. Painting contractor shall review both architectural and interior Drawings for complete paint scope.
   4. Hollow metal doors and frames.
   5. Mechanical and Electrical:
      a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
      b. In finished areas, paint shop-primed items.

E. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
   5. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, and lead items.
   6. Marble, granite, slate, and other natural stones.
   7. Floors, unless specifically indicated.
   8. Ceramic and other tiles.
   9. Brick, architectural concrete, cast stone, integrally colored plaster, and stucco.
   10. Glass.
   11. Concrete masonry units in utility, mechanical, and electrical spaces.
   12. Acoustical materials, unless specifically indicated.
   13. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Applicable provisions of Division 1 govern the work of this section.

B. Section 07 05 53 - Fire and Smoke Assembly: Painting required where stenciling used for wall identification.

C. Section 08 11 13 - Hollow Metal Doors and Frames: Frames and doors to be field painted.

D. Section 09 91 13 - Exterior Painting.

1.03 DEFINITIONS

A. Comply with ASTM D16 for interpretation of terms used in this section.

1.04 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2024.

C. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2023.

D. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

E. SSPC-SP 2 - Hand Tool Cleaning; 2018.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for procedures.

B. Provide submittal transmittals that include all submittal items identified in each submittal group below.

C. Review Submittals - Preparatory:
   1. Product Data: Provide complete list of products to be used, with the following information for each:
      a. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
      b. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
      c. Manufacturer's installation instructions.
      d. If proposal of substitutions is allowed under submittal procedures, explanation of substitutions proposed.

D. Review Submittals - Samples:
   1. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
      a. Where sheen is specified, submit samples in only that sheen.
      b. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens not required.

E. Information Submittals - Preparatory:
   1. Certification: By manufacturer that paints and finishes comply with VOC limits specified.
   2. Manufacturer's Instructions: Indicate special surface preparation procedures.
   3. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

F. Maintenance Materials:
   1. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
      a. See Section 01 60 00 - Product Requirements, for additional provisions.
      b. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
      c. Label each container with color in addition to the manufacturer's label.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply materials when relative humidity exceeds 85 percent, at temperatures less than 5 degrees F above the dew point, or to damp or wet surfaces.

D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 fc measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

B. Paints:
   1. Base Manufacturer: Sherwin WIlliams (SW). www.sherwin-williams.com.
   2. Halman-Lindsay (HL): www.hallmanlindsay.com.
   3. Behr Process Corporation: www.behr.com.
   4. Benjamin Moore: www.benjaminmoore.com.
   5. Diamond Vogel Paints: www.diamondvogel.com.
   6. PPG Paints: www.ppgpaints.com.
   7. Pratt & Lambert Paints: www.prattandlambert.com.

C. Substitutions: See Section 01 25 00 - Substitution Procedures for requirements.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
   4. Supply each paint material in quantity required to complete entire project's work from a single production run.
   5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
   6. Paint for insulated piping shall be latex based. If the insulation taping is rippled due to oil based application, the Painter shall be responsible for replacement of the insulation. Certain Class A, non-combustible paints may maintain a 25/50 smoke rating for the painted pipe insulation, PVC jacketing and fittings. Check with state and local building codes and fire marshal for approved practice before painting.

B. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Flammability: Comply with applicable code for surface burning characteristics.

D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

E. Colors: As indicated in Color Schedule.
   1. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.
   2. Extend colors to surface edges; colors may change at any edge as directed by Architect.

3. In finished areas, diffusers, grilles, registers, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.
4. In unfinished areas: Paint all woodwork, doors and metal frames, convectors, ladders, railings, gratings and the like.

2.03 PAINT SYSTEMS - INTERIOR

A. IPS 1 Wood (i.e. trim): 100% Acrylic Latex, Satin/Semi-gloss, Non-blocking:
1. (SW) One coat Premium Interior Wall and Wood Primer B28W8111 and two coats ProClassic Waterborne Acrylic, Semi-Gloss B31-1100 Series.
2. (HL) One coat Aqua Kote Enamel Undercoater 231 and two coats Duratech 100% Acrylic Satin Enamel 318.

B. IPS 5 Ferrous Metal (Primed Ferrous metal and Hollow Metal Doors and Frames): Satin/Semi-Gloss:
1. (SW) One coat Pro Indusrial Pro-Cryl Universal Primer B66-310 Series, one coat Pro Industrial Pre-Catalyzed Waterbased Epoxy Semi-Gloss K46-1150 Series.
2. (HL) One coat Metalguard DTM Acrylic Primer/finish 338 and two coats two coats Rustoleum High Performance DTM Acrylic 3800.

C. IPS 8 Exposed Overhead Work: 100% Acrylic Dryfall Flat, Flash Rust Resistant:
1. (SW) Spot prime with ProCryl Universal Primer B66-1310 Series, one coat Low VOC Acrylic Dryfall B42W81 Series.
2. (HL) Spot primer with Metalguard DTM Primer/Finish 338, one coat Fast Dry Latex Flat Dryfall 251.

D. IPS 9 Concrete Block: Vinyl Acrylic Latex Eggshell over 100% Acrylic Block Filler, certifiable to ph13, surface to be pinhole free:
1. (SW) One coat Loxon Block Surfacer LX2W50, two coats ProMar 200 0 VOC Latex Eg-shel B20W12600 Series.
2. (HL) One coat Fill Tite Acrylic Block Filler 179, two coats Pro Kote Interior Latex Zero VOC Eggshell 284.

E. IPS 14 Gypsum Board: Vinyl Acrylic Latex Eggshell over Vinyl Acrylic Primer:
1. (SW) One coat ProMar 200 Zero VOC Interior Latex primer B28W02600 Series. two coats ProMar 200 Zero VOC Interior Latex Low Gloss Eg-Shel B41-2600 Series.
2. (HL) One coat Pro Wall Primer Zero VOC 227, two coats Pro Kote Interior Latex Zero VOC Eggshell 284.

F. IPS 16 Gypsum Board-Ceilings and Soffits: Latex Flat:
1. (SW) One coat ProMar 200 0 VOC Latex Wall Primer B28W2600, two coats ProMar 400 Flat Latex B30W400 Series.
2. (HL) One coat Pro Wall Primer Zero VOC 227, two coats Masterkote Interior Latex Flat 267.

G. IPS 21 Existing Painted Concrete Block: Latex Egg Shell:
1. (SW) Two coats ProMar 200 Zero VOC Interior Latex Low Gloss Eg-Shel B41-2600 Series.
2. (HL) Two coats Pro Kote Interior Latex Zero VOC Eggshell 284.

H. IPS 24 Existing Painted Gypsum Board: Vinyl Acrylic Latex Eggshell Over Existing Paint:
1. (SW) One coat Extreme Bond Interior/Exterior Bonding Primer B51W00150 Series, two coats ProMar 200 Zero VOC Interior Latex Low Gloss Eg-Shel, B41-2600 Series.
2. (HL) One coat Stainguard 100% Acrylic Primer 526, two coats Pro Kote Interior Latex Zero VOC Eggshell 284.

2.04 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of paints and finishes until substrates have been adequately prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

E. Test shop-applied primer for compatibility with subsequent cover materials.

F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
   1. Gypsum Wallboard: 12 percent.
   2. Masonry, Concrete, and Concrete Masonry Units: 12 percent.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application. Fill damaged/indented and holes in all wall surfaces from equipment removal flush with wall surface. Spot prime.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or repair existing paints or finishes that exhibit surface defects.

D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

E. Seal surfaces that might cause bleed through or staining of topcoat.

F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

G. Masonry:
   1. Remove efflorescence and chalk. Do not coat surfaces if moisture content, alkalinity of surfaces, or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
   2. Prepare surface as recommended by top coat manufacturer.

H. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

I. Galvanized Surfaces:
   1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
   2. Prepare surface according to SSPC-SP 2.

J. Ferrous Metal:
   1. Coordinate surface preparation in accordance with requirements of selected paint/coating supplier recommendations.
   2. Solvent clean according to SSPC-SP 1.
   3. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
   4. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer. Protect from corrosion until coated.

K. Wood Surfaces to Receive Opaque Finish: Remove existing finish. Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

L. Existing Painted Hollow Metal to Receive Paint:
   1. Remove loose paint, dirt and grime. Sand edges of paint chipping tapered smooth.
   2. Wipe frames down with solvent cleaner.

M. Metal Doors and/or Frames to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions.

C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.

D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

E. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

F. Hollow Metal Doors and Frames: Doors and frames shall be painted with sprayer, no exceptions.

G. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.

H. Sand wood and metal surfaces lightly between coats to achieve required finish.

I. Use tack cloth to remove dust and particles just prior to applying next coat.

J. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 IDENTIFICATION OF FIRE WALLS

A. Refer to Section 07 05 53 - Fire and Smoke Assembly Identification. Coordinate type of identification (stencil paint or applied sign) with Lead Contractor.

B. Refer to Code Plans, floor plans and referenced sections and details for scope of rated walls.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

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SECTION 22 40 48

STAINLESS STEEL FIXTURES AND TRIM

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Conditions of the Contract and portions of Division 00 and 01 of this Project Manual apply to this Section as though repeated herein.

B. The requirements of Section 22 05 00 apply to this Section.

1.02 REFERENCES

A. ANSI/NSF Standard 61, Section nine - Drinking Water Systems Components.

1.03 SUBMITTALS

A. Submit descriptive product data describing all material furnished under Part 2 of this Section.

PART 2: PRODUCTS

2.01 SINKS

A. Based on product by Elkay, Regency.
1. Advance Tabco, Aero, Kindred, Kohler, Lambertson Industries, Moen, Republic, Revere, Sterling equals are acceptable.

B. Shall conform to ANSI A112.19.3 (Residential).

2.02 SUPPLIES, STOPS AND TRAPS

A. American-Standard, Brass-Craft "Speedway", Briggs, Crane, Dearborn, Duracraft Plastics Inc, Eljer, Engineered Brass, Keeney Manufacturing Co, Kohler, McGuire, ProFlo, Tubular Brass, Wolverine Brass are acceptable.

B. Water and waste piping, valves, traps and escutcheons exposed below fixture shall have polished chrome finish.

C. Water and waste piping, valves, traps and escutcheons concealed within cabinet space may have rough unplated finish.

D. Fixture stop valves shall have 1/2" nominal inlet and 3/8" O.D. outlet, metal round or oval or loose key handle with "Buna-N" packing, one piece copper tube riser.

E. Adjustable 1 ½” brass tubing P-trap, less cleanout, and 17 gauge tubing to wall. (When concealed within cabinet space, PVC plastic tubing P-trap and waste tubing may be used. If plastic tubing is used, must use metal nut on metal threads and plastic nut on plastic threads.)

F. Include ½” copper branch for sweat or hose clamp connection & 45° downward inlet angle.

G. Piping at walls shall have escutcheons (wall plates).

H. Shall conform to ANSI A112.18.1M.

2.03 SINK SUPPLY/WASTE COVERS

A. Based on product by Truebro "Handi Lav-Guard".
McGuire, ProFlo equals are acceptable
1. Truebro Handi Lav-Guard Model #102. P-trap cover, hot and cold water angle valve cover and fasteners.
2. Handi Lav-Guard kits will not fit schedule 40 plastic P-traps.

2.04 FIXTURE DESCRIPTION

A. S-1: Countertop, single compartment, 18 gauge stainless steel, ledgeback and self-rimming frame, sound dampened underside:
1. Sink: Elkay "Lustertone" No. LRAD-19181 with overall dimensions of 19 x 18 x 6 1/2 inches
2. Faucet: Kohler K-30612 with pull out head.
3. Drain: Oatey 15BN 15

B. S-2: Floor mounted, single compartment, 16 gauge type 304 stainless steel, ¼" radius coved corners, welded construction, satin finish, channel rims, 8" high backsplash, s.s. adjustable tubular legs, NSF certification.
1. Sink: Regency 600s11818G with sink dimensions of 18 x 18 x 14 inches,
2. Faucet: Chicago Faucet No. 445-L12-XK wall mounted, 8" swing spout, 369 lever handles, adjustable supply arms, ceramic disc cartridges.
3. Drain: Zurn Z8741SS

PART 3: EXECUTION

3.01 COUNTERTOP SINKS

A. Fittings shall be securely fastened to sink and sink to countertop.

B. Wood cabinet and opening in top is furnished by Others. Verify that sink will fit in cabinet before ordering sink.

C. Do not use cleaning chemicals that will be detrimental to the finish of the product.

D. Apply sealing caulk for undermount sinks.

E. Apply sealing caulk to underside of sink rim.

F. Install sink in countertop and remove excess caulk with a damp cloth and a small amount of powdered cleanser.

G. Food waste disposer as specified in Section 22 30 52 shall be installed in the compartment of S-1, S-2 and S-3 as shown on drawing. Adapt compartment to receive disposer.

H. Water supply and waste rough-ins shall be as high as possible below sinks accessible for handicap use. Waste tailpiece shall be kept to a minimum length.

3.02 SINK SUPPLY/WASTE COVERS

A. Cover the tailpiece, trap, waste arm and water piping below sinks in handicap accessible locations. Water piping need not be covered if configured in such a way to protect against contact, i.e. keeping rough-ins as high as possible.

B. Install according to manufacturer's recommendations.

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SECTION 23 01 30
HVAC AIR DUCT CLEANING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

A. Conditions of the Contract and portions of Division One of this Project Manual apply to this Section as though repeated herein.

B. The requirements of Section 23 05 00 apply to this Section.

1.02 RELATED WORK

A. Section 23 07 13 - Duct Insulation.

B. Section 23 08 00 - Commissioning.

C. Section 23 33 00 - Air Duct Accessories.

D. Section 23 05 93 - Balancing Systems: Water/Air

1.03 APPLICABLE STANDARDS AND PUBLICATIONS

A. The following current standards and publications of the issues currently in effect form a part of this specification to the extent indicated by any reference thereto:

1. National Air Duct Cleaners Association (NADCA): “Assessment, Cleaning & Restoration of HVAC Systems (ACR).”
2. National Air Duct Cleaners Association (NADCA): “Introduction to HVAC System Cleaning Services,” 2004.
3. Underwriters’ Laboratories (UL): UL Standard 181 (current edition including all revisions).
4. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE): Standard 62-2010, "Ventilation for Acceptable Indoor Air Quality".
5. Environmental Protection Agency (EPA): "Building Air Quality," December 1991.
6. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): “HVAC Duct Construction Standards - Metal and Flexible,” 2005.
7. North American Insulation Manufacturers Association (NAIMA): "Cleaning Fibrous Glass Insulated Air Duct Systems," 2002.

1.04 SPECIAL PROVISIONS

A. Qualification of the HVAC System Cleaning Contractor

1. Membership: The HVAC system cleaning contractor shall be a certified member of the National Air Duct Cleaners Association (NADCA), or shall maintain membership in a nationally recognized non-profit industry organization dedicated to the cleaning of HVAC systems.
2. Certification: The HVAC system cleaning contractor shall have a minimum of one (1) Air System Cleaning Specialist (ASCS) certified by NADCA on a full time basis, or shall have staff certified by a nationally recognized certification program and organization dedicated to the cleaning of HVAC systems.
3. Supervisor Qualifications: A person certified as an ASCS by NADCA, or maintaining an equivalent certification by a nationally recognized program and organization, shall be responsible for the total work herein specified.

4. Experience: The HVAC system cleaning contractor shall submit records of experience in the field of HVAC system inspection and cleaning as requested by the owner. Bids shall only be considered from firms which are regularly engaged in HVAC system maintenance with an emphasis on HVAC system cleaning and decontamination.
5. Equipment, Materials and Labor: The HVAC system cleaning contractor shall possess and furnish all necessary equipment, materials and labor to adequately perform the specified services.
   a) The contractor shall assure that its employees have received safety equipment training, medical surveillance programs, individual health protection measures, and manufacturer's product and material safety data sheets (MSDS) as required for the work by the U.S. Occupational Safety and Health Administration, and as described by this specification. For work performed in countries outside of the U.S.A., contractors should comply with applicable national safety codes and standards.
   b) The contractor shall maintain a copy of all current MSDS documentation and safety certifications at the site at all times, as well as comply with all other site documentation requirements of applicable OSHA programs and this specification.
6. Licensing: The HVAC system cleaning contractor shall provide proof of maintaining the proper license(s), if any, as required to do work in this state. Contractor shall comply with all Federal, state and local rules, regulations, and licensing requirements.

1.05 STANDARDS

A. NADCA Standards: The HVAC system cleaning contractor shall perform the services specified here in accordance with the current published standards of the National Air Duct Cleaners Association (NADCA).
   1. All terms in this specification shall have their meaning defined as stated in the NADCA Standards.
   2. NADCA Standards must be followed with no modifications or deviations being allowed.

1.06 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the Work of this section with the work of other trades, and the work of different contractors.

B. Pre-cleaning Meeting:
   1. Conduct pre-cleaning meeting with representatives of Owner, Contractor, and facility occupants affected by cleaning work.
   2. Coordinate meeting date with owner and A/E.

C. Sequencing:
   1. Perform duct cleaning work after HVAC system construction and duct leakage testing are complete.

D. Scheduling:
   1. Prepare and submit HVAC system cleaning activities schedule in according with Division 01 section describing project scheduling requirements

1.07 SUBMITTALS

A. Include manufacturer's data and/or Contractor data for the following:
   1. List of equipment to be used.
   2. Product description and MSDS sheets for cleaners, biocides and encapsulants.
   3. Access doors.

1.08 DOCUMENTS

A. Mechanical Drawings: The **A/E** or **Owner** shall provide the HVAC system cleaning contractor with one copy of the following documents:

1. Project drawings and specifications.
2. Approved construction revisions pertaining to the HVAC system.
3. Any existing indoor air quality (IAQ) assessments or environmental reports prepared for the facility.

1.09 SCOPE

A. SYSTEMS TO BE CLEANED

1. Clean ductwork systems and associated turning vanes, dampers, coils, VAV boxes, drain pans, plenums, diffusers, registers, grilles and louvers; air handling units and associated fans, coils, drain pans, plenums and dampers; fans; terminal units and other equipment described below:
   a) AHU-1: Clean interior cabinet and components, clean fans & coils.
   b) AHU-1 duct system: Clean all existing ductwork, intake louvers, relief louvers, VAV, VAV reheat coils, and grilles to remain in project.

PART 2: PRODUCTS

2.01 GENERAL

A. Use products which conform to NFPA 90A, possessing a flame spread rating of not over 25 and a smoke developed rating no higher than 50.

2.02 CLEANERS, BIOCIDES AND ENCAPSULANTS

A. Cleaners, biocides and encapsulants shall be water based products specifically designed for application to HVAC duct interiors and capable of being applied with airless spray equipment. Biocides and encapsulants must be colored differently than substrate to be coated.

B. Biocidal agents to be formulated for long term fungicidal activity with no loss on aging. Biocidal agents must be registered with the U.S. Environmental Protection Agency for use on the interior of HVAC duct systems.

C. Cured biocides and encapsulants must provide tough washable elastic protective finish able to withstand light impact or abrasion without breaking down over time or releasing fibers.

2.03 DUCT LINERS AND DUCT ACCESSORIES

A. See applicable specifications sections.

PART 3: CLEANING SPECIFICATIONS AND REQUIREMENTS

3.01 EXAMINATION

A. HVAC System Assessment and Site Survey:

1. Before commencing work, assess HVAC system condition to determine appropriate engineering controls, safety measures, tools, equipment and cleaning products and methods required to complete the work.
2. Perform HVAC system assessment by ASCS, Certified Ventilation Inspector (CVI), or equivalent.
3. If microbial testing or sampling are required, engage services of technicians trained and acceptable to authorities having jurisdiction.

B. Work Plans:

1. Project Schedule: Outline starting date, dates and times when work will take place, and completion date.
   a) Determine sequence of cleaning each system or portion of the work and coordinate with work of other trades and activities.
2. Product Data and Safety Data Sheets: Product data submittals listing general use and specific chemical cleaning products and coatings used while performing the work, along with Safety Data Sheets for chemical products used to perform the work.
3. Safety Plan: Define responsibilities of each organization's designated representative involved with executing work plan throughout project.
   a) Include disclaimers identifying items not covered under project warranty or guarantee.

3.02 PROTECTION OF IN-PLACE CONDITIONS

A. Protect existing structures, surfaces, and systems from damage resulting from duct cleaning work.

B. Report damage caused by this work to Owner and A/E.

3.03 HVAC SYSTEM PREPARATION

A. Service openings:

1. Access duct cleaning work through existing or new service openings, allowing safe access and thorough cleaning throughout specified components.
2. Work through service openings sized to allow mechanical tool entry and visual inspection, as required for cleaning activities.
3. Where possible, work through existing service openings.
4. Where new service openings are required, install openings as follows:
   a) Do not degrade structural, thermal, or functional system integrity, and comply with applicable SMACNA duct construction methods.
   b) Install service openings complying with UL and NFPA standards, federal, state, and local code requirements, and requirements of Authorities Having Jurisdiction.
   c) Where required, install duct access doors complying with UL Standard 181, and fabricated with materials classified for flammability and smoke developed.
   d) Where required, install tapes complying with UL 181A.
   e) Where required, install closure panels fabricated from equivalent material and same or heavier gage.
   f) Mechanically fasten closure panels over service openings with screws or rivets at perimeter, maximum 4 inches spacing.
   g) Fabricate closure panel to overlap duct opening perimeter, minimum 1 inch.
   h) Insulate closure panels to match adjacent duct interior and exterior surfaces.
   i) Seal rigid fibrous glass duct systems in accordance with NAIMA recommended practices.
   j) Install closure techniques: UL Standard 181 or UL Standard 181A.
   k) Close service openings installed in rigid fibrous glass ductwork and metal ductwork with fibrous glass liner with no exposed fibrous glass edges exposed to airstream.
5. Install service openings that can be reopened for future inspection or remediation.
   a) Mark outside of duct and report service opening locations to Owner in project closeout documents.
6. Do not cut service openings into flexible duct.
   a) Disconnect flexible duct at both ends as required for inspection and cleaning.
   b) Reconnect flexible duct ends in accordance with SMACNA standards.

3.04 CLEANING EQUIPMENT MAINTENANCE AND USE

A. Maintain equipment employed in work performance in good working order, consistent with equipment manufacturer's written instructions and applicable jurisdictional requirements.

B. Clean and inspect equipment before bringing to work site.

C. Do not introduce contaminants from cleaning equipment into indoor environment or HVAC system.

D. Service equipment to limit possible HVAC system contamination from insufficient service equipment cleaning, and unsafe operating conditions for service personnel and building occupants.

E. Perform activities requiring opening contaminated vacuum collection equipment on-site, including servicing or filter maintenance, in appropriate containment area or outside building.

F. Clean and seal collection devices, vacuums and other tools and devices before relocating to different building areas, moving equipment through occupied spaces, and before removing equipment from building.

G. Locate fuel-powered equipment to prevent combustion emissions and air exhaust emissions from entering building envelope.

1. Monitor and manage equipment operation and location to prevent introduction of combustion emissions into occupied space.

H. Furnish HEPA-filtered equipment with minimum collection efficiency of 99.97 percent at 0.3 micron particle size, when vacuum collection equipment exhausts within building envelope

3.05 CLEANING - GENERAL

A. Perform HVAC system cleaning in accordance with ACR, The NADCA Standard.

B. Remove visible non-adhered particulates.

1. Clean HVAC components employing agitation device to dislodge contaminants from HVAC component surface, and then capturing contaminants with vacuum collection device.
   a) Acceptable methods include those that do not damage integrity of ductwork and other system components, and does not damage porous surface materials including internal insulation and duct lining.
2. Clean HVAC components using source removal mechanical cleaning methods designed to extract contaminants from within HVAC system and safely remove contaminants from facility.
3. Select source removal methods rendering HVAC system visibly clean and capable of passing cleanliness verification methods as described in ACR, The NADCA Standard.
4. Do not employ cleaning method, or combination of methods, that can damage HVAC system components or negatively alter system integrity.
5. Do not damage HVAC system and components with wet cleaning, power washing, steam cleaning and other wet process cleaning.

C. Apply cleaning materials in accordance with manufacturer's instructions.

1. Do not apply cleaning agents or water to electrical, fibrous glass or other porous HVAC system components.

D. Capture removed contamination and cleaning materials and legally dispose.

E. Verify HVAC system surface and component cleanliness in accordance NADCA Standard.

F. Particulate Collection:

1. Employ contaminant removal methods incorporating vacuum collection devices operated continuously during cleaning.
   a) Connect vacuum collection device to component being cleaned through service opening.
   b) Employ vacuum collection device of sufficient capacity to maintain areas being cleaned under negative pressure, containing debris is contained and preventing contaminant migration to adjacent areas.
2. When possible, discharge ducted exhaust air from vacuum collection devices outdoors, keeping discharge air clear of outdoor air intakes, operable windows, and other locations allowing outdoor air entry.
   a) Do not violate outdoor environmental standards, codes or regulations.
   b) Do not discharge unfiltered air from vacuum collection devices outdoors.
3. When necessary to exhaust vacuum collection devices indoors, including hand-held and wet-vacuum machines, keep discharge air in work area, and provide machine air discharge HEPA filtration, rated at 99.97 percent collection efficiency for 0.3 micron particles and larger.

3.06 AIR HANDLING UNIT (AHU) CLEANING

A. Clean supply and return fans and blowers.
   1. Clean blowers, fan housings, ducted plenums, scrolls, blades, or vanes, shafts, baffles, dampers and drive assemblies.
   2. Remove visible non-adhered particulate deposits in accordance with ACR, The NADCA Standard.

B. Clean air handling unit (AHU) internal surfaces, components and condensate pans, and drains.

C. Wet-clean heat transfer coils, fans, condensate pans, drains and similar non-porous surfaces in conjunction with mechanical methods as described in ACR, The NADCA Standard.

D. Control water spray and extraction are sufficient to collect debris and prevent water damage to HVAC components and surrounding equipment.

E. Capture, contain, test and dispose of waste water generated while performing wet cleaning in accordance with applicable federal, state, and local regulations, and requirements of Authorities Having Jurisdiction.

F. After cleaning, verify HVAC system surface and component cleanliness in accordance ACR, The NADCA Standard.

3.07 AIR DUCT SYSTEMS

A. Clean air ducts to remove non-adhered substances.

B. Access air duct interiors through service openings in system that are large enough to accommodate mechanical cleaning procedures and allow for cleanliness verification.

C. Use mechanical agitation methods to remove particulate, debris, and non-adhered particulate.

D. Capture dislodged substances with vacuum collection device.

E. Do not employ cleaning methods that damage HVAC components.

F. Mark position of dampers and air-directional mechanical devices inside HVAC system prior to cleaning.

G. When cleaning is complete, restore dampers and devices to their marked positions.

H. After cleaning, verify cleanliness of HVAC system surfaces and components in accordance ACR, The NADCA Standard.

3.08 AHU COILS

A. Perform visual coil and drain pan inspection to determine whether Type 1 dry cleaning, or Type 2 wet cleaning is required.

B. Employ cleaning methods rendering coil visibly clean in accordance with ACR, The NADCA Standard.

C. Isolate coil from duct system during cleaning process. Do not allow removed particles to migrate to, or redeposit on, unintended areas.

D. Apply coil cleaning products in accordance with manufacturer's published data and labeling.

E. Clean and flush condensate drain pan and drain line. Verify proper drainage operation before and after cleaning.

F. Apply cleaning methods and products that do not cause damage to, or erosion of, coil surface or fins.

3.09 TYPE 1 DRY CLEANING METHOD

A. Operate HEPA-filtered negative air machines with that discharge continuously during Type 1 cleaning process.

B. Mechanically remove adhered dirt and contaminants in accordance with ACR, The NADCA Standard.

3.10 TYPE 2 WET CLEANING METHOD

A. Employ Type 2 wet cleaning method when visual inspection reveals suspect microbial matter on coil or drain pan. Access both upstream and downstream sides of each coil section for cleaning.

B. Employ engineering controls required for coil cleaning in accordance with ACR, The NADCA Standard.

C. Verify cleanliness after cleaning has been performed as described in ACR, The NADCA Standard.

D. Perform Type 2 cleaning if debris still remains on the coil or the coil is impacted after Type 1 cleaning has been completed and post-cleaning inspection has been performed.

E. After cleaning, verify cleanliness of HVAC coils in accordance ACR, The NADCA Standard.

3.11 DUCT-MOUNTED INLINE COILS

A. Perform visual inspection of coil to determine whether Type 1 dry cleaning, or Type 2 wet cleaning is required.

B. Employ cleaning methods which will render coil visibly clean in accordance with ACR, The NADCA Standard.

C. Isolate coil from duct system during cleaning process. Do not allow removed particles to migrate to, or redeposit on, unintended areas.

D. Apply coil cleaning products in accordance with manufacturer's published data and labeling.

E. Clean and flush coil.

F. Apply cleaning methods and products that do not cause damage to, or erosion of, coil surface or fins.

G. Type 1 Dry Cleaning Method:

1. Operate negative air machines with HEPA-filtered discharge continuously during Type 1 cleaning process.
2. Mechanically remove adhered dirt and contaminants in accordance with ACR, The NADCA Standard.

H. Type 2 Wet Cleaning Method:

1. Employ Type 2 wet cleaning method when visual inspection reveals suspect microbial matter on coil or drain pan. Access both upstream and downstream sides of each coil section for cleaning.
2. Employ engineering controls required for coil cleaning in accordance with ACR, The NADCA Standard.
3. Verify cleanliness after cleaning has been performed as described in ACR, The NADCA Standard.
4. Perform Type 2 cleaning if debris still remains on the coil or the coil is impacted after Type 1 cleaning has been completed and post-cleaning inspection has been performed.
5. Capture rinse water when cleaning duct mounted coils without drain pans. Do not allow water to remain in cleaned ductwork.

I. After cleaning, verify cleanliness of HVAC coils in accordance ACR, The NADCA Standard.

3.12 INTERNALLY INSULATED DUCT SYSTEM COMPONENTS AND SOUND ATTENUATORS

A. Employ cleaning methods that do not damage internal insulation or sound attenuating components, and that render system capable of passing cleanliness verification tests.

B. Clean fibrous glass duct liner or duct board present in equipment or air ducts employing mechanical agitation methods to remove particulate, debris, and non-adhered particulate.

C. Do not create abrasions, breaks, or tears to fibrous glass liner or duct board surfaces.

D. Maintain HVAC system under constant negative pressure when cleaning internal insulation components.

E. Do not wet insulation components.

F. Identify for replacement fibrous glass materials with evidence of damage, deterioration, delaminating, friable materials, biological growth, or moisture that cannot be restored by cleaning or resurfacing.

G. When required, remediate exposed, damaged insulation exposed to HVAC system air stream.

1. Scrape insulation and adhesive residue from metal duct system surfaces that have undergone degraded insulation removal.
2. Remove loose, visible debris prior to installation of new insulation.
3. Where biologically contaminated insulation was removed, apply antimicrobial agents to remove traces of contamination or abate mold in accordance with ANSI/IICRC S520.
4. When replacement insulation installation is complete, verify that new fibrous glass surfaces are capable of compliance with NADCA cleanliness verification requirements.

3.13 SPECIAL TECHNIQUES

A. Engineering Controls:

1. Employ engineering controls to maintain worker and building occupant safety, and prevent contaminating surfaces outside work area.
   a) Comply with government regulations, and industry standards and guidelines relevant to working in the facility environment in which the work is located.
   b) Control odors, mists, and aromatic vapors during cleaning process.

B. Controlling Product Emissions:

1. Apply cleaning agents and other chemicals in accordance with manufacturer’s recommended procedures and product application instructions, including exhaust ventilation.

C. Negative Duct Pressurization:

1. Throughout cleaning process, keep HVAC system and associated air ducts at negative differential pressure, relative to indoor non-work area.
2. Maintain negative pressure differential between portion of HVAC duct system being cleaned and surrounding indoor occupant spaces.
3. Continuously monitor and verify correct pressure differential.
4. When performing vacuum collection, employ negative air machine drawing air from equipment being cleaned.
5. When negative air machine is not fitted with HEPA filtration, duct exhaust air from negative air machine to outdoor location, keeping discharge air clear of outdoor air intakes, operable windows, and other locations where outdoor air enters building.
   a) Do not violate outdoor environmental standards, codes or regulations by releasing debris.
   b) Do not discharge unfiltered air from vacuum collection devices outdoors.

D. Microbial Agents:

1. Apply antimicrobial agents only when active biological growth is reasonably suspected, or where unacceptable levels of biological contamination have been verified through testing.
2. Apply antimicrobial agents after removal of surface deposits and debris.
3. Apply antimicrobial agents in accordance with antimicrobial agent manufacturer's written recommendations and associated EPA registration listing.

3.14 FIELD QUALITY CONTROL

A. Inspect work to verify cleanliness immediately after HVAC system component cleaning and prior to placing system in operation.

B. Do not apply treatment, coating, or antimicrobial agent to cleaned HVAC system or components until the work has been inspected and determined to be acceptable.

C. Visual Inspection:

1. When cleaning is complete, perform final inspection in presence of Owner and A/E.
2. Perform visual inspection of porous and non-porous HVAC system component surfaces. Verify HVAC system is visibly clean as defined in ACR, The NADCA Standard.
3. If no contaminants are evident through visual inspection, HVAC is considered clean and acceptable.
4. If contaminants are evident through visual inspection, repeat cleaning system areas where contaminants are visible.
   a) Notify Owner and A/E to schedule cleanliness re-inspection.

D. Surface Comparison Test for Porous Surfaces Only:

1. If visual inspection is inconclusive or disputed, then perform Surface Comparison Test in accordance with ACR, The NADCA Standard.
   a) Attach vacuum brush to operating contact vacuum.
   b) Employ contact vacuum with HEPA-filtered discharge, capable of achieving minimum 80 inches w.g. static lift and fitted with 2.5-inch diameter round nylon brush attached to 1.5-inch diameter vacuum hose.
   c) Pass brush over surface test area four times.
   d) Visually compare tested and untested surfaces to determine whether visible surface characteristics are detectable.

2. When surface comparison test is complete, HVAC component surface is considered acceptably clean if there is no visually detectable difference between tested and untested surface characteristics.

E. NADCA Vacuum Test for Non-Porous Surfaces Only:

1. When required, perform Vacuum Test in presence of Owner and A/E, and in accordance with ACR, The NADCA Standard.
2. Apply NADCA Vacuum Test template to flowing-air side of component's surface.
3. Attach vacuum cassette with filter media to calibrated air sampling pump and pass open face of filter cassette over two 2 cm x 25 cm openings marked on template.
4. Pass vacuum cassette over system surfaces at 2 inches/second.
5. When sampling is complete, prepare filter cassette and weigh it to determine total amount of debris collected.
6. Surface is considered acceptably clean, when net weight of debris collected on filter cassette is less than 0.75 mg/100 cm2.

PART 4: EXECUTION

4.01 GENERAL REQIUREMENTS

A. Use products and equipment in accordance with manufacturer's instructions.

B. Protect existing structures, surfaces, and systems from damage resulting from duct cleaning work.

C. Seal HVAC system debris and removed contaminated materials in containers before removal from work area.

4.02 DISPOSAL OF JOB SITE DUCT CLEANING WASTE

A. Handle materials classified as hazardous by governmental agencies in accordance with applicable federal, state, and local, regulations and codes.

B. Dispose of debris removed from HVAC System in accordance with applicable federal, state, and local requirements

4.03 ACCESS DOORS

A. Install access doors where indicated on the drawings and in locations where access is required for cleaning or inspection. See specification Section 23 33 00 for access door requirements.

B. Size and numbers of duct access doors to be sufficient to perform the intended service. Minimum access door size shall be 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, or other size as indicated. Install access doors on both inlet and outlet sides of reheat coils as well as other duct mounted coils if not existing.

4.04 BIOCIDES AND ENCAPSULANTS

A. Biocides and encapsulants are to be applied only after cleaning and verification have been completed and surfaces are dry. System fans are to remain off and critical barriers maintained to prevent migration of biocides and encapsulants from the HVAC systems.

B. Apply biocides to the following surfaces which are <u>suspected of or have been tested and verified for microbial contamination</u>:

1. Plenums and ductwork around and 5' downstream of cooling coils and humidifiers.
2. Cooling coil drain pans.
3. Outdoor air intake drain pans.

C. Apply encapsulants to the following surfaces where microbial contamination is not suspected:
   1. Damaged fibrous glass thermal or acoustical insulation.
   2. Sheet metal where thermal or acoustical insulation has been removed.

D. Biocides and encapsulants to be directly sprayed (not fogged), brushed or rolled onto surfaces to achieve a continuous film of thickness recommended by manufacturer. Increase application rate on porous or rough surfaces. Protect coils, fan blades, bearings, damper linkages and seals, fire/smoke dampers, humidifiers, airflow sensors, pressure sensors, temperature sensors and humidity sensors during application of biocides and encapsulants. Clean any overspray from these components immediately. Allow products to fully cure prior to using HVAC systems. Operate systems during unoccupied hours flushing with fresh air to purge system prior to occupied use.

4.05 SYSTEM STARTUP

A. Adjusting:
   1. After satisfactory completion of field quality control activities, restore adjustable devices to original settings, including, but not limited to, dampers, air directional devices, etc.

B. Install closures over services access openings before allowing system restart for normal facility operation.

C. When system is placed in operation, remove temporary filter elements after minimum 24 hours operation

4.06 POST-PROJECT REPORT

A. At the conclusion of the project, the Contractor shall provide a report to the Owner and A/E indicating the following:
   1. Describing systems cleaned, methods and materials used, problems encountered.
   2. Success of the cleaning project, as verified through visual inspection and/or gravimetric analysis.
   3. Areas of the system found to be damaged and/or in need of repair.

END OF SECTION 23 01 30

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SECTION 31 10 00
SITE CLEARING

PART 1 GENERAL

1.01 WORK INCLUDED

A. The CONTRACTOR shall provide all materials, labor, equipment and service necessary, for the completion of the work specified in this section.

B. Removal and or transplanting of trees, shrubs, plant life and grasses as indicated on the construction documents within the project limits.

C. Grubbing of any stumps or vegetation as indicated on the construction documents within the project limits.

D. Removal of buildings, concrete, asphalt, existing utilities, and all fixed elements as indicated on the construction drawings.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 EXTENT OF WORK

A. Site preparation work shall be performed over all of the area lying within the project limit lines.

B. Prior to the start of demolition, site clearing activities and/or earthwork verify that perimeter erosion control measures are in place.

3.03 CLEARING AND GRUBBING

A. Clear all trees, vegetation, weeds, brush, roots, etc., lying within the project limits as indicated on the construction documents.

B. Trees that are specified to remain shall be protected from construction activity and are indicated on the construction documents.

C. It is intended that those areas that are to be undisturbed by construction remain as is, however, if disturbed, they must be returned to their existing condition prior to damage when construction is complete.

3.04 OAK WILT

A. Do not cut, prune, or otherwise wound oaks in the spring or early summer, generally from April 15th through July 1st.

B. Any activity during this period that cuts or tears through the bark and exposes live wood in oak trees shall have applied immediately and thoroughly pruning sealer or tree paint over the wound.

C. Torn branches or roots should be cut clean and the cut surface painted. For additional treatment of the roots, after treating cover the exposed roots with soil.

D. Should an oak tree be damaged, immediately notify the CONSTRUCTION MANAGER so the proper specialists can be consulted as to how to resolve the situation.

E. Damage to oak trees indicated to remain shall be repaired and the proper preventative measure taken by the CONTRACTOR at no additional costs to the OWNER.

3.05 PROTECTION OF TREES

A. Existing trees which are to remain are to be protected against construction activity. Do not smother trees by storing materials within the canopy line. Wire plank protection shall be place around the trunks.

B. If a tree scheduled to remain is destroyed by construction activity, the CONTRACTOR shall provide a tree of equivalent size and species or may be assessed a penalty not to exceed $2,000.00. Any

such assessment will be deducted from the contract sum by Change Order.

3.06 DEMOLITION

A. Conduct demolition work with minimum interference to roads, streets, driveways, sidewalks, and other facilities including adjacent buildings, structures and their occupants.

B. Sawcut all hard surfaces to provide a clear break line for new abutting surfaces to join at all locations indicated on the construction documents.

C. Remove all fixed elements, hard surface areas, utilities, vegetation, miscellaneous items as indicated on the construction drawings.

D. Take precautions to guard against movement, settlement or collapse of any surrounding structures indicated to remain and be liable for any such movement, settlement or collapse.

3.07 DISPOSAL OF WASTE MATERIAL

A. Burning is not permitted on the OWNER'S property, unless authorization is obtained from the OWNER and the local governing Fire Department.

B. Remove all organic and cleared vegetative matter from the site and dispose of in a legal manner.

C. Remove all concrete, bituminous and debris from site and dispose of in a legal manner.

END OF SECTION

WESTERN TECHNICAL COLLEGE
INNOVATION CENTER
405 8TH STREET NORTH
LA CROSSE, WI

HSR# 24003 **AUGUST 2024** **BD**

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C300	GRADING-EROSION CONTROL PLAN

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PROJECT TEAM

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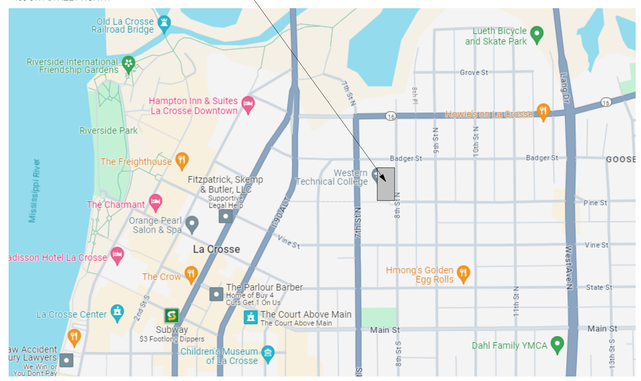
ELECTRICAL:	GALILEO CONSULTING GROUP PAT POPOWICH ppopowich@galileo-group.us 608.787.9106

PROJECT LOCATION:
405 8TH STREET NORTH



CITY MAP

SITE LOCATION MAP

ARCHITECTURE
ENGINEERING
INTERIOR DESIGN

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Consultant:

Project Title: WESTERN TECHNICAL COLLEGE INNOVATION CENTER

Project Location: 405 8TH STREET NORTH LA CROSSE, WI

Sheet Title: COVER SHEET

HSR Project Number: 24003

Project Date: AUGUST 2024

Drawn By: HSR

Key Plan:

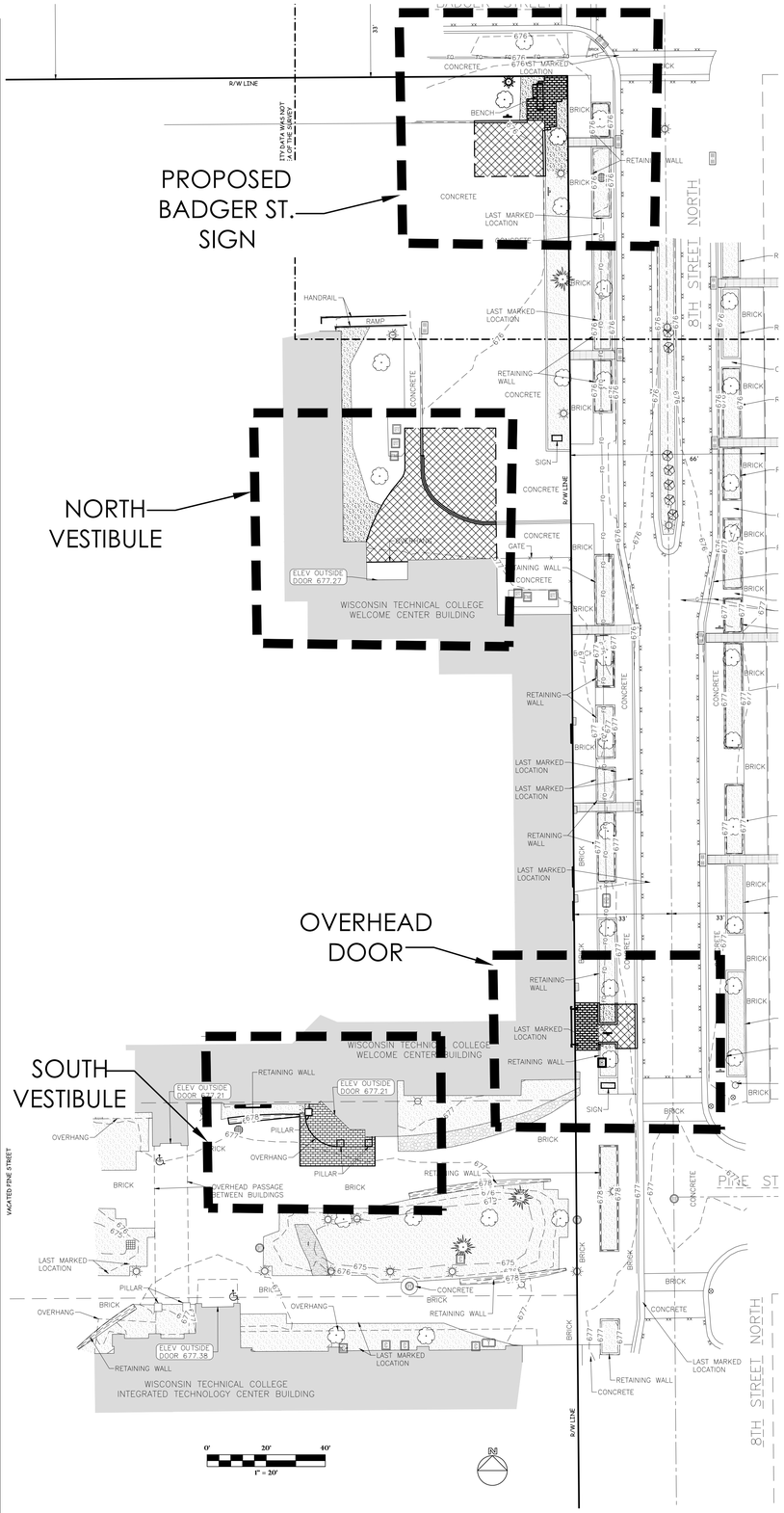
Revisions:

No.	Description	Date
A01	ADDENDUM #1	8-9-2024

Graphic Scale:

Last Update: 8/9/2024 8:18:45 AM

G000



GENERAL NOTES:

1. CONTRACTOR SHALL LOCATE ALL PUBLIC AND PRIVATE UTILITIES PRIOR TO COMMENCEMENT OF WORK.
2. ALL DEMOLITION MATERIALS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER EXCEPT FOR THOSE ITEMS NOTED TO BE SALVAGED, WHICH SHOULD BE TURNED OVER TO THE OWNER.
3. INSTALL AND MAINTAIN ALL REQUIRED EROSION CONTROL MEASURES FOR PERIMETER PROTECTION PRIOR TO THE START OF DEMOLITION/CONSTRUCTION, IN ACCORDANCE WITH THE LOCAL AND STATE GOVERNING AUTHORITIES.
4. BIDDERS SHALL VISIT THE SITE AND REVIEW EXISTING CONDITIONS PRIOR TO THE BID DATE.
5. ANY EXISTING UTILITIES NOT SHOWN ON THIS DOCUMENT WHICH NEED TO BE REMOVED, RELOCATED, AND/OR ADJUSTED SHALL BE THE RESPONSIBILITY OF THE SITE GRADING CONTRACTOR.
6. COORDINATE ALL UTILITY REMOVAL, DISCONNECTION, &/OR RECONNECTION WITH RESPECTIVE UTILITY COMPANIES PRIOR TO BEGINNING WORK.
7. COORDINATE UTILITY SERVICE DISCONNECTIONS/OUTAGES WITH OWNER AND ANY IMPACTED NEIGHBORS. MINIMIZE DISRUPTIONS TO THE MAXIMUM EXTENT PRACTICAL.
8. ANY EXISTING UTILITIES NOT EXPRESSLY LABELED FOR DEMOLITION/REMOVAL ON THIS DOCUMENT SHALL BE LEFT IN PLACE AND IN THEIR CURRENT STATE OF OPERATION. CONTACT ENGINEER WHEREVER CLARIFICATION IS NEEDED.
9. STRIP TOPSOIL WITHIN THE PROJECT LIMITS IN ACCORDANCE WITH THE PROJECT MANUAL SPECIFICATIONS.
10. IF STRIPPED TOPSOIL IS STOCKPILED ON SITE, SILT FENCE SHALL BE INSTALLED AROUND THE BASE OF THE STOCKPILE TO PREVENT SEDIMENT TRANSPORT.
11. PRIOR TO PERFORMING WORK WITHIN PUBLIC RIGHT OF WAYS, NOTIFY AND COORDINATE WORK WITH THE LOCAL MUNICIPALITY.
12. MAINTAIN TRAFFIC CIRCULATION TO ALL NEIGHBORING PROPERTIES SHOWN ON THIS DOCUMENT. COORDINATE ALL WORK WITH NEIGHBORING PROPERTY OWNERS.

DEMOLITION HATCH PATTERNS:

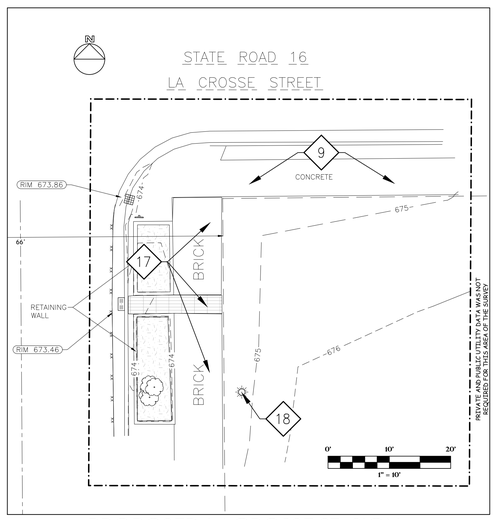
CONCRETE REMOVAL

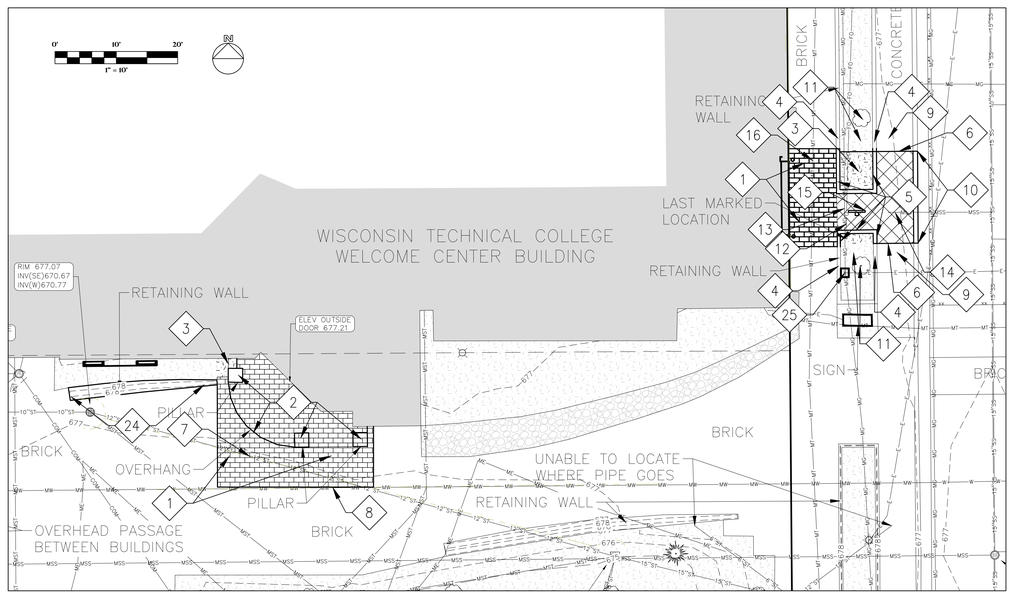
REMOVE & SALVAGE EXISTING BRICK PAVERS

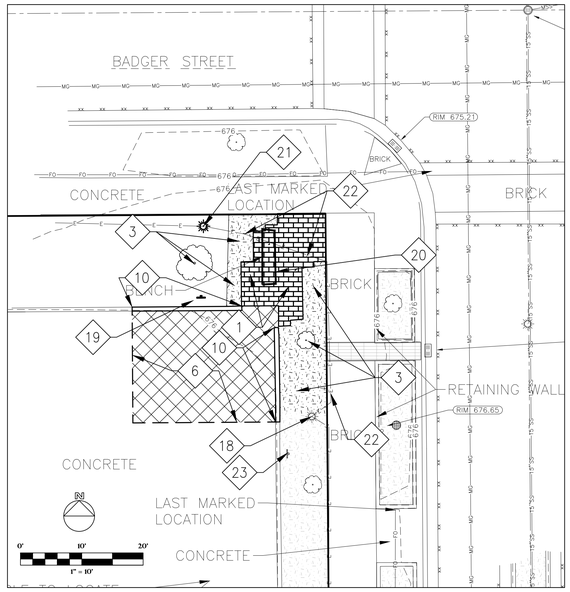
CIVIL SHEET INDEX:

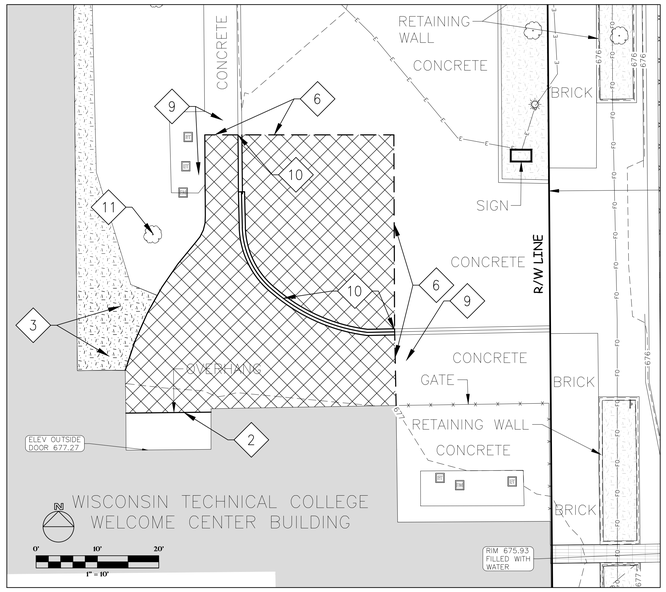
KEYNOTES:

1. REMOVE & SALVAGE EXISTING BRICK PAVER
2. SEE ARCHITECTURAL PLANS FOR REMOVAL OF BUILDING OVERHANG & PILLARS
3. REMOVE EXISTING LANDSCAPE AREA; INCLUDING VEGETATION, EDGING, MULCH, ETC.
4. MAINTAIN EXISTING CONCRETE RETAINING WALL
5. SAWCUT & REMOVE EXISTING CONCRETE RETAINING WALL
6. SAWCUT & REMOVE EXISTING CONCRETE WALK
7. MAINTAIN EXISTING STORM SEWER PIPE
8. MAINTAIN EXISTING WATER SERVICE
9. MAINTAIN EXISTING CONCRETE WALK
10. SAWCUT & REMOVE EXISTING CONCRETE CURB
11. MAINTAIN & PROTECT EXISTING TREE/VEGETATION
12. MAINTAIN & PROTECT EXISTING FIBER OPTIC SERVICE; ADJUST SERVICE AS NEEDED TO ACHIEVE FINISH GRADE ELEVATION
13. MAINTAIN EXISTING GAS SERVICE; ADJUST SERVICE AS NEEDED TO ACHIEVE FINISH GRADE ELEVATION
14. MAINTAIN EXISTING SANITARY SEWER PIPE
15. REMOVE & SALVAGE EXISTING SIGN. COORDINATE WITH CITY ON REINSTALLATION LOCATION.
16. MAINTAIN EXISTING TELEPHONE SERVICE; ADJUST SERVICE AS NEEDED TO ACHIEVE FINISH GRADE ELEVATION
17. MAINTAIN EXISTING BRICK PAVER
18. MAINTAIN EXISTING LIGHT POLE
19. REMOVE & SALVAGE EXISTING SIGN. SEE SHEET C200 LAYOUT PLAN FOR REINSTALLATION LOCATION.
20. REMOVE & SALVAGE EXISTING BENCH. RETURN TO OWNER.
21. REMOVE, SALVAGE AND REINSTALL EXISTING LIGHT POLE. SEE ELECTRICAL PLANS FOR REINSTALLATION LOCATION. (A01)
22. MAINTAIN EXISTING ELECTRICAL SERVICE. ADJUST SERVICE AS NEEDED TO ACHIEVE PROPOSED FINISH GRADE ELEVATION.
23. MAINTAIN EXISTING SIGN
24. REMOVE EXISTING RETAINING WALL
25. RELOCATE EXISTING IRRIGATION CONTROL BOX. COORDINATE REINSTALLATION LOCATION WITH OWNER.









BENCHMARK:

ELEVATIONS ARE REFERENCED TO NAVD 88 DATUM.

BENCHMARK #1
BURY BOLT ON HYDRANT,
LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF 8TH STREET NORTH AND PINE STREET.
ELEVATION = 679.82

BENCHMARK #2
BURY BOLT ON HYDRANT,
LOCATED AT THE NORTHEAST QUADRANT OF THE INTERSECTION OF 8TH STREET NORTH AND BADGER STREET.
ELEVATION = 678.62

UTILITY DISCLAIMER:

THE LOCATIONS, SIZES, AND TYPES OF UNDERGROUND PUBLIC AND PRIVATE UTILITIES OR SUBSTRUCTURES SHOW HEREON WERE OBTAINED FROM VISUAL INSPECTION, FIELD MEASUREMENTS, AND/OR AS-BUILT PLANS. SANITARY SEWER AND STORM SEWER PIPE SIZES, INVERTS, DIRECTION, AND LOCATIONS BETWEEN MANHOLES ARE SUPPLEMENTED BY AS-BUILT PLANS AND/OR ESTIMATED BASED ON FIELD OBSERVATIONS. PRIOR TO CONSTRUCTION IN THE VICINITY OF ANY UTILITIES SHOWN HEREON, IT IS RECOMMENDED THAT THE LOCATIONS, DEPTHS, AND SIZES BE FIELD VERIFIED. THE LOCATIONS SHOWN HEREON ARE ONLY APPROXIMATE, WITH POSSIBILITY THAT ADDITIONAL UTILITY LINES NOT DISCOVERED, OR MARKED, DURING THE SEARCH OF RECORDS AND THE FIELD SURVEY MAY EXIST. ANY CONTRACTOR USING THE INFORMATION SHOWN HEREON IS HEREBY FOREWARNED THAT ANY EXCAVATION UPON THIS SITE MAY RESULT IN THE DISCOVERY OF ADDITIONAL UNDERGROUND UTILITIES NOT SHOWN HEREON. IN GENERAL, UNDERGROUND UTILITY LOCATIONS ARE SHOWN FROM UTILITY MARKINGS, BY OTHERS, AND/OR AS-BUILT PLANS, PROVIDED BY OTHERS. POINT OF BEGINNING MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH RESPECT TO THE EXISTING UTILITIES SHOWN HEREON, AND BELIEVES THAT THE INFORMATION CONTAINED HEREIN IS RELIABLE AND GENERALLY ACCURATE FOR THE PURPOSE INTENDED.

ARCHITECTURE
ENGINEERING
INTERIOR DESIGN

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Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **Demolition Plan**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **MK**

Key Plan:

REVIEW

NOT FOR CONSTRUCTION

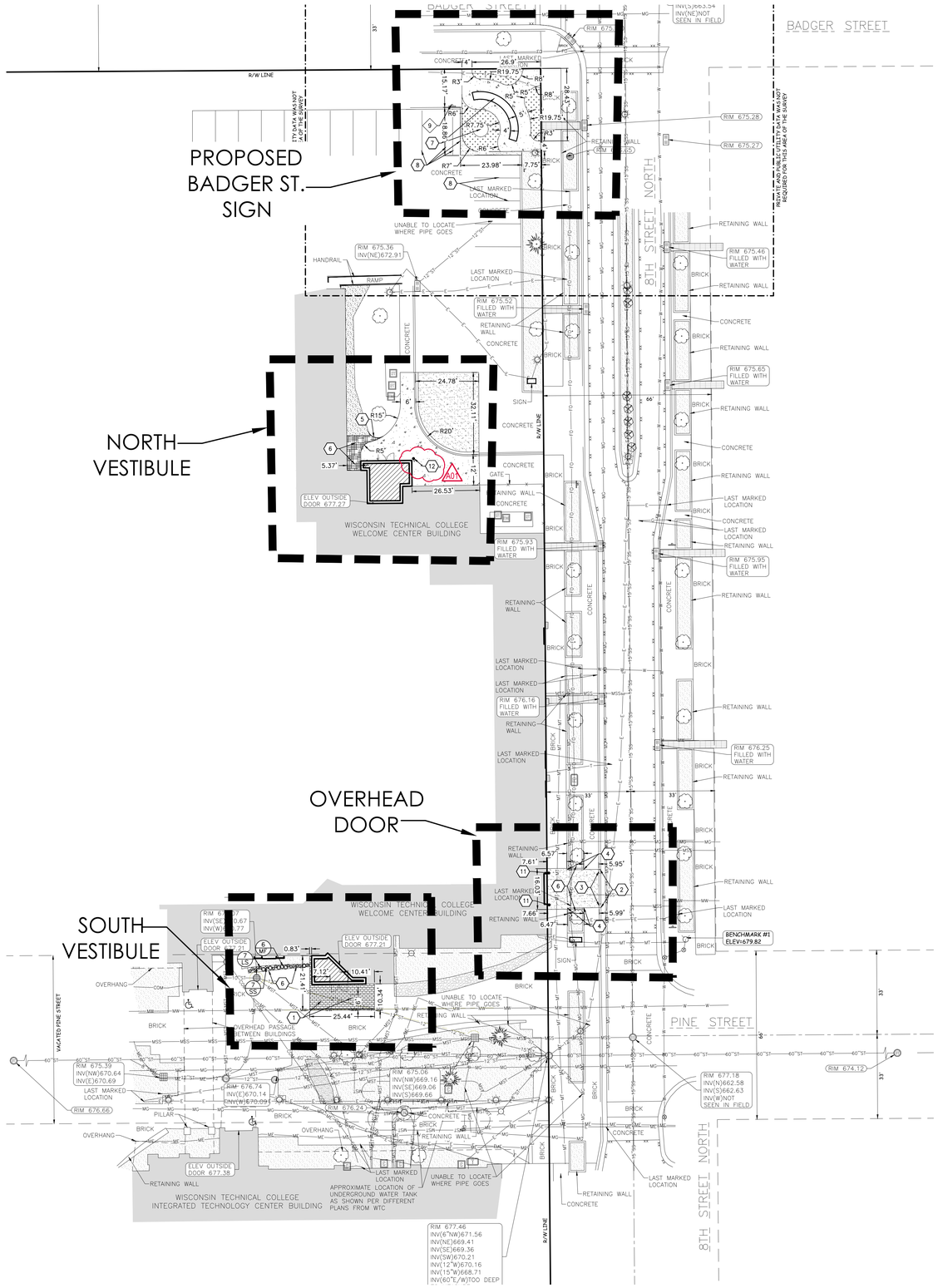
Revisions:

No.	Description	Date
A01	Addendum 1	08/09/2024

Graphic Scale: **1"=20'**

Last Update: **7/22/2024 10:58:17 AM**

C100



GENERAL NOTES:

1. CONTRACTOR SHALL LOCATE ALL PUBLIC AND PRIVATE UTILITIES PRIOR TO COMMENCEMENT OF WORK.
2. GRADE, LINE, AND LEVEL TO BE REVIEWED IN THE FIELD BY THE CONSTRUCTION MANAGER.
3. ALL REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH LOCAL MUNICIPAL AND DEPARTMENT OF NATURAL RESOURCES REGULATIONS.
4. SEE SHEET C300 FOR ALL REQUIRED EROSION CONTROL ELEMENTS.
5. ANY EXISTING UTILITIES NOT SHOWN ON THIS DOCUMENT WHICH NEED TO BE REMOVED, RELOCATED AND OR ADJUSTED SHALL BE THE RESPONSIBILITY OF THE SITE GRADING CONTRACTOR.
6. VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF DEMOLITION/CONSTRUCTION.
7. BIDDERS SHALL VISIT THE SITE AND REVIEW EXISTING CONDITIONS PRIOR TO THE BID DATE.
8. PRIOR TO STARTING WORK, VERIFY WITH THE LOCAL AUTHORITIES THAT ALL REQUIRED PERMITS HAVE BEEN ACQUIRED.
9. COORDINATE CONSTRUCTION IN THE RIGHT OF WAY WITH THE LOCAL AUTHORITIES.
10. PROVIDE PROPER BARRICADES, SIGNS, AND TRAFFIC CONTROL TO MAINTAIN THRU TRAFFIC ALONG ADJACENT STREETS IN ACCORDANCE WITH LOCAL MUNICIPAL REQUIREMENTS.
11. SIDEWALK JOINTS SHALL BE INSTALLED AS INDICATED OR AS APPROVED BY THE CONSTRUCTION MANAGER.

KEYNOTES:

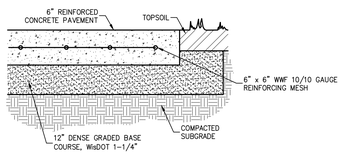
1. REINSTALL SALVAGED BRICK PAVERS & MATCH EXISTING PATTERNS. RETURN EXCESS PAVERS TO OWNER. — 3/C200
2. CONCRETE CURB & GUTTER, TO MATCH EXISTING
3. 6" CURB HEAD TAPER SECTION — 4/C200
4. CONCRETE RETAINING WALL, TO MATCH EXISTING HEIGHT & WIDTH
5. LANDSCAPE EDGING, TO MATCH EXISTING
6. PLACE BARK MULCH, TO MATCH EXISTING DEPTH AND COLOR WITH FILTER FABRIC PLACED BENEATH
7. MONUMENT SIGN– BY OTHERS
8. RESTRIPE EXISTING PARKING LOT– TO MATCH EXISTING STALL DEPTH & WIDTH, INCLUDING MOTORCYCLE PARKING STALLS
9. REINSTALL SALVAGED "MOTORCYCLE PARKING" SIGN
10. 18" CONCRETE CURB & GUTTER — 5/C200
11. CONCRETE BOLLARD — 5/C200
12. STAINLESS STEEL BOLLARD– TRAFFICGUARD PRODUCT #RFP6660RS (OR APPROVED EQUAL) INSTALL PER MANUFACTURER'S RECOMMENDATIONS — A01

PAVEMENT HATCH PATTERNS:

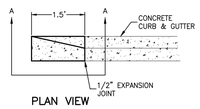
PROPOSED STANDARD CONCRETE PAVEMENT — 1/C200

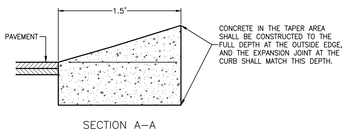
PROPOSED REINFORCED CONCRETE PAVEMENT — 2/C200

PROPOSED STANDARD COLORED CONCRETE PAVEMENT– COORDINATE COLOR WITH OWNER. CONTRACTOR TO PROVIDE A SAMPLE OF COLOR PRIOR CONSTRUCTION. — 1/C200

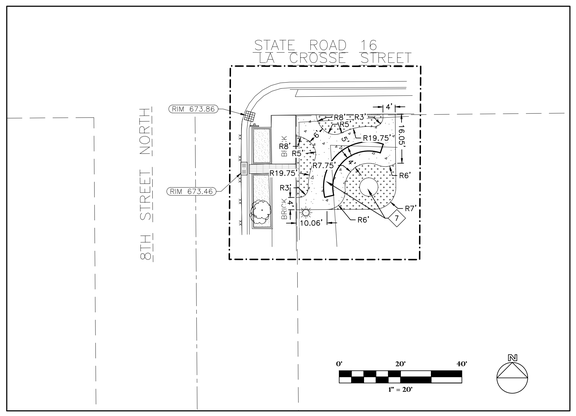


REINFORCED CONCRETE — 2/C200





CURB HEAD TAPER SECTION — 4/C200



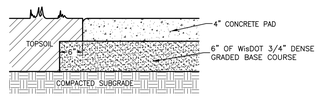
PROPOSED LACROSSE ST. SIGN

PLANTING NOTES:

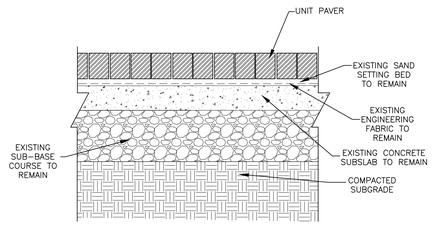
1. CONTACT DIGGER'S HOTLINE 5 WORKING DAYS PRIOR TO THE START OF DEMOLITION/CONSTRUCTION.
2. 6" OF TOPSOIL SHALL BE PROVIDED IN ALL GENERAL LANDSCAPE AREAS. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SPECIFIED PLANTING SOIL DEPTH IS PRESENT PRIOR TO PLANTING.
3. SEED/FERTILIZE/CRIMP HAY MULCH ALL GENERAL LANDSCAPE AREAS DISTURBED DURING CONSTRUCTION.
4. ALL PLANT MATERIALS LISTED SHALL MEET THE STANDARDS OF THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION FOR THE SIZES GIVEN.
5. 3" OF SHREDDED HARDWOOD BARK MULCH SHALL BE PLACED IN ALL PLANTING BEDS.
6. FILTER FABRIC SHALL BE PLACED BENEATH ALL LANDSCAPE BARK MULCH.
7. COORDINATE ALL LANDSCAPE WORK WITH GAS, ELECTRIC, (INCLUDING MAIN SERVICE, SITE LIGHTING, CONDUITS AND SIGNAGE) CABLE AND TELEPHONE CONSTRUCTION AND RESPECTIVE TRADES FOR THE INSTALLATION OF SAID UTILITIES.

PLANTING SCHEDULE:

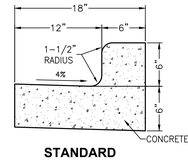
PERENNIALS SYMBOLS	BOTANICAL NAME	COMMON NAME	INSTALLATION SIZE	QUANTITY
LS	LIATRIS SPICATA	DENSE BLAZING STAR	1 GAL.	28
MF	MONARDA FISTULOSA	WILD BERGAMOT	1 GAL.	22
SS	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GAL.	11



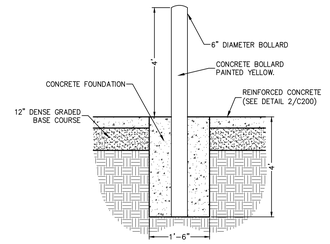
4" CONCRETE SIDEWALK — 1/C200



UNIT PAVERS — 3/C200



18" CONCRETE CURB — 5/C200



CONCRETE BOLLARD — 6/C200

0' 20' 40' 1" = 20'

BENCHMARK:

ELEVATIONS ARE REFERENCED TONAVD 88 DATUM.

BENCHMARK #1
BURY BOLT ON HYDRANT,
LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF 8TH STREET NORTH AND PINE STREET.
ELEVATION = 679.82

BENCHMARK #2
BURY BOLT ON HYDRANT,
LOCATED AT THE NORTHEAST QUADRANT OF THE INTERSECTION OF 8TH STREET NORTH AND BADGER STREET.
ELEVATION = 678.62

UTILITY DISCLAIMER:

THE LOCATIONS, SIZES, AND TYPES OF UNDERGROUND PUBLIC AND PRIVATE UTILITIES OR SUBSTRUCTURES SHOW HEREON WERE OBTAINED FROM VISUAL INSPECTION, FIELD MEASUREMENTS, AND/OR AS–BUILT PLANS. SANITARY SEWER AND STORM SEWER PIPE SIZES, INVERTS, DIRECTION, AND LOCATIONS BETWEEN MANHOLES ARE SUPPLEMENTED BY AS–BUILT PLANS AND/OR ESTIMATED BASED ON FIELD OBSERVATIONS. PRIOR TO CONSTRUCTION IN THE VICINITY OF ANY UTILITIES SHOWN HEREON, IT IS RECOMMENDED THAT THE LOCATIONS, DEPTHS, AND SIZES BE FIELD VERIFIED. THE LOCATIONS SHOWN HEREON ARE ONLY APPROXIMATE, WITH POSSIBILITY THAT ADDITIONAL UTILITY LINES NOT DISCOVERED, OR MARKED, DURING THE SEARCH OF RECORDS AND THE FIELD SURVEY MAY EXIST. ANY CONTRACTOR USING THE INFORMATION SHOWN HEREON IS HEREBY FOREWARNED THAT ANY EXCAVATION UPON THIS SITE MAY RESULT IN THE DISCOVERY OF ADDITIONAL UNDERGROUND UTILITIES NOT SHOWN HEREON. IN GENERAL, UNDERGROUND UTILITY LOCATIONS ARE SHOWN FROM UTILITY MARKINGS, BY OTHERS, AND/OR AS–BUILT PLANS, PROVIDED BY OTHERS. POINT OF BEGINNING MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH RESPECT TO THE EXISTING UTILITIES SHOWN HEREON, AND BELIEVES THAT THE INFORMATION CONTAINED HEREIN IS RELIABLE AND GENERALLY ACCURATE FOR THE PURPOSE INTENDED.

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Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: 405 8TH STREET NORTH LA CROSSE, WI

Sheet Title: **Layout Plan**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **MK**

Key Plan:

REVIEW

NOT FOR CONSTRUCTION

Revisions:

No.	Description	Date
A01	Addendum 1	08/09/2024

Graphic Scale: **1"=20'**

Last Update: **7/22/2024 10:58:17 AM**

C200

EQUIPMENT SCHEDULE

MARK	DESCRIPTION	ROOM #	MFG.	MODEL	DIM (WxDxH)
1	FUSION MAKER 12	112	EPILOG LASER		39.5" x 26.5" x 17.9"
2	FUME EXTRACTOR	112	BOFA	AD 350	23.25" x 16" x 18.5"
3	WATER JET CUTTING MACHINE	112	WAZER	WAZER DESKTOP	34" x 26" x 48"
4	POWDER MANAGEMENT STATION	112	FORMLABS	FUSE SIFT	40" x 24" x 61"
5	SAND BLAST CABINET	112	FORMLABS	FUSE BLAST	39" x 29.75" x 68.75"
6	20-TON DOUBLE-PUMP HYDRAULIC PRESS	112	GRIZZLY	T1241	32.5" x 33.5" x 72"
7	BENCH LATHE W/ STAND	112	GRIZZLY	G9972Z	51" x 23" x 19"
8	1 HP MILL/DRILL W/ STAND	112	GRIZZLY	G0759	38" x 24" x 67"
9	2-WHEEL METAL BELT GRINDER/SANDER	112	GRIZZLY	G0897	15" x 25.5" x 35.5"
10	1 1/2 HP METAL DUST COLLECTOR	112	GRIZZLY	T28798	20" x 28.5" x 43"
11	9L CNC LATHE	112	TORMACH		50" x 26" x 52"
12	CNC ROUTER	112	TORMACH	24R	72" x 39" x 76.5"
13	VACUUM PUMP	112	BLACK BOX VACUUMS	STORM	18.5" x 17.5" x 17.5"
14	2 HP BANDSAW	112	GRIZZLY	G0513	32" x 32" x 73"

EQUIPMENT SCHEDULE

MARK	DESCRIPTION	ROOM #	MFG.	MODEL	DIM (WxDxH)
15	CNC MILLING MACHINE	112	TORMACH	PCNC 440	42" x 36" x 72"
16	1 1/2 HP PORTABLE DUST COLLECTOR	112	GRIZZLY	G1028Z2	33.5" x 21.25" x 78"
17	1 HP METAL-CUTTING BANDSAW	112	GRIZZLY	G0561	48" x 16" x 40"
18	MK4 3D PRINER	112	PRUSA	MK4	19.75" x 21.75" x 15.75"
19	XL 3D PRINTER	112	PRUSA	XL	31.5" x 31.5" x 35.5"
20	DRY BOX	112	ESSENTIUM	DB270	40" x 30" x 70"
21	S7 PRO 3D PRINTER	112	ULTIMAKER	S7 PRO	19.5" x 19.75" x 47"
22	PRO HT90 3D PRINTER	112	PRUSA	PRO HT90	
23	SLS 3D PRINTER	112	FORMLABS	FUSE 1+	27" x 25.5" x 42"
24	MITER SAW W/ STAND	112	DEWALT	DWS779	21" x 17" x 17"
25	TABLE SAW W/ STAND	112	DEWALT	DWE7491RS	31" x 24.5" x 31"
26	ROBOTS	113	FANUC		
27	PLC/HMI TRAINER	113	FANUC		
28	TABLETOP AND FLOOR CONVEYOR	113	APT		4 1/2" x 36"

EQUIPMENT SCHEDULE

MARK	DESCRIPTION	ROOM #	MFG.	MODEL	DIM (WxDxH)
29	CSM 3 ROBOT & 1 LASER	113	APT		184" x 56"
30	CSM CONTROL STATION	113	APT		48" x 24"
31	ROBOT TABLE	113	YASKAWA		
32	POWER SUPPLY	113	YASKAWA		
33	LARGE ROBOTS	113	YASKAWA		
34	POWER SUPPLY	113	YASKAWA		
35	AIR COMPRESSOR	112	CALIFORNIA AIR		26" x 14" x 23"
36.1	TEMI AI	100	TEMI		13.25" x 18" x 42"
36.2	TEMI AI	200	TEMI		13.25" x 18" x 42"
37	100 AMR	113	MiR	MiR 100	
38	20" FLOOR DRILL PRESS	112	GRIZZLY	M1039	21" x 34.75" x 70.75"
39	PVA REMOVAL STATION	112	ULTIMAKER		12" x 13" x 14.75"
40	TABLE	112			

PLAN GENERAL NOTES:

A. REFER TO OVERALL PLANS FOR FIRE RATING LOCATIONS AND ACCESSIBILITY ROUTES.

B. SEE ID SHEETS FOR FLOOR AND WALL FINISH LAYOUTS.

C. LOOSE FURNISHINGS EXCEPT AS NOTED SHALL BE PROVIDED AND INSTALLED BY THE OWNER.

D. FIXED EQUIPMENT IS SHOWN ON THIS PLAN FOR COORDINATION. SEE SHEETS **A101** FOR ALL EQUIPMENT NOTES.

E. UNLESS NOTED OTHERWISE RESTROOM FLOORS SHALL BE SLOPED A MIN. 1/16" : 12" TO FLOOR DRAINS - TO "CENTER", IF NO FLOOR DRAINS.

F. PAINT ALL EXPOSED STEEL LINTELS.

G. EXTEND ALL WALLS TO DECK UNLESS NOTED OTHERWISE.

H. SEE STRUCTURAL FOR SLAB CONTROL JOINTS.

I. GENERAL CONTRACTOR TO PROVIDE CONCRETE EQUIPMENT PADS/CURBS AS REQUIRED FOR MECHANICAL / ELECTRICAL EQUIPMENT- VERIFY SIZE, PROFILE & LOCATION WITH MECHANICAL / ELECTRICAL

J. VERIFY EXACT SIZE AND LOCATION OF ALL MECHANICAL / PLUMB AND ELEC OPENINGS - GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINISH AT ALL VISIBLE AREAS. ALL OPENING SHALL BE SEALED AFTER UTILITY INSTALLATION

PLAN LEGEND:

- (A) SYMBOL INDICATES WALL TYPE - SEE SHEET A600 FOR WALL TYPE DETAILS.
- BL-# SYMBOL INDICATES BORROWED LITE TYPE. SEE SHEET A601 FOR BORROWED LITE FRAME ELEVATIONS.
- SYMBOL INDICATES CONSTRUCTION NOTE THIS SHEET
- 1 HOUR WALL

PLAN KEY NOTES

1	BOLLARD - SEE CIVIL
2	SOLID SURFACE WINDOW STOOL
3	POST MOUNTED ADA POWER DOOR OPENER
4	PATCH WALL AT REMOVED PARTITION
5	INFILL OPENING AT REMOVE DOOR/FRAME. MATCH ADJACENT CONSTRUCTION AND FINISH.
6	FURNITURE N.I.C.
7	NEW ELEVATOR (BY OTHERS)
8	EXISTING WOOD DOOR SLAB TO BE RESTAINED - SEE DOOR SCHEDULE
9	ALT BID 7D: INTERIOR SIGNAGE - SEE A210 FOR SIGNAGE SCHEDULE
10	CONC APRON - SEE CIVIL
11	PATCH CONC FLOOR SLAB AFTER NEW FOOTING IS INSTALLED.
12	DATA RACK - SEE ELECTRICAL
13	REINSTALL SALVAGED CASEWORK AND COUNTERTOP
14	TV MONITOR - VERIFY LOCATION WITH OWNER
15	INSTALL NEW FLOOR DRAIN COVER ON EXISTING FLOOR DRAIN.
16	INSTALL NEW ADA DOOR OPERATOR.
17	INSTALL SALVAGED ADA DOOR OPERATOR.
18	PAINT AND REINSTALL SALVAGED ACCESS DOOR.
19	EQUIPMENT BY OWNER - SEE EQUIPMENT SCHEDULE
20	SEMI-RECESSED FIRE EXTINGUISHER CABINET
21	BLOCKING FOR OFOI WHITE/TACK BOARDS
22	NOC (ROOM 215) TO REMAIN OPERATIONAL DURING CONSTRUCTION
23	EQUIPMENT ITEMS 31 AND 33 ARE TO BE INSTALLED BY CONTRACTOR.

A01

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **FIRST FLOOR**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **HSR**

Key Plan:

Revisions:

No.	Description	Date
A01	ADDENDUM #1	8-9-2024

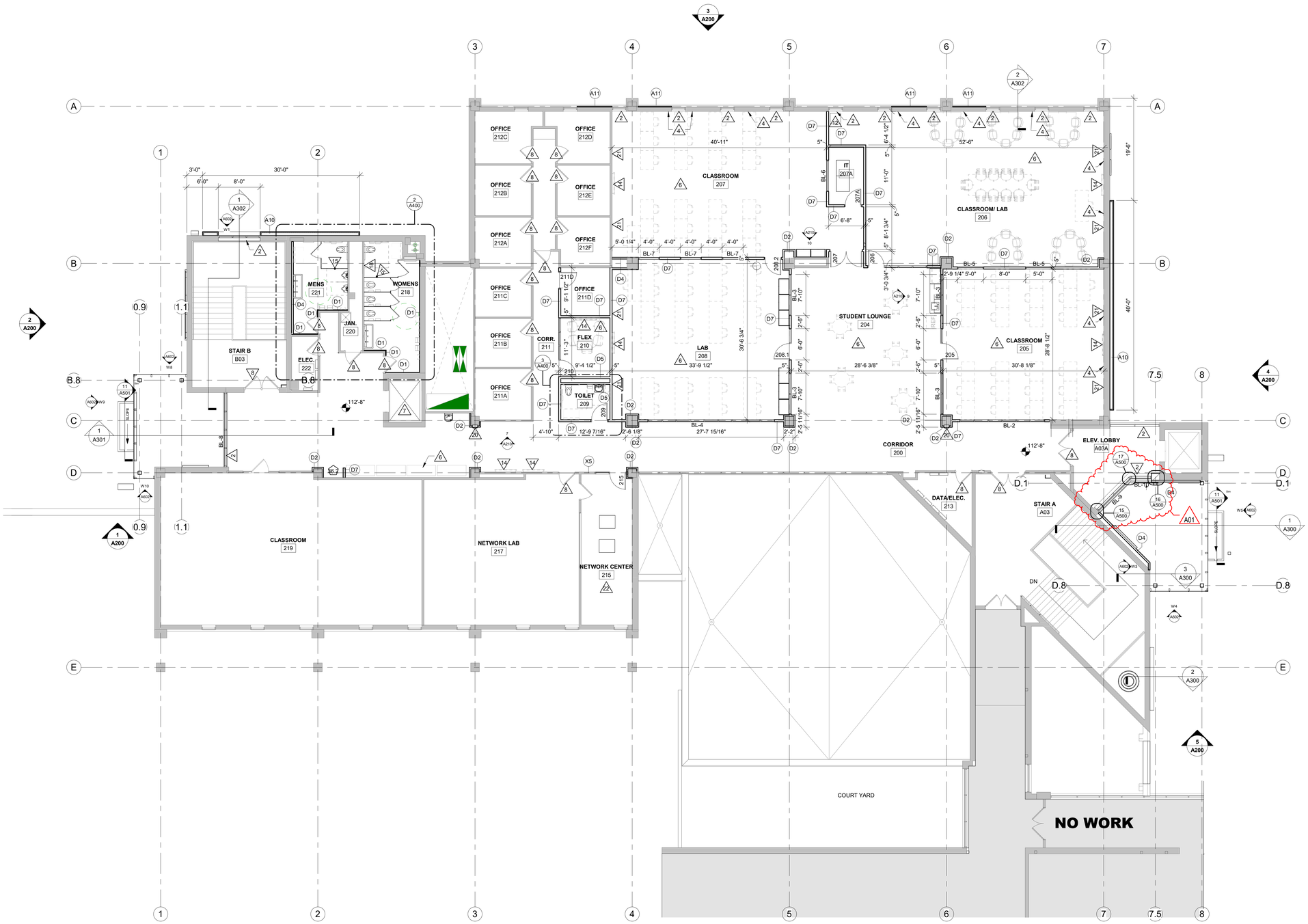
Graphic Scale: 0' 2' 4' 8' 12'

Last Update: **8/9/2024 8:17:52 AM**

A101

1 FIRST FLOOR

1/8" = 1'-0"



1 SECOND FLOOR

1/8" = 1'-0"

PLAN GENERAL NOTES:

A. REFER TO OVERALL PLANS FOR FIRE RATING LOCATIONS AND ACCESSIBILITY ROUTES.

B. SEE ID SHEETS FOR FLOOR AND WALL FINISH LAYOUTS.

C. LOOSE FURNISHINGS EXCEPT AS NOTED SHALL BE PROVIDED AND INSTALLED BY THE OWNER.

D. FIXED EQUIPMENT IS SHOWN ON THIS PLAN FOR COORDINATION. SEE SHEETS **A101** FOR ALL EQUIPMENT NOTES.

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PLAN LEGEND:

(A) SYMBOL INDICATES WALL TYPE - SEE SHEET A600 FOR WALL TYPE DETAILS.

BL-# SYMBOL INDICATES BORROWED LITE TYPE. SEE SHEET A601 FOR BORROWED LITE FRAME ELEVATIONS.

SYMBOL INDICATES CONSTRUCTION NOTE THIS SHEET

1 HOUR WALL

PLAN KEY NOTES

1	BOLLARD - SEE CIVIL
2	SOLID SURFACE WINDOW STOOL
3	POST MOUNTED ADA POWER DOOR OPENER
4	PATCH WALL AT REMOVED PARTITION
5	INFILL OPENING AT REMOVE DOOR/FRAME. MATCH ADJACENT CONSTRUCTION AND FINISH.
6	FURNITURE N.I.C.
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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **SECOND FLOOR**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **HSR**

Key Plan:

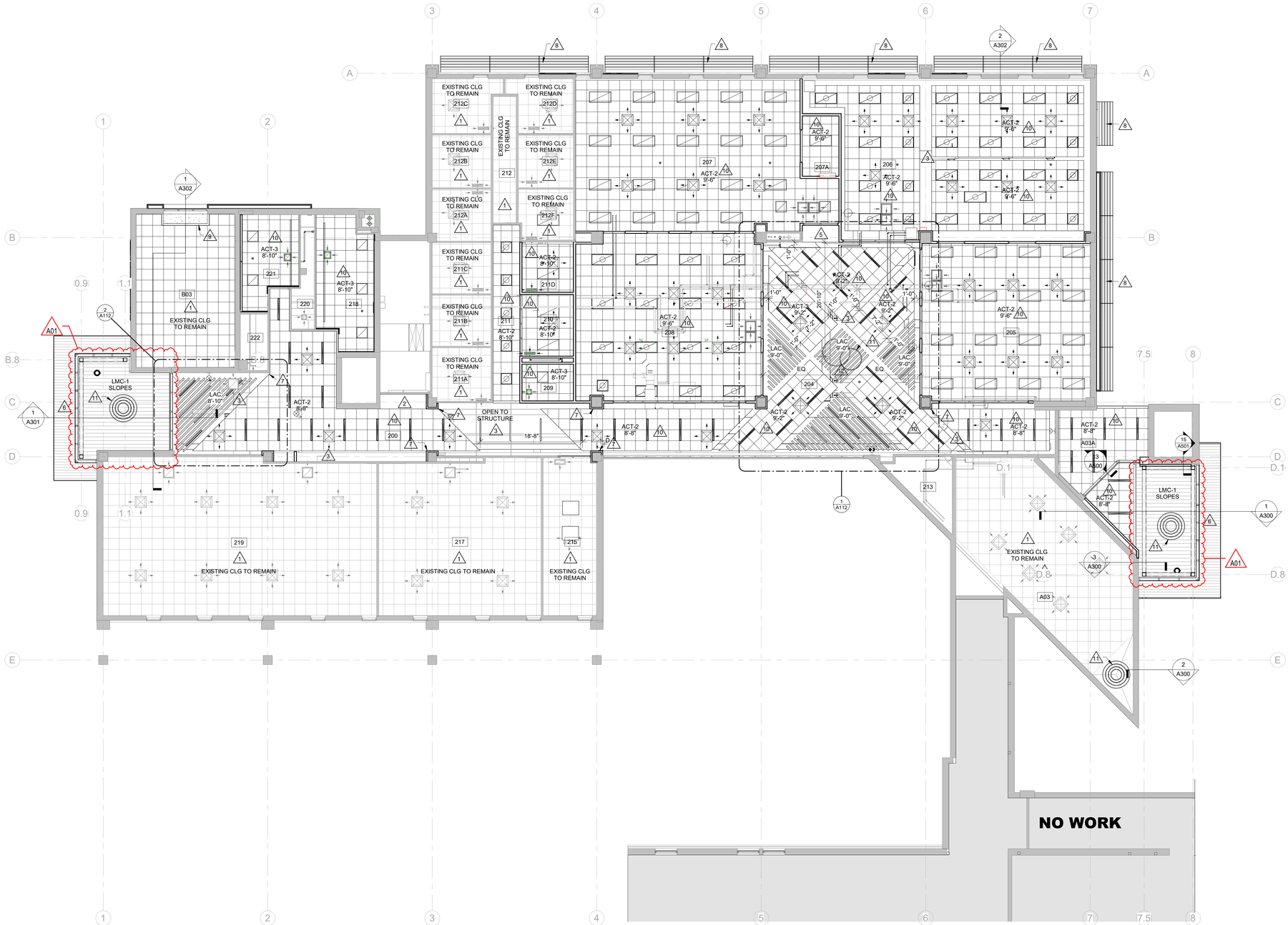
Revisions:

No.	Description	Date
A01	ADDENDUM #1	8-9-2024

Graphic Scale: 0' 2' 4' 8' 12'

Last Update: **8/9/2024 8:17:56 AM**

A102



1 SECOND FLOOR

1/8" = 1'-0"

RCP GENERAL NOTES:

A. REFER TO MECHANICAL AND PLUMBING CEILING ACCESS PANEL LOCATIONS & SIZES.

B. SEE MECHANICAL FOR CEILING GRILLE INFORMATION.

C. SEE ELECTRICAL FOR LIGHTING TYPES.

D. ALL INTERIOR PARTITIONS TO EXTEND TO BOTTOM OF DECK UNLESS OTHERWISE NOTED. CLOSE DECK FLUTES AT TOP OF WALL WITH NEOPRENE FILLER OR FIRESTOPPING SYSTEM. IN GYP/STUD PARTITIONS SEE SPECIFICATION FOR LEVEL OF FINISH ABOVE FINISHED CEILING.

E. ALL REMAINING ANNULAR SPACE AROUND ITEMS PENETRATING WALLS SHALL BE NEATLY SEALED. PENETRATIONS OF FIRE RATED WALLS SHALL BE FIRESTOPPED WITH THE SAME AS THE WALL.

F. WHERE NO CEILING/EXPOSED STRUCTURE UNLESS NOTED OTHERWISE, CONTRACTOR SHALL KEEP ALL MEP ABOVE OR EVEN WITH THE LEVEL OF THE LIGHTS. MEP SHALL RUN IN NEAT ORDERLY APPEARANCE GENERALLY PARALLEL OR PERPENDICULAR TO FINISHED STRUCTURE. WALLS IN THESE ROOMS TO RUN TO DECK AND ALL STRUCTURE / MEP COMPONENTS ARE TO BE PAINTED.

G. ALL EXTERIOR EXPOSED STEEL LINTELS/HEADERS SHALL BE GALVANIZED, PRIMED AND PAINTED UNLESS NOTED OTHERWISE.

H. REFER TO INTERIOR DESIGN SHEETS FOR OTHER FINISHES.

I. HANGERS AND SUPPORTS: MECHANICAL, PLUMBING, ELECTRICAL AND OTHER CABLING CONTRACTORS SHALL NOT HANG OR SUPPORT THE WORK FROM THE ROOF DECK IN ANY FASHION. CONDUIT RUNS SHALL NOT BE LAID ON ROOF DECK NOR LAID ON THE STRUCTURAL SUPPORT THAT SUPPORTS THE ROOF DECK. NO FASTENERS SHALL PENETRATE ROOF DECK BY ANY TRADE OTHER THAN THE ROOFING CONTRACTOR FOR THE NEW ROOF SYSTEM.

J. CONFIRM EXACT LOCATION OF OVERHEAD PROJECTORS AND OTHER CEILING MOUNTED EQUIPMENT WITH OWNER / MANUFACTURER PRIOR TO INSTALLATION. SEE EQUIPMENT PLANS FOR ADDITIONAL EQUIPMENT.

K. CEILING TYPES INSTALLED AS NOTED ON PLANS. SEE SPECIFICATIONS FOR ADDITIONAL SYSTEM INFORMATION. **ACT-2**=TEGULAR EDGE, **ACT-3**=VINYL FACED GYP, **LAC** = LINEAR ACOUSTIC CEILING, **LMC-1** = LINEAR METAL CEILING SYSTEM

RCP LEGEND:

- LIGHT FIXTURE - SEE ELECTRICAL
- LIGHT FIXTURE - SEE ELECTRICAL
- LIGHT FIXTURE - SEE ELECTRICAL
- LIGHT FIXTURE - SEE ELECTRICAL
- LIGHT FIXTURE - SEE ELECTRICAL
- SUPPLY - SEE MECHANICAL
- RETURN - SEE MECHANICAL
- EXHAUST - SEE MECHANICAL
- DESTRAT FAN - SEE MECHANICAL

RCP KEY NOTES

1	EXISTING SUSPENDED ACOUSTIC TILE CEILING TO REMAIN. REMOVE AND REINSTALL CEILING AS REQUIRED FOR INSTALLATION OF FIRE PROTECTION SYSTEM.
2	PAINT GYP BD SOFFIT PNT-2
3	PAINT STRUCTURE PNT-5
4	PAINT STRUCTURE PNT-6
5	PAINT GYP BD SOFFIT PNT-3
6	FLUSH VENTED ALUM.SOFFIT
7	ALIGN CEILING WITH EDGE OF WALL/COLUMN
8	RECTANGULAR TUBE BLADE SUNSHADE
9	GYP. BD SOFFIT
10	NEW AC TILE AND GRID SYSTEM.
11	LIGHT FIXTURE - SEE ELECTRICAL
12	LINEAR CEILING BAFFLES FIELD COLOR LAC-1. ACCENT AS SHOWN ON PLANS

ARCHITECTURE
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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **RCP SECOND FLOOR**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **HSR**

Key Plan:

Revisions:

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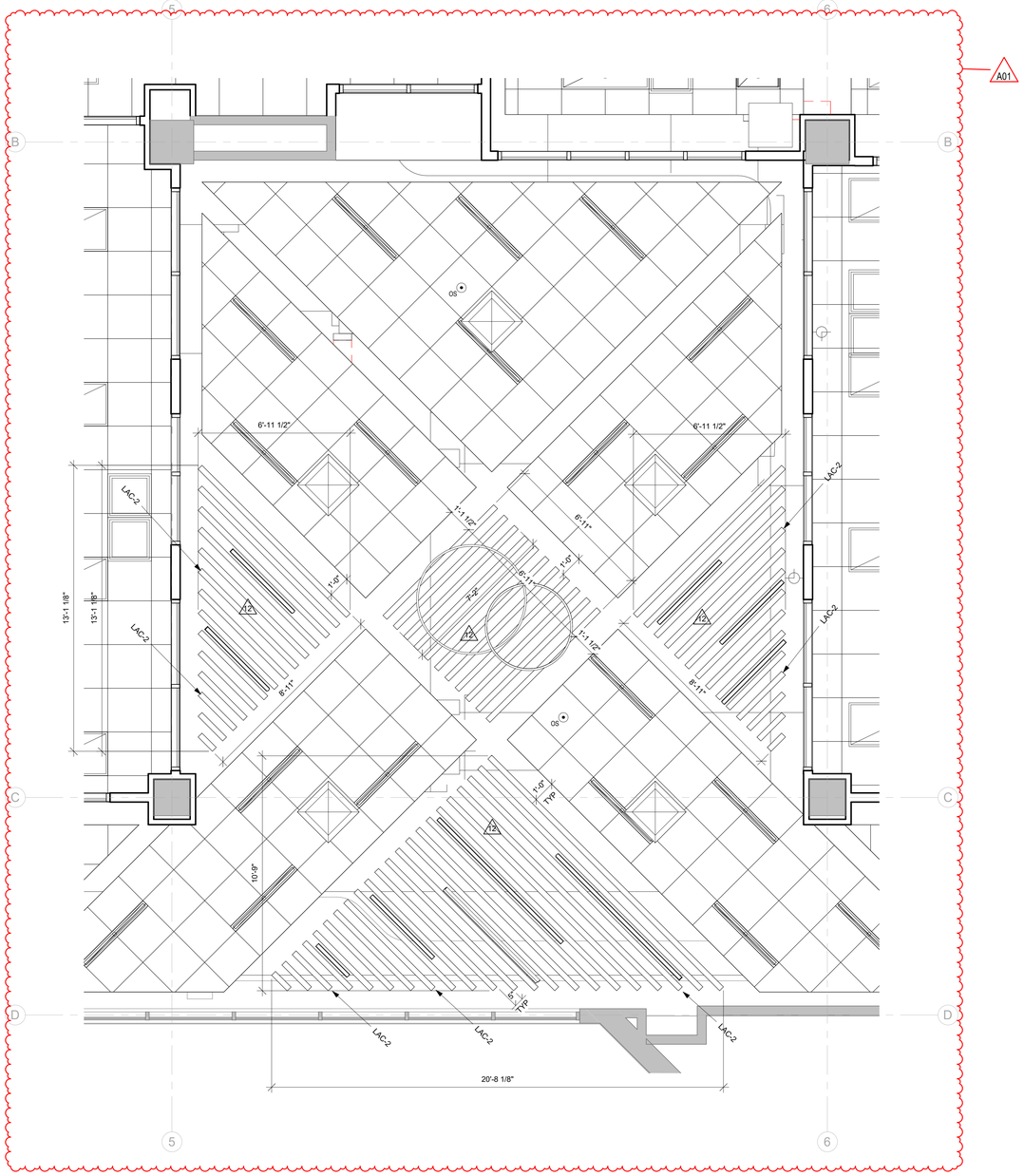
A01	ADDENDUM #1	8-9-2024

Graphic Scale: 0" 2" 4" 8" 12"

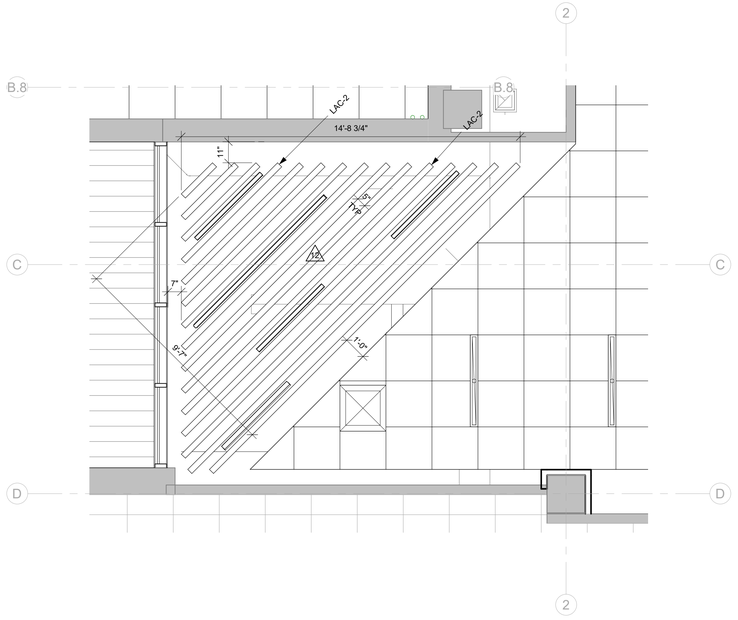
Last Update: **8/9/2024 8:18:02 AM**

A111



1 ENLARGED STUDENT LOUNGE RCP

3/8" = 1'-0"



2 ENLARGED RCP

3/8" = 1'-0"

RCP GENERAL NOTES:

A. REFER TO MECHANICAL AND PLUMBING CEILING ACCESS PANEL LOCATIONS & SIZES.

B. SEE MECHANICAL FOR CEILING GRILLE INFORMATION.

C. SEE ELECTRICAL FOR LIGHTING TYPES.

D. ALL INTERIOR PARTITIONS TO EXTEND TO BOTTOM OF DECK UNLESS OTHERWISE NOTED. CLOSE DECK FLUTES AT TOP OF WALL WITH NEOPRENE FILLER OR FIRESTOPPING SYSTEM. IN GYPSTUD PARTITIONS SEE SPECIFICATON FOR LEVEL OF FINISH ABOVE FINISHED CEILING.

E. ALL REMAINING ANNULAR SPACE AROUND ITEMS PENETRATING WALLS SHALL BE NEATLY SEALED. PENETRATIONS OF FIRE RATED WALLS SHALL BE FIRESTOPPED WITH THE SAME AS THE WALL.

F. WHERE NO CEILING/EXPOSED STRUCTURE UNLESS NOTED OTHERWISE, CONTRACTOR SHALL KEEP ALL MEP ABOVE OR EVEN WITH THE LEVEL OF THE LIGHTS. MEP SHALL RUN IN NEAT ORDERLY APPEARANCE GENERALLY PARALLEL OR PERPENDICULAR TO FINISHED STRUCTURE. WALLS IN THESE ROOMS TO RUN TO DECK AND ALL STRUCTURE / MEP COMPONENTS ARE TO BE PAINTED.

G. ALL EXTERIOR EXPOSED STEEL LINTELS/HEADERS SHALL BE GALVANIZED, PRIMED AND PAINTED UNLESS NOTED OTHERWISE.

H. REFER TO INTERIOR DESIGN SHEETS FOR OTHER FINISHES.

I. HANGERS AND SUPPORTS: MECHANICAL, PLUMBING, ELECTRICAL AND OTHER CABLING CONTRACTORS SHALL NOT HANG OR SUPPORT THE WORK FROM THE ROOF DECK IN ANY FASHION. CONDUIT RUNS SHALL NOT BE LAID ON ROOF DECK NOR LAID ON THE STRUCTURAL SUPPORT THAT SUPPORTS THE ROOF DECK. NO FASTENERS SHALL PENETRATE ROOF DECK BY ANY TRADE OTHER THAN THE ROOFING CONTRACTOR FOR THE NEW ROOF SYSTEM.

J. CONFIRM EXACT LOCATION OF OVERHEAD PROJECTORS AND OTHER CEILING MOUNTED EQUIPMENT WITH OWNER / MANUFACTURER PRIOR TO INSTALLATION. SEE EQUIPMENT PLANS FOR ADDITIONAL EQUIPMENT.

K. CEILING TYPES INSTALLED AS NOTED ON PLANS. SEE SPECIFICATIONS FOR ADDITIONAL SYSTEM INFORMATION. **ACT-2**=TEGULAR EDGE, **ACT-3**=VINYL FACED GYP., **LAC** = LINEAR ACOUSTIC CEILING, **LMC-1** = LINEAR METAL CEILING SYSTEM

RCP LEGEND:

- LIGHT FIXTURE - SEE ELECTRICAL
- LIGHT FIXTURE - SEE ELECTRICAL
- LIGHT FIXTURE - SEE ELECTRICAL
- LIGHT FIXTURE - SEE ELECTRICAL
- LIGHT FIXTURE - SEE ELECTRICAL
- SUPPLY - SEE MECHANICAL
- RETURN - SEE MECHANICAL
- EXHAUST - SEE MECHANICAL
- DESTRAT FAN - SEE MECHANICAL

RCP KEY NOTES

1	EXISTING SUSPENDED ACOUSTIC TILE CEILING TO REMAIN. REMOVE AND REINSTALL CEILING AS REQUIRED FOR INSTALLATION OF FIRE PROTECTION SYSTEM.
2	PAINT GYP BD SOFFIT PNT-2
3	PAINT STRUCTURE PNT-5
4	PAINT STRUCTURE PNT-6
5	PAINT GYP BD SOFFIT PNT-3
6	FLUSH VENTED ALUM SOFFIT
7	ALIGN CEILING WITH EDGE OF WALL/COLUMN
8	RECTANGULAR TUBE BLADE SUNSHADE
9	GYP. BD SOFFIT
10	NEW AC TILE AND GRID SYSTEM.
11	LIGHT FIXTURE - SEE ELECTRICAL
12	LINEAR CEILING BAFFLES FIELD COLOR LAC-1. ACCENT AS SHOWN ON PLANS

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **RCP ENLARGED**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

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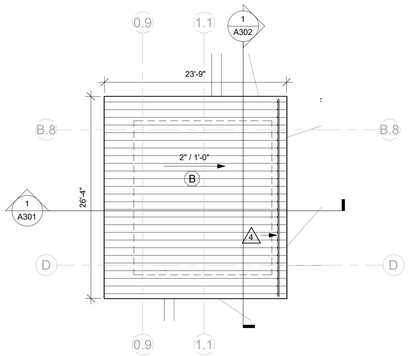
A112



3 TOWER ROOF - N.

1/8" = 1'-0"

ROOF KEY NOTES

1	REMOVE EXISTING PARAPET WALL AND WALL CAP.
2	METAL SCREEN WALL ON STRUCTURAL SUPPORTS - SEE STRUCTURAL
3	REMOVE EXISTING WALL CAP
4	BAR TYPE SNOW GUARD
5	CANOPY SCUPPER
6	MECHANICAL EQUIPMENT - SEE MECHANICAL
7	AT ALL NEW COLUMNS MOUNTED TO ROOF DECK, REMOVE INSULATION AND SLOPED TOPPING TO REVEAL 11" CONC DECK. AFTER INSTALLATION OF COLUMN, REGROUT TOPPING TO MATCH EXISTING TOPPING. REPLACE INSULATION AND PATCH ROOFING.

A01

ROOF GENERAL NOTES:

A. SEE ROOF SYSTEM NOTES FOR MINIMUM AND AVERAGE INSULATION VALUES.

B. TAPERED INSULATION SHOP DRAWING APPROVAL SHALL INCLUDE REVIEW OF DRAIN AND SCUPPER LOCATIONS IN RELATION TO STRUCTURAL AND MEP SYSTEM COMPONENTS, INCLUDING, BUT NOT LIMITED TO, ROOF TOP EQUIPMENT, DUCTWORK, ROOF LEADER RUNS, LIGHTING, PIPING AND CONDUIT. PRIOR TO INSTALLATION OF DRAINS AND EQUIPMENT COORDINATE A WALK THROUGH WITH A/E AND APPLICABLE SUBCONTRACTORS TO CONFIRM CONDITIONS. ADJUSTMENTS TO DRAIN AND EQUIPMENT RELOCATIONS SHALL BE COORDINATED WITH A/E AT THAT TIME.

C. VERIFY ROOF EQUIPMENT AND PENETRATIONS WITH ALL TRADES. EQUIPMENT SHOWN IS GRAPHIC ONLY.

D. ROOF PENETRATIONS FOR DRAINS, VENTS, ETC. SHALL BE COMPLETED AS PER CURRENT SMACNA REQUIREMENTS AND THE ROOF MANUFACTURERS APPROVED DETAILS FOR WARRANTY SATISFACTION. COORDINATE QUANTITY AND LOCATIONS WITH MEP CONTRACTOR. PROVIDE CURBS WHERE REQUIRED.

E. ALL METAL ROOF AND FLASHING, SHALL MEET CURRENT SMACNA REQUIREMENTS AND MANUFACTURER'S SPECIFIED WARRANTY.

F. WHERE MEMBRANE IS SHOWN OVER TOP OF WALL EXTEND DOWN OPPOSITE SIDE AND SECURE TO BLOCKING.

G. TOP OF WALL BLOCKING SHOWN IS GRAPHIC. PROVIDE BLOCKING THAT SHALL BE ANCHORED TO WALL BELOW AS RECOMMENDED BY ROOFING SYSTEM MANUFACTURER TO WITHSTAND WIND UPLIFT AS STATED IN CODE. TOP OF WALLS SHALL SLOPE TOWARDS ROOF.

H. INSTALL BOND BREAK BETWEEN ALL WOOD BLOCKING AND CMU OR CONCRETE.

I. AT INTERSECTION OF ROOF INSULATION WITH VERTICAL SURFACES FILL ALL VOIDS AT INSULATION TERMINATION WITH EXPANDING FOAM INSULATION.

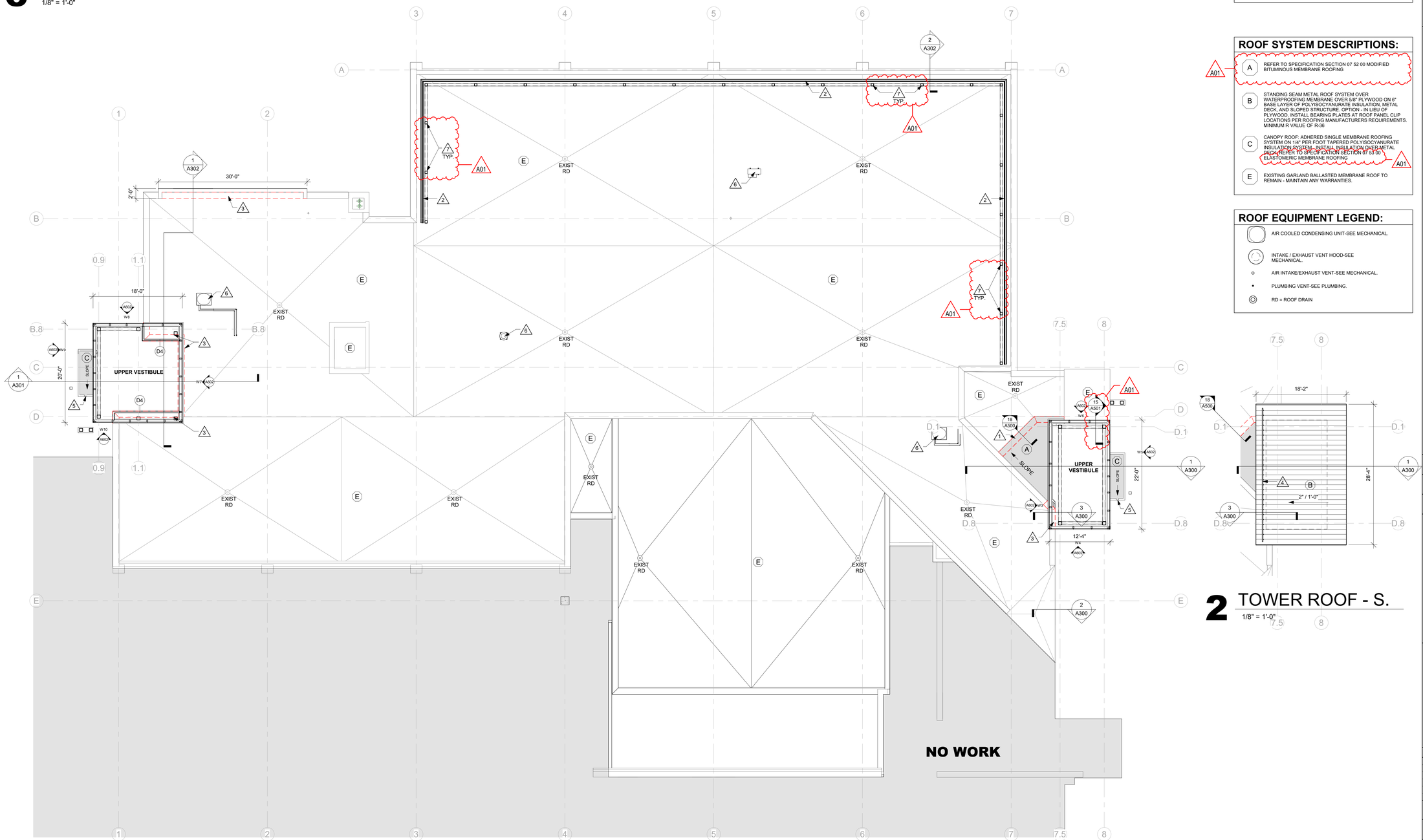
ROOF SYSTEM DESCRIPTIONS:

A01

- A — REFER TO SPECIFICATION SECTION 07 52 00 MODIFIED BITUMINOUS MEMBRANE ROOFING
- B — STANDING SEAM METAL ROOF SYSTEM OVER WATERPROOFING MEMBRANE OVER 5/8" PLYWOOD ON 6" BASE LAYER OF POLYISOCYANURATE INSULATION, METAL DECK, AND SLOPED STRUCTURE. OPTION - IN LIEU OF PLYWOOD, INSTALL BEARING PLATES AT ROOF PANEL CLIP LOCATIONS PER ROOFING MANUFACTURERS REQUIREMENTS. MINIMUM R VALUE OF R-36
- C — CANOPY ROOF: ADHERED SINGLE MEMBRANE ROOFING SYSTEM ON 1/4" PER FOOT TAPERED POLYISOCYANURATE INSULATION SYSTEM--INSTALL INSULATION OVER METAL DECK. REFER TO SPECIFICATION SECTION 07 53 00 ELASTOMERIC MEMBRANE ROOFING
- E — EXISTING GARLAND BALLASTED MEMBRANE ROOF TO REMAIN - MAINTAIN ANY WARRANTIES.

ROOF EQUIPMENT LEGEND:

- AIR COOLED CONDENSING UNIT-SEE MECHANICAL.
- INTAKE / EXHAUST VENT HOOD-SEE MECHANICAL.
- AIR INTAKE/EXHAUST VENT-SEE MECHANICAL.
- PLUMBING VENT-SEE PLUMBING.
- RD = ROOF DRAIN



2 TOWER ROOF - S.

1/8" = 1'-0"

1 ROOF PLAN

1/8" = 1'-0"

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **ROOF**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

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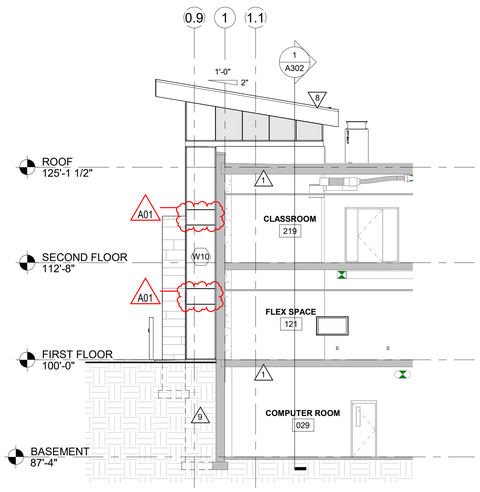
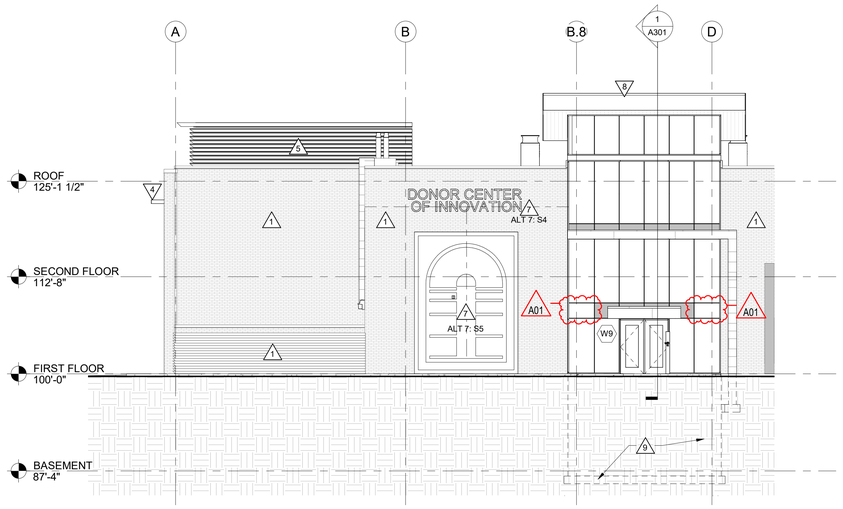
A120



1 WEST ELEVATION - N TOWER

1/8" = 1'-0"



2 NORTH ELEVATION

1/8" = 1'-0"

SIGNAGE SCHEDULE

S1	BRUSHED SS LOGO AND CUSTOM LETTER SET W/ 3" RETURNS MOUNTED TO POWDER COAT ALUMINUM SUPPORT FRAME HUNG FROM UPPER CANOPY STRUCTURE. LOGO VECTOR FILE SUPPLIED BY OWNER.
S2	CAST ALUMINUM DONOR PLAQUE 18" x 24". CAST OF 514 ALLOY. TEXT AND IMAGES TO BE SUPPLIED BY OWNER.
S3	BRUSHED SS LOGO WITH 2" RETURNS. STUD MOUNTED TO BRICK. FACE OF LOGO TO RECEIVE FLAT CUT 1/2" ALUM LETTERS W/ BLACK ANODIZED FINISH. LOGO VECTOR FILE SUPPLIED BY OWNER.
S4	BRUSHED SS CUSTOM LETTER SET W/ 2" RETURNS. STUD MOUNTED TO BRICK. LOGO VECTOR FILE TO BE SUPPLIED BY OWNER.
S5	BACK LT LOGO PANEL W/ BRUSHED SS CABINET HOUSING LED LIGHTS. TO BE MOUNTED TO BRICK. POWER SUPPLIED BY OWNER. LOGO VECTOR FILE AND FINAL PATTERN TO BE SUPPLIED BY OWER.
S6	LEGACY PANEL: 60"x120" HALFTONE TECHNIQUE ON ETCHED ALUMINUM PANEL W/ BLACK ANODIZED ALUMINUM FRAME. MOUNTED W/ FRENCH CLEATS. TEXT/LOGO SUPPLIED BY OWNER.
S7	DIDACTIC PANEL: 60"x24" TOOLED ALUMINUM PANEL W/ BLACK LETTERING AND BLACK ANODIZED FRAME. MOUNTED W/ FRENCH CLEATS. TEXT/LOGO SUPPLIED BY OWNER.
S8	INNOVATION PANEL: 60"x120" HALFTONE TECHNIQUE ON ETCHED ALUMINUM PANEL W/ BLACK ANODIZED ALUMINUM FRAME. MOUNTED W/ FRENCH CLEATS. TEXT/LOGO SUPPLIED BY OWNER.
S9	SS CABLE DISPLAY 96"x60" W/ SUSPENDED ETCHED ALUMINUM PANELS. TEXT/LOGO SUPPLIED BY OWNER.
S10	SS CABLE DISPLAY 84"x192" W/ SUSPENDED ETCHED ALUMINUM PANELS. TEXT/LOGO SUPPLIED BY OWNER.
S11	SS FLOOR MOUNTED INFORMATION DISPLAY 84"x24"x36". TEXT/LOGO SUPPLIED BY OWNER.
S12	LEGACY PANEL: 60"x120" HALFTONE TECHNIQUE ON ETCHED ALUMINUM PANEL W/ BLACK ANODIZED ALUMINUM FRAME. MOUNTED W/ FRENCH CLEATS. TEXT/LOGO SUPPLIED BY OWNER.
S13	DIDACTIC PANEL: 60"x24" TOOLED ALUMINUM PANEL W/ BLACK LETTERING AND BLACK ANODIZED FRAME. MOUNTED W/ FRENCH CLEATS. TEXT/LOGO SUPPLIED BY OWNER.
S14	SS CABLE DISPLAY 72"x96" W/ SUSPENDED ETCHED ALUMINUM PANELS. TEXT/LOGO SUPPLIED BY OWNER.
S15	SS FLOOR MOUNTED INFORMATION DISPLAY 72"x24"x36". TEXT/LOGO SUPPLIED BY OWNER.
S16	HALFTONE ART ON ALUMINUM PANEL 72"x36" WITH 1.25" RETURNS. MOUNTED ON FRENCH CLEATS. ART/LOGO SUPPLIED BY OWNER.
S17	HALFTONE ART ON ALUMINUM PANEL 72"x36" WITH 1.25" RETURNS. MOUNTED ON FRENCH CLEATS. ART/LOGO SUPPLIED BY OWNER.

ELEVATION GENERAL NOTES:

A. BRICK COURSING: RUNNING BOND TYPICAL.

B. SEE SPECIFICATION FOR MATERIAL TYPE.

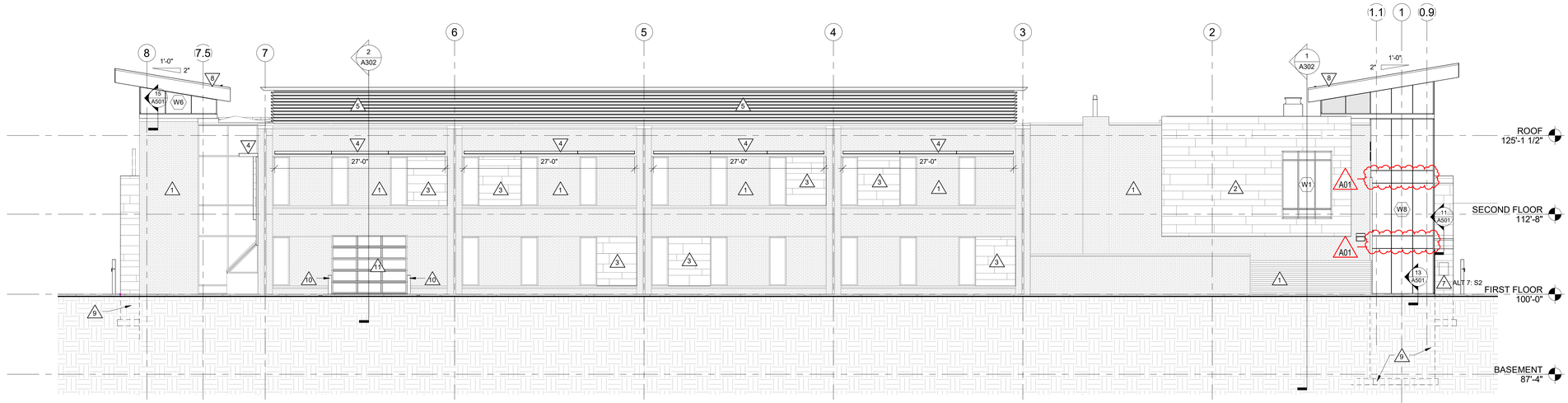
ELEVATION LEGEND:

1 KEYNOTE TAG

C WINDOW TAG - SEE SHEET **A600** FOR FRAME ELEVATIONS

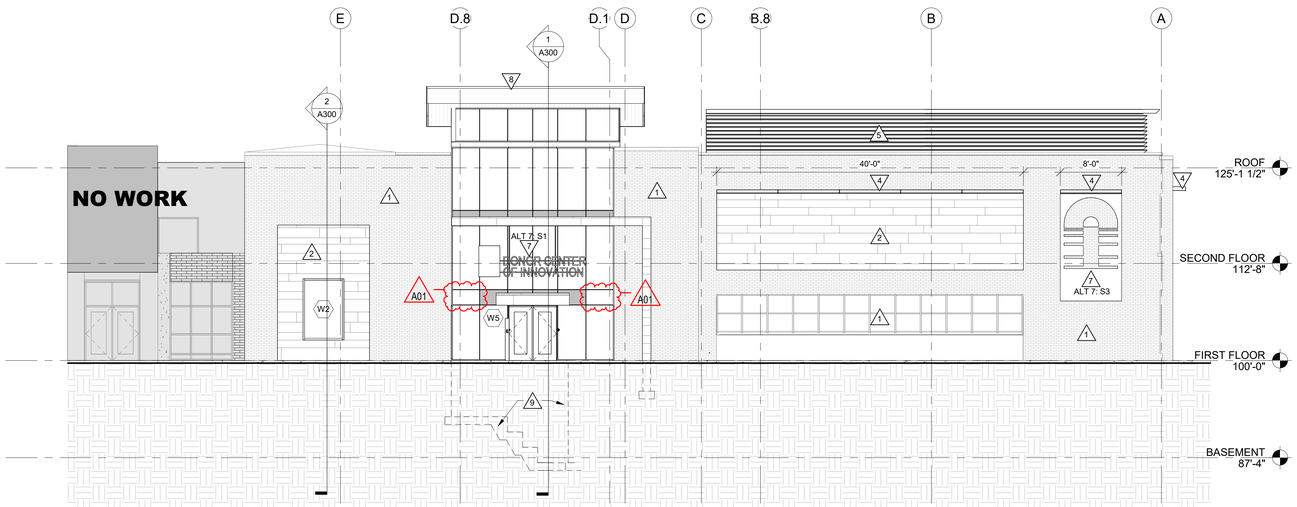
ELEVATION KEY NOTES

1	EXISTING BUILDING
2	NEW ARCHITECTURAL METAL WALL PANEL (WALL TYPE A10)
3	NEW ARCHITECTURAL METAL WALL PANEL (WALL TYPE A11)
4	RECTANGULAR TUBE BLADE SUNSHADE
5	EQUIPMENT SCREEN
6	ALT BID 7D: INTERIOR SIGNAGE. VERIFY LOCATION WITH OWNER. - SEE SIGNAGE SCHEDULE
7	ALT BID 7A: EXTERIOR SIGNAGE. VERIFY LOCATION WITH OWNER. - SEE SIGNAGE SCHEDULE
8	PREFINISHED METAL FASCIA
9	CONC FOUNDATION WALL AND FOOTING - SEE STRUCTURAL
10	BOLLARD - SEE CIVIL
11	NEW SECTIONAL OVERHEAD DOOR



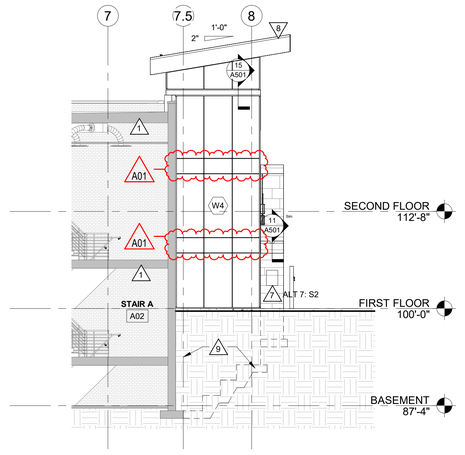
3 EAST ELEVATION

1/8" = 1'-0"



4 SOUTH ELEVATION

1/8" = 1'-0"



5 WEST ELEVATION - S TOWER

1/8" = 1'-0"

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **ELEVATIONS**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

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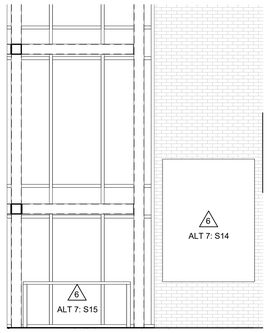
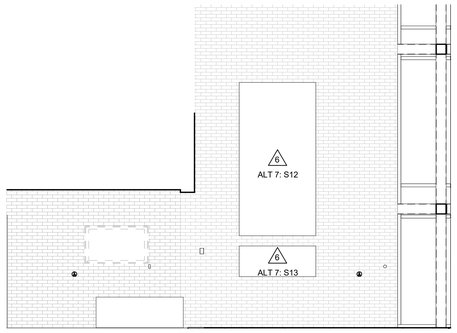
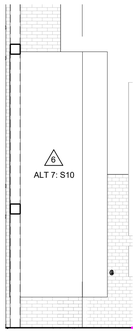
A200



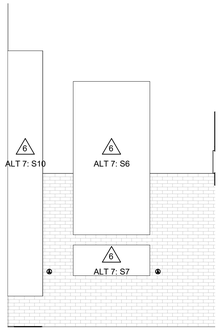
1 SIGNAGE-VEST 102
1/4" = 1'-0"



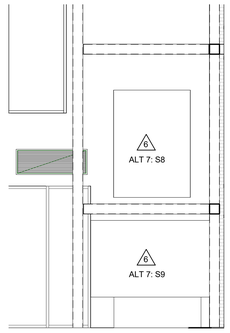
2 SIGNAGE-VEST 102
1/4" = 1'-0"



3 SIGNAGE-VEST 101
1/4" = 1'-0"

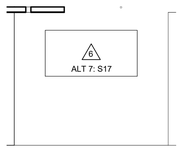


5 SIGNAGE-VEST 101
1/4" = 1'-0"

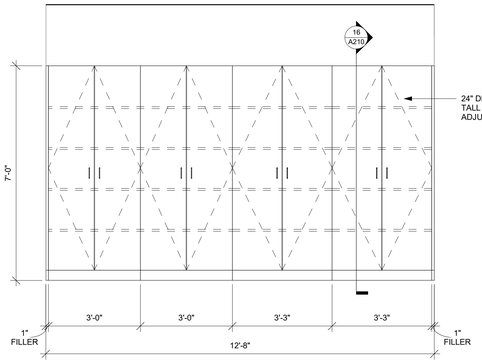


4 SIGNAGE-VEST 101
1/4" = 1'-0"

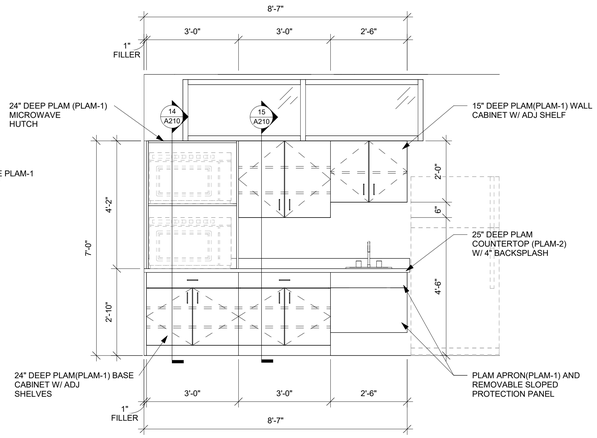
6 SIGNAGE-CORR 100
1/4" = 1'-0"



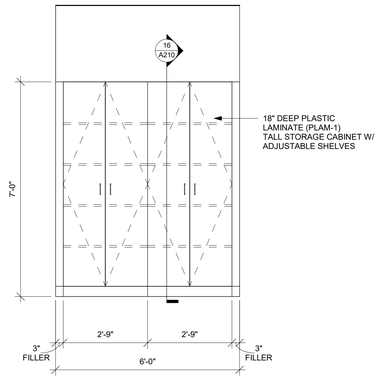
7 SIGNAGE-CORR 200
1/4" = 1'-0"



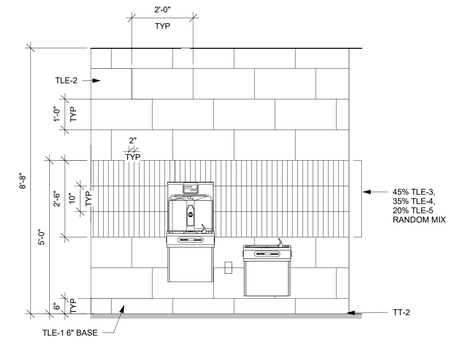
8 STORAGE CW EAST ELEV
1/2" = 1'-0"



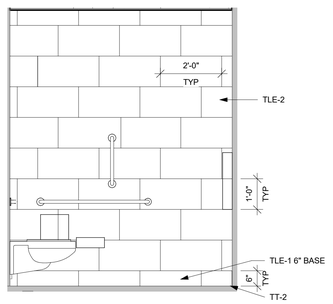
9 STUDENT LOUNGE CW SOUTH ELEV
1/2" = 1'-0"



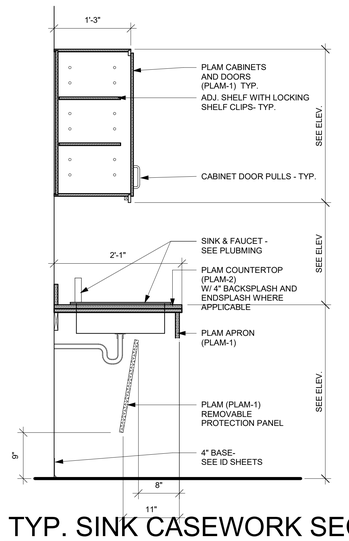
10 CLASSROOM CW WEST ELEV
1/2" = 1'-0"



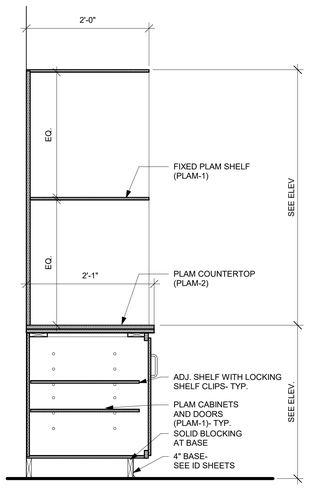
11 TYP. ACCENT TILE PATTERN
1/2" = 1'-0"



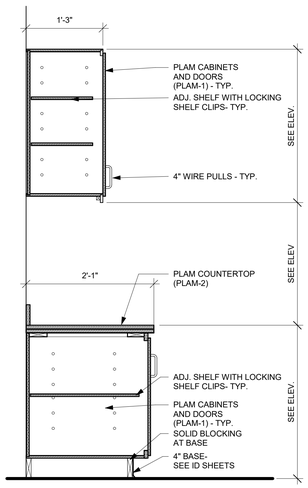
12 TYP. WALL TILE PATTERN
1/2" = 1'-0"



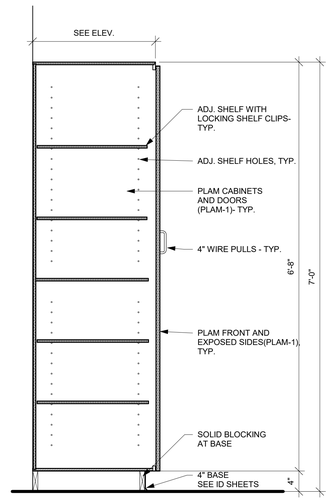
13 TYP. SINK CASEWORK SECTION
1" = 1'-0"



14 TYP. HUTCH CASEWORK
1" = 1'-0"



15 TYP. CASEWORK SECTION
1" = 1'-0"



16 TYP. TALL CASEWORK
1" = 1'-0"

SIGNAGE SCHEDULE

S1	BRUSHED SS LOGO AND CUSTOM LETTER SET W/ 3" RETURNS. MOUNTED TO POWDER COAT ALUMINUM SUPPORT FRAME HUNG FROM UPPER CANOPY STRUCTURE. LOGO VECTOR FILE SUPPLIED BY OWNER.
S2	CAST ALUMINUM DONOR PLAQUE 18" x 24". CAST OF 514 ALLOY. TEXT AND IMAGES TO BE SUPPLIED BY OWNER.
S3	BRUSHED SS LOGO WITH 2" RETURNS. STUD MOUNTED TO BRICK. FACE OF LOGO TO RECEIVE FLAT CUT 1/2" ALUM LETTERS W/ BLACK ANODIZED FINISH. LOGO VECTOR FILE SUPPLIED BY OWNER.
S4	BRUSHED SS CUSTOM LETTER SET W/ 2" RETURNS. STUD MOUNTED TO BRICK. LOGO VECTOR FILE TO BE SUPPLIED BY OWNER.
S5	BACK LT LOGO PANEL W/ BRUSHED SS CABINET HOUSING LED LIGHTS. TO BE MOUNTED TO BRICK. POWER SUPPLIED BY OWNER. LOGO VECTOR FILE AND FINAL PATTERN TO BE SUPPLIED BY OWNER.
S6	LEGACY PANEL: 60"x120" HALFTONE TECHNIQUE ON ETCHED ALUMINUM PANEL W/ BLACK ANODIZED ALUMINUM FRAME. MOUNTED W/ FRENCH CLEATS. TEXT/LOGO SUPPLIED BY OWNER.
S7	DIDACTIC PANEL: 60"x24" TOOLED ALUMINUM PANEL W/ BLACK LETTERING AND BLACK ANODIZED FRAME. MOUNTED W/ FRENCH CLEATS. TEXT/LOGO SUPPLIED BY OWNER.
S8	INNOVATION PANEL: 60"x120" HALFTONE TECHNIQUE ON ETCHED ALUMINUM PANEL W/ BLACK ANODIZED ALUMINUM FRAME. MOUNTED W/ FRENCH CLEATS. TEXT/LOGO SUPPLIED BY OWNER.
S9	SS CABLE DISPLAY 96"x60" W/ SUSPENDED ETCHED ALUMINUM PANELS. TEXT/LOGO SUPPLIED BY OWNER.
S10	SS CABLE DISPLAY 84"x192" W/ SUSPENDED ETCHED ALUMINUM PANELS. TEXT/LOGO SUPPLIED BY OWNER.
S11	SS FLOOR MOUNTED INFORMATION DISPLAY 84"x24"x36". TEXT/LOGO SUPPLIED BY OWNER.
S12	LEGACY PANEL: 60"x120" HALFTONE TECHNIQUE ON ETCHED ALUMINUM PANEL W/ BLACK ANODIZED ALUMINUM FRAME. MOUNTED W/ FRENCH CLEATS. TEXT/LOGO SUPPLIED BY OWNER.
S13	DIDACTIC PANEL: 60"x24" TOOLED ALUMINUM PANEL W/ BLACK LETTERING AND BLACK ANODIZED FRAME. MOUNTED W/ FRENCH CLEATS. TEXT/LOGO SUPPLIED BY OWNER.
S14	SS CABLE DISPLAY 72"x96" W/ SUSPENDED ETCHED ALUMINUM PANELS. TEXT/LOGO SUPPLIED BY OWNER.
S15	SS FLOOR MOUNTED INFORMATION DISPLAY 72"x24"x36". TEXT/LOGO SUPPLIED BY OWNER.
S16	HALFTONE ART ON ALUMINUM PANEL 72"x36" WITH 1.25" RETURNS. MOUNTED ON FRENCH CLEATS. ART/LOGO SUPPLIED BY OWNER.
S17	HALFTONE ART ON ALUMINUM PANEL 72"x36" WITH 1.25" RETURNS. MOUNTED ON FRENCH CLEATS. ART/LOGO SUPPLIED BY OWNER.

ELEVATION KEY NOTES

A01

1	EXISTING BUILDING
2	NEW ARCHITECTURAL METAL WALL PANEL (WALL TYPE A10)
3	NEW ARCHITECTURAL METAL WALL PANEL (WALL TYPE A11)
4	RECTANGULAR TUBE BLADE SUNSHADE
5	EQUIPMENT SCREEN
6	ALT BID 7D: INTERIOR SIGNAGE. VERIFY LOCATION WITH OWNER. - SEE SIGNAGE SCHEDULE
7	ALT BID 7A: EXTERIOR SIGNAGE. VERIFY LOCATION WITH OWNER. - SEE SIGNAGE SCHEDULE
8	PREFINISHED METAL FASCIA
9	CONC FOUNDATION WALL AND FOOTING - SEE STRUCTURAL
10	BOLLARD - SEE CIVIL
11	NEW SECTIONAL OVERHEAD DOOR

CASEWORK GENERAL NOTES:

A. ALL CABINET LOCKS SHALL BE KEYED ALIKE.

B. CASEWORK MANUFACTURER SHALL FIELD VERIFY ALL CASEWORK DIMENSIONS & CONDITIONS PRIOR TO FABRICATION OF CASEWORK.

C. PROVIDE FINISHED END PANELS AT ALL KNEE SPACE, ALCOVES, AND EXPOSED CABINET ENDS.

D. INSTALL 1-1/2" WOOD BLOCKING BETWEEN STUDS FOR CASEWORK MOUNTING AT TOP AND BOTTOM OF ALL WALL CABINETS AND AT TOP OF ALL BASE CABINETS.

E. ALL BASE CABINET KICKS, ALCOVES, KNEE SPACE AND END PANELS SHALL RECEIVE BASE UNLESS OTHERWISE NOTED. SEE MASTER COLOR SCHEDULE FOR SIZE AND COLOR.

F. SEAL EDGE OF COUNTER/BACKSPLASH TO ALL WALL LOCATIONS W/ CLEAR SEALANT.

G. PROVIDE CORD GROMMETS AT ALL WORK STATIONS - COORDINATE W/ OWNER FOR LOCATIONS.

H. REFER TO MASTER COLOR SCHEDULE FOR PLASTIC LAMINATE SELECTIONS. ALL PLAM COUNTERTOPS TO BE PLAM-2. ALL LOWER/UPPER CASEWORK TO BE PLAM-1, UNLESS OTHERWISE NOTED.

I. INSTALL TWO MAGNETIC CATCHES FOR ALL TALL CABINETS, TOP AND BOTTOM AT EACH DOOR. TALL CABINETS WITH LOCKS SHALL ALSO HAVE AN ELBOW LATCH INSTALLED AT A CENTER FIXED SHELF. ALL OTHER SHELVES SHALL BE ADJUSTABLE.

J. WALL CABINETS SHALL BE 13 1/2" DEEP (CLEAR INSIDE) AND BASE CABINETS SHALL BE 24" DEEP UNLESS NOTED OTHERWISE. COUNTERTOPS TO EXTEND 1" BEYOND THE FINISHED EDGE OF BASE CABINET UNLESS NOTED OTHERWISE.

K. LAMINATE GRAIN TO ALIGN VERTICALLY ON ALL CASEWORK.

L. REFER TO ACCESSORY SCHEDULE ON SHEET AXXX.

ARCHITECTURE
ENGINEERING
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www.hsrassociates.com

Consultant:

Project Title: WESTERN TECHNICAL COLLEGE INNOVATION CENTER

Project Location: 405 8TH STREET NORTH LA CROSSE, WI

Sheet Title: INTERIOR ELEVATIONS, CASEWORK

HSR Project Number: 24003

Project Date: AUGUST 2024

Drawn By: HSR

Key Plan:

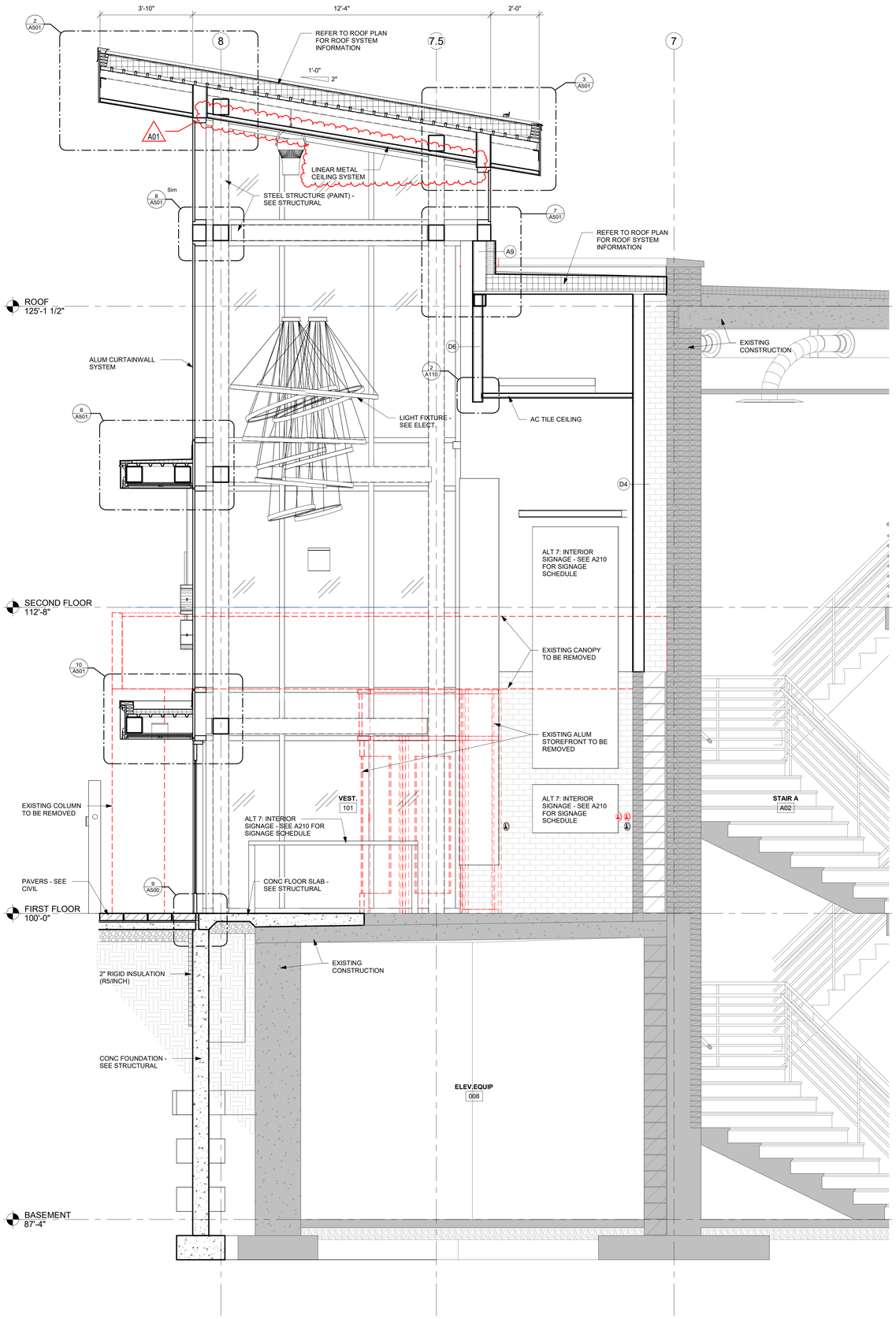
Revisions:

No.	Description	Date
A01	ADDENDUM #1	8-9-2024

Graphic Scale: VARIES

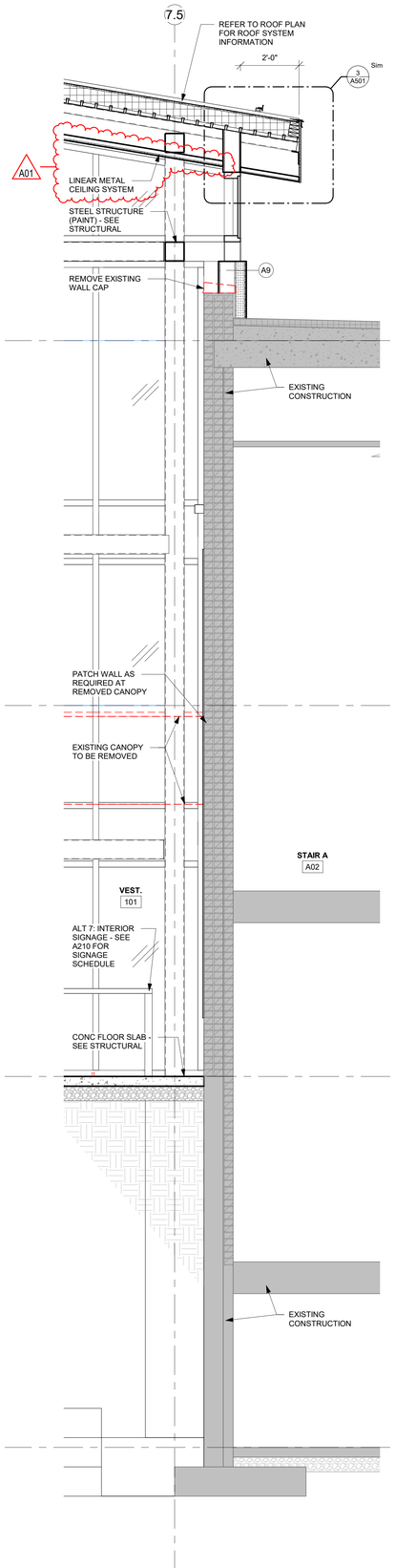
Last Update: 8/9/2024 8:18:19 AM

A210



1 WALL SECTION

1/2" = 1'-0"



3 WALL SECTION

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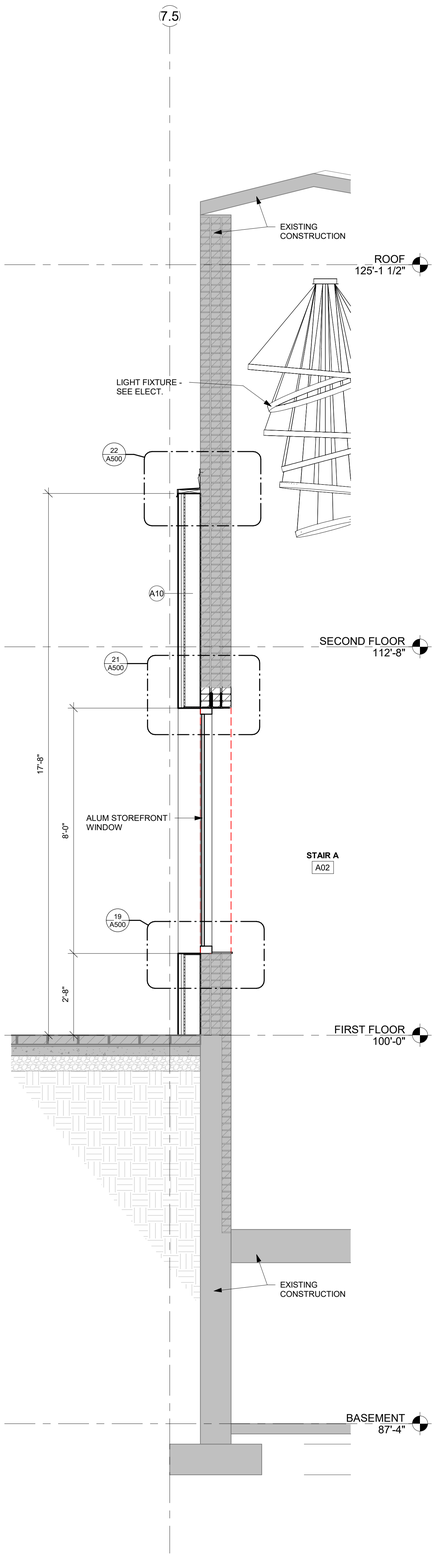

2 WALL SECTION

1/2" = 1'-0"

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **WALL SECTIONS**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **HSR**

Key Plan:

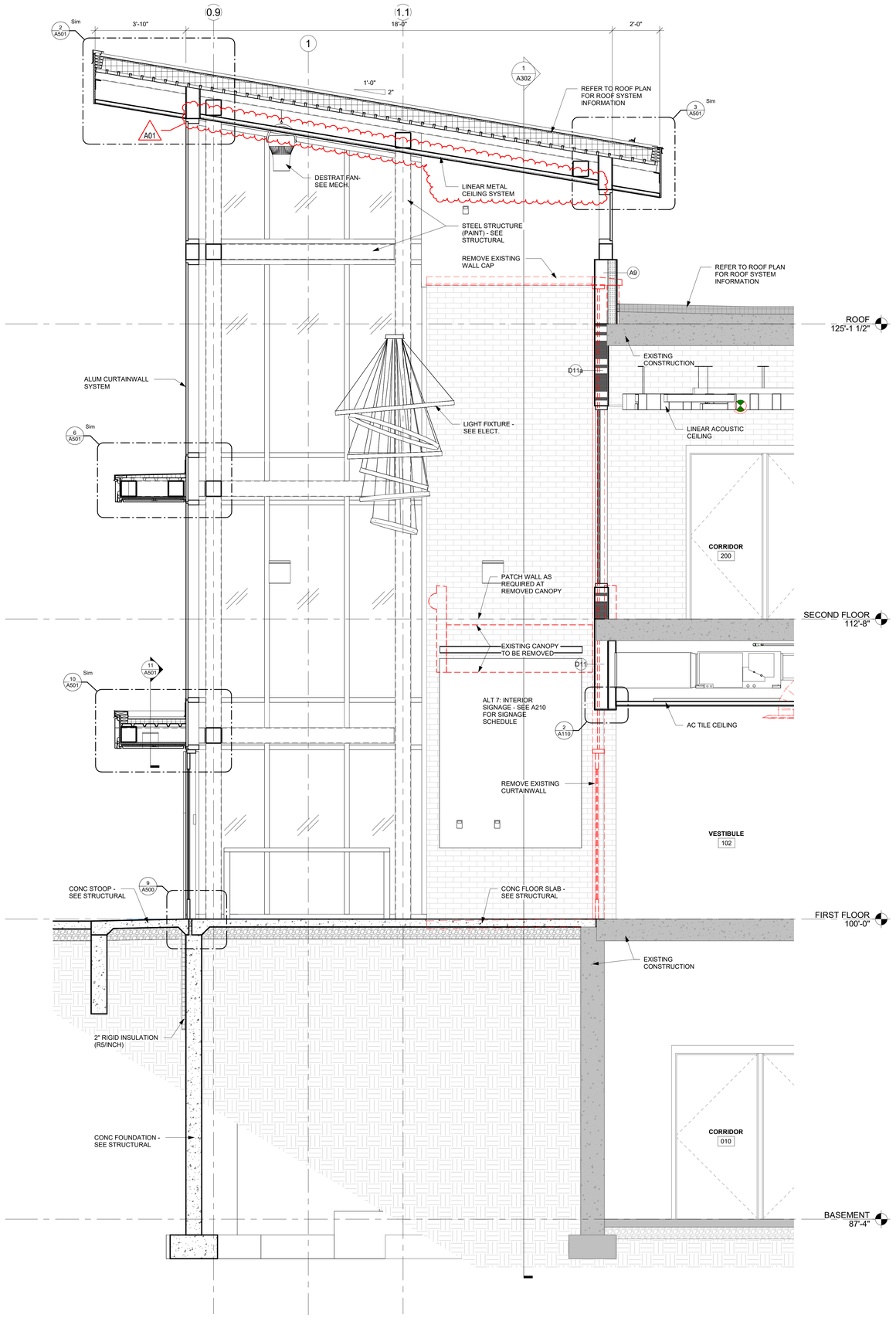
Revisions:

No.	Description	Date
A01	ADDENDUM #1	8-9-2024

Graphic Scale: 0" 6" 1' 2' 3'

Last Update: **8/9/2024 8:18:23 AM**

A300



1 WALL SECTION

1/2" = 1'-0"

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **WALL SECTIONS**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **HSR**

Key Plan:

Revisions:

No.	Description	Date
A01	ADDENDUM #1	8-9-2024

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Last Update: **8/9/2024 8:18:24 AM**

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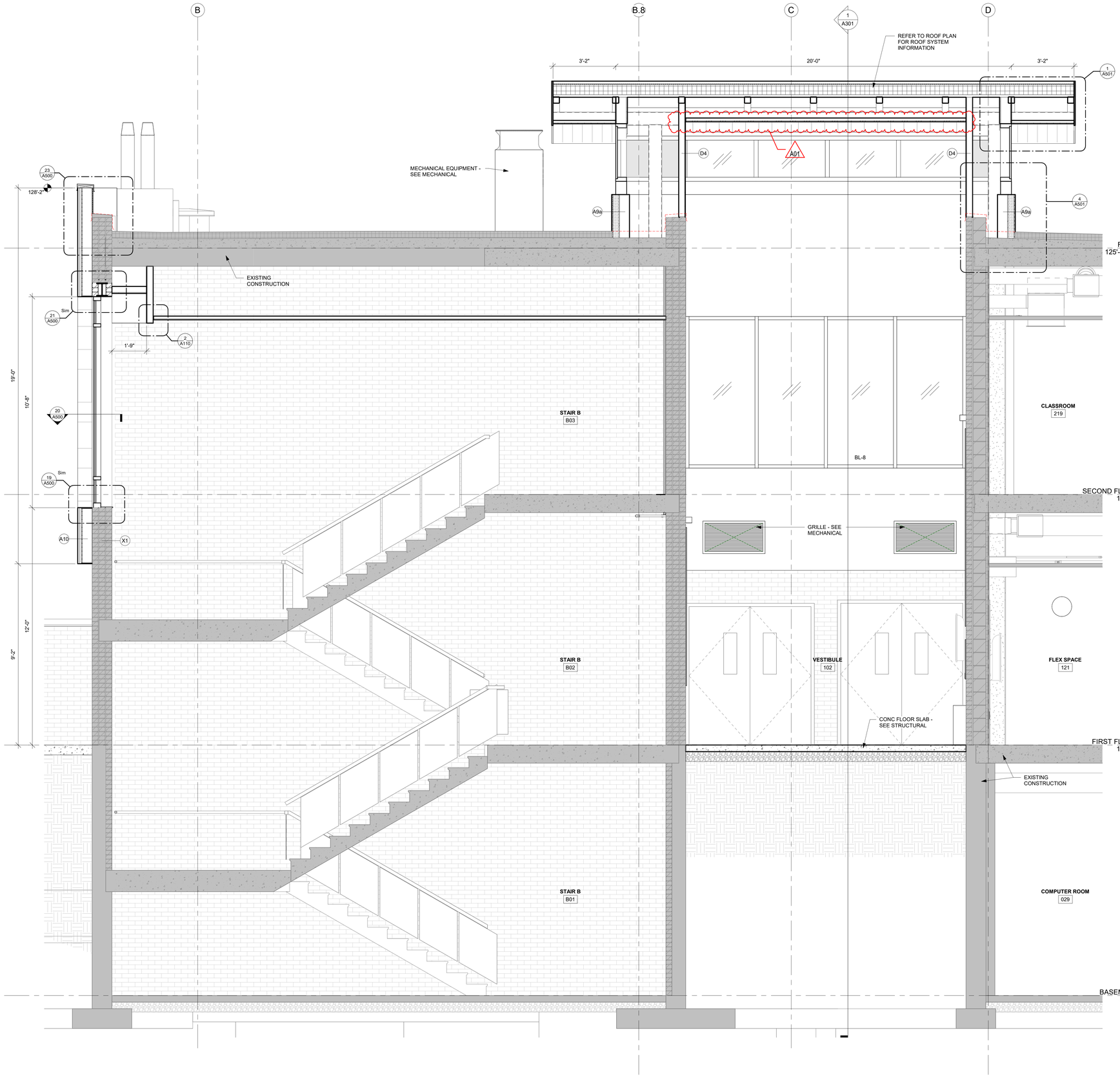

1 WALL SECTION

1/2" = 1'-0"

2 WALL SECTION

1/2" = 1'-0"

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **WALL SECTIONS**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **HSR**

Key Plan:

Revisions:

No.	Description	Date
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Graphic Scale: 0" 6" 1' 2' 3'

Last Update: **8/9/2024 8:18:27 AM**

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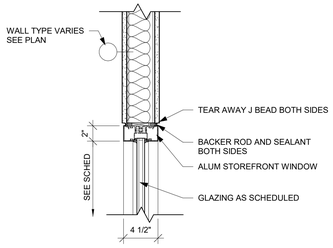
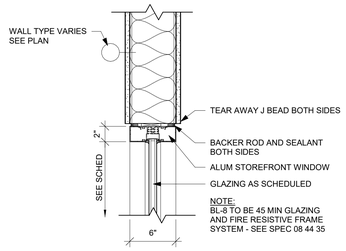


1 WINDOW HEAD DETAIL

1 1/2" = 1'-0"

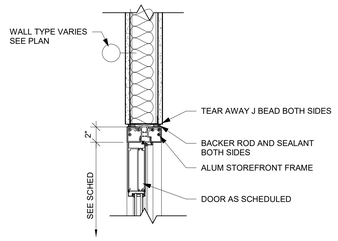
JAMB SIMILAR



2 WINDOW HEAD DETAIL

1 1/2" = 1'-0"

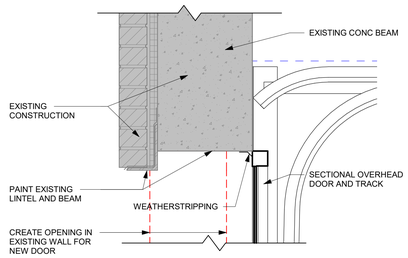
JAMB SIMILAR



5 DOOR HEAD DETAIL

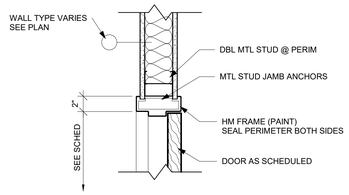
1 1/2" = 1'-0"

JAMB SIMILAR



6 DOOR HEAD DETAIL

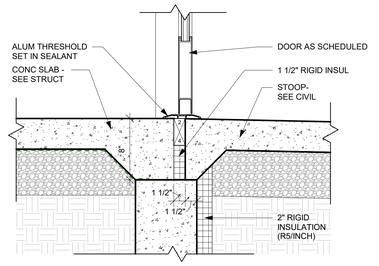
1 1/2" = 1'-0"



7 DOOR JAMB DETAIL

1 1/2" = 1'-0"

HEAD SIMILAR



9 DOOR SILL DETAIL

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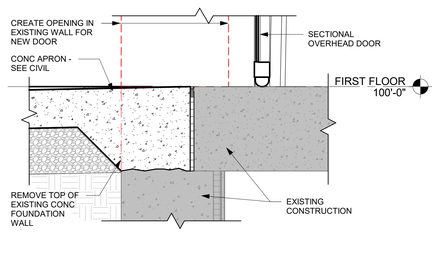

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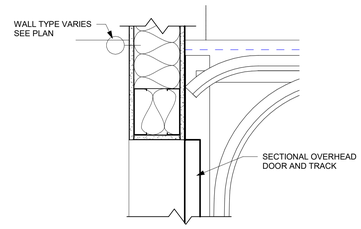
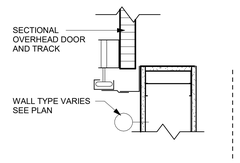


11 DOOR HEAD DETAIL

1 1/2" = 1'-0"



12 DOOR JAMB DETAIL

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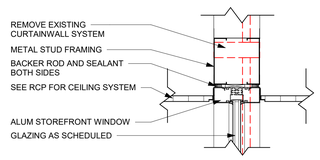

13 WINDOW HEAD DETAIL

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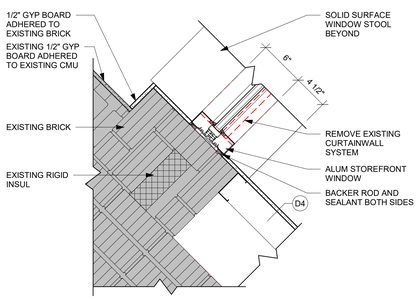

15 WINDOW JAMB DETAIL

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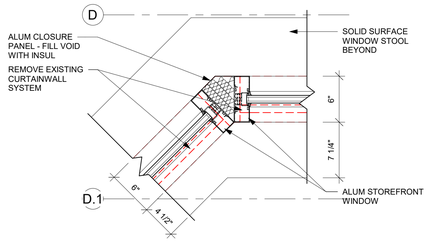

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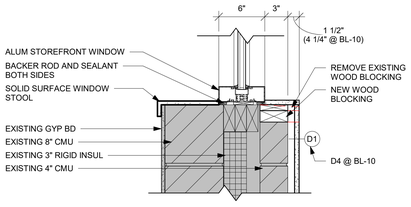

14 WINDOW SILL DETAIL

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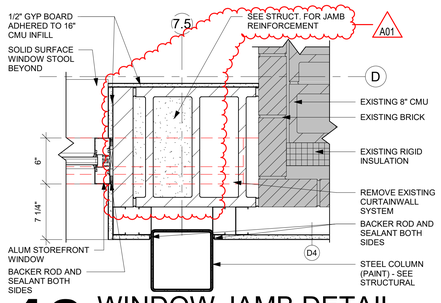

16 WINDOW JAMB DETAIL

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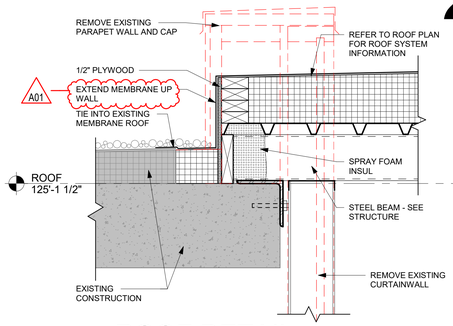

18 ROOF DETAIL

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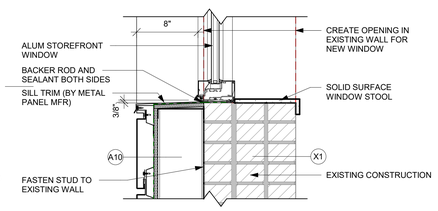
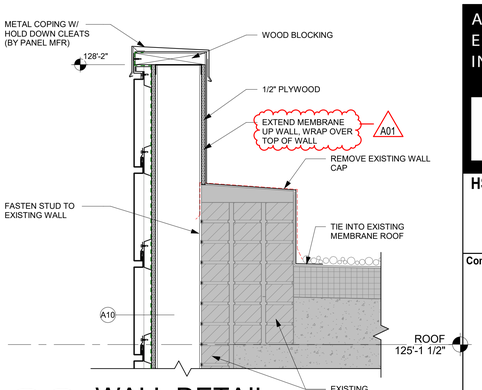


19 WINDOW SILL DETAIL

1 1/2" = 1'-0"



23 WALL DETAIL

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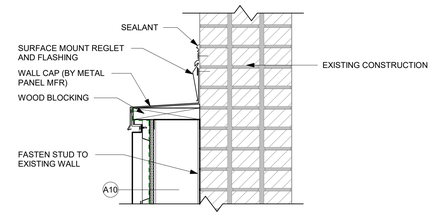

22 WALL DETAIL

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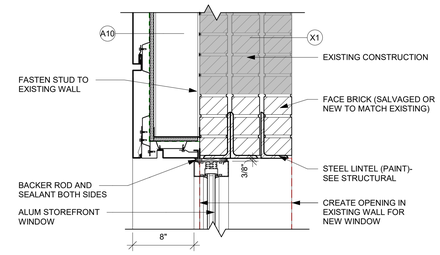
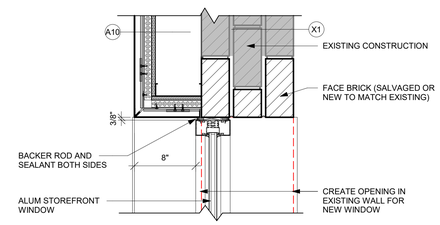


21 WINDOW HEAD DETAIL

1 1/2" = 1'-0"



20 WINDOW JAMB DETAIL

1 1/2" = 1'-0"

3/A500 DELETED A01

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **DETAILS**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **HSR**

Key Plan:

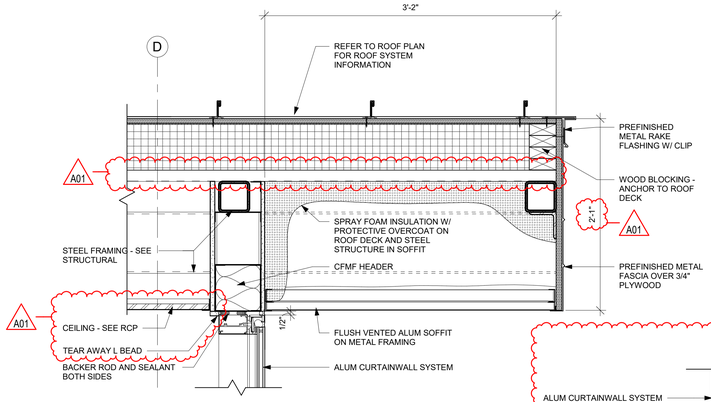
Revisions:

No.	Description	Date
A01	ADDENDUM #1	8-9-2024

Graphic Scale: 0" 2" 4" 8" 1'

Last Update: **8/9/2024 10:26:01 AM**

A500



1 ROOF DETAIL

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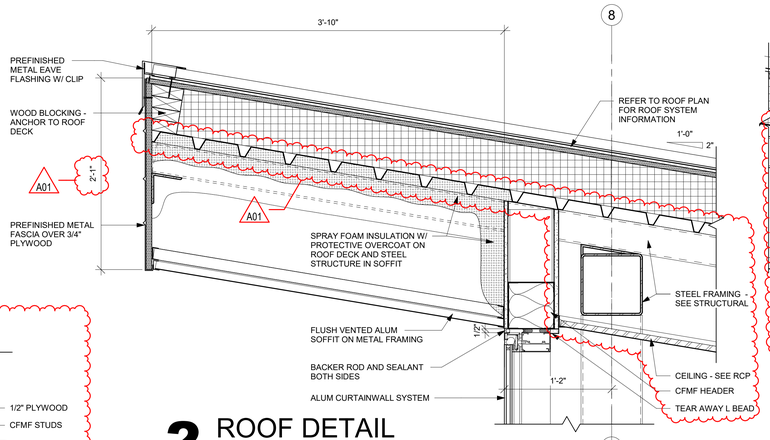

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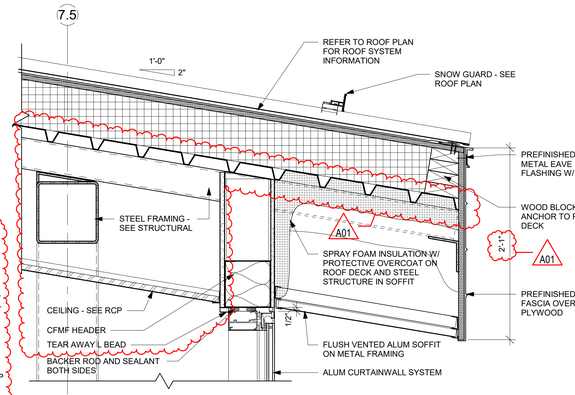

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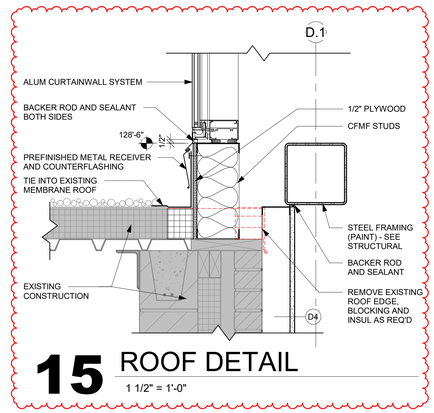

15 ROOF DETAIL

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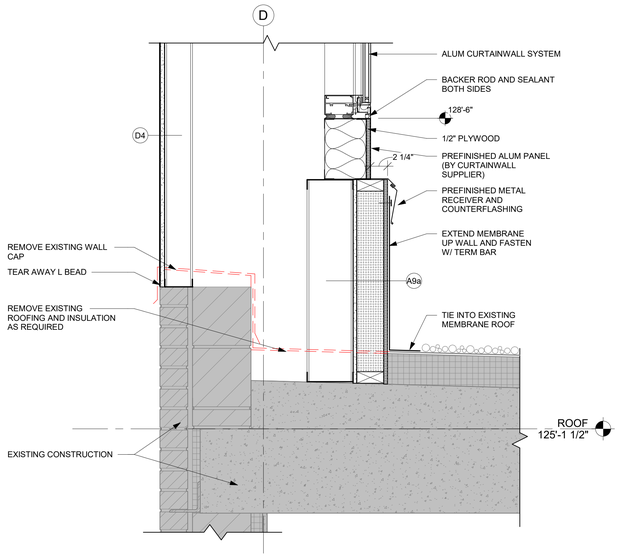

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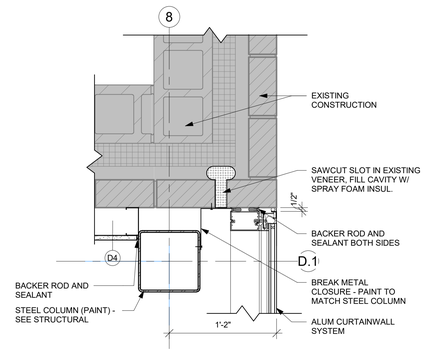

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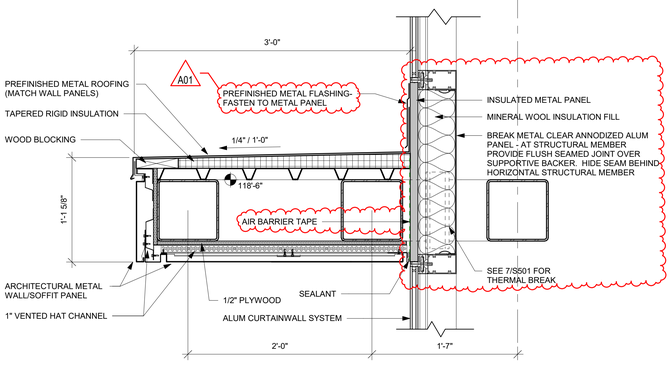
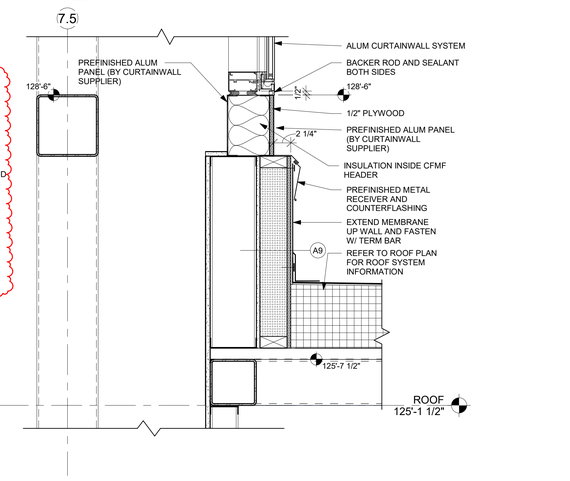


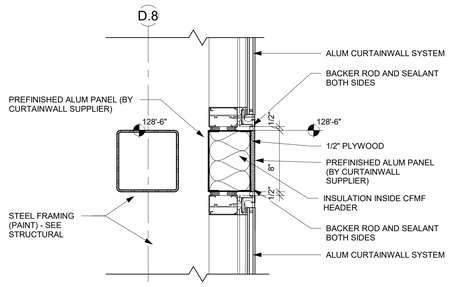
6 UPPER CANOPY DETAIL

1 1/2" = 1'-0"



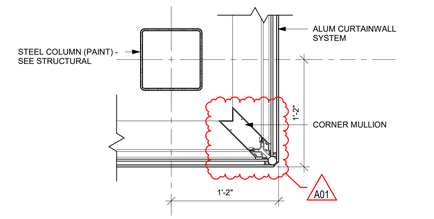
7 ROOF DETAIL

1 1/2" = 1'-0"



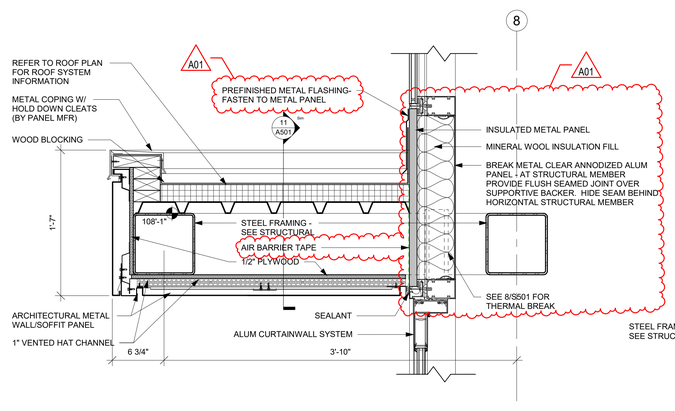
8 CURTAINWALL DETAIL

1 1/2" = 1'-0"



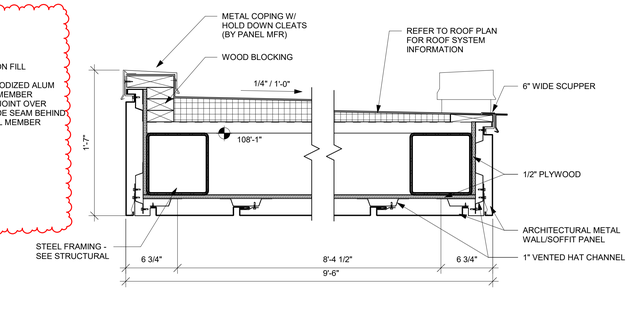
9 PLAN DETAIL

1 1/2" = 1'-0"



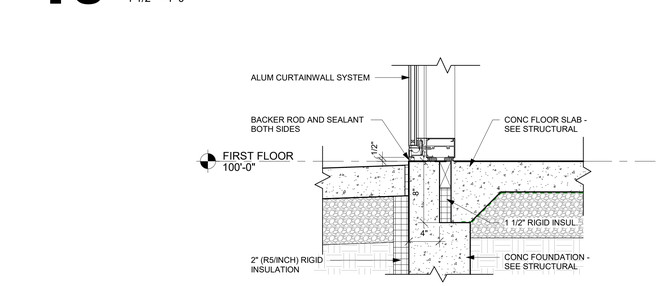
10 CANOPY DETAIL

1 1/2" = 1'-0"



11 CANOPY DETAIL

1 1/2" = 1'-0"

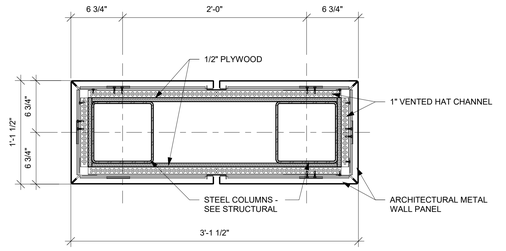


12 PLAN DETAIL

1 1/2" = 1'-0"

13 WALL DETAIL

1 1/2" = 1'-0"



14 COLUMN DETAIL

1 1/2" = 1'-0"

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **DETAILS**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **HSR**

Key Plan:

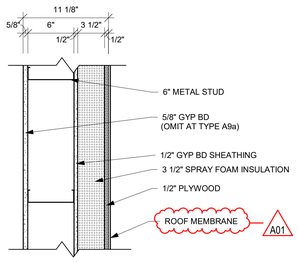
Revisions:

No.	Description	Date
A01	ADDENDUM #1	8-9-2024

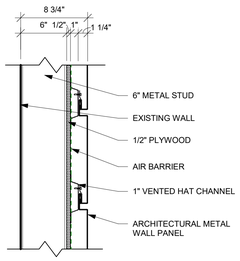
Graphic Scale: **VARIES**

Last Update: **8/9/2024 8:18:31 AM**

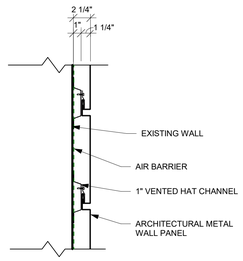
A501



PARTITION TYPE	PARTITION WIDTH		R-VALUE	NOTES
	ACTUAL	NOMINAL		
A9	11 1/8"	11"	27.18	
A9a	10 1/2"	11"	26.66	



PARTITION TYPE	PARTITION WIDTH		R-VALUE	NOTES
	ACTUAL	NOMINAL		
A10	8 3/4"	8 3/4"		



PARTITION TYPE	PARTITION WIDTH		R-VALUE	NOTES
	ACTUAL	NOMINAL		
A11	2 1/4"	2 1/4"		

WALL TYPE GENERAL NOTES:

A. REFER TO MASTER COLOR SCHEDULE AND INTERIOR DESIGN SHEETS FOR ADDITIONAL WALL FINISHES.

B. WHERE INTERIOR DESIGN SHEETS INDICATE WALL TILE, INSTALL BACKER BOARD AT WET AND NON-WET LOCATIONS AS LISTED IN 09 21 16

C. NON RATED WALLS, INCLUDING BULKHEADS SHALL HAVE FRAMING EXTENDED TO DECK ABOVE. GYP BOARD SHALL EXTEND TO 4" ABOVE CEILING UNLESS NOTED OTHERWISE. COLUMN FURRING MAY STOP 4" ABOVE CEILING.

D. EXTEND STUDS, GYP BOARD AND SOUND BLANKET TO DECK ABOVE AT SOUND CONTROL WALLS (INDICATED BY SOUND ATTENUATION BLANKETS, SOUND SEAL NOTE OR STC RATING). LEVEL OF FINISH ABOVE CEILING AS NOTED IN SECTION 09 21 16

E. AT SOUND CONTROL WALLS (INDICATED BY SOUND ATTENUATION BLANKETS, SOUND SEAL NOTE OR STC RATING) APPLY CONTINUOUS BEAD OF ACOUSTICAL SEALANT AT FLOOR/CEILING TRACK STUDS AND STUD AT WALL. APPLY CONTINUOUS BEAD OF ACOUSTICAL SEALANT AT PERIMETER OF GYP BOARD HOLDING EDGE OF GYP BOARD AWAY FROM ADJACENT STRUCTURE NO MORE THAN 3/8". SEAL ALL MEP/FP PENETRATIONS WITH SOUND BLANKET, BACKING, ACOUSTICAL SEALANT AND FIRE STOPPING. AFTER INSTALLING ONE SIDE OF GYP BOARD, APPLY OVERSIZED 2" SOUND BLANKET OVER BACK SIDE OF ELECTRICAL BOXES AND SIMILAR PENETRATIONS. WHERE WALL BOXES OCCUR AT OPPOSITE SIDES, APPLY INSULATION TO BACKSIDE OF WALL BOXES. AT FIRE RATED WALLS REQUIRING SOUND CONTROL, USE PUTTY PADS FOR REQUIRED WALL RATING. REFER TO TOP OF WALL DETAILS FOR INSTALLATION OF ADDITIONAL MATERIALS AT DECK AND APPLICATION OF RATED TOP OF WALL ASSEMBLIES.

F. INSTALL GYPSUM BOARD CONTROL JOINTS AT TOP OF ALL INTERIOR TOP OF DOOR JAMBS TO TOP OF GYPSUM BOARD WALLS. OTHER CONTROL JOINTS TO BE INSTALLED PER PLAN OR AT 30'-0" O.C. MAX. REVIEW LOCATION REQUIREMENTS WITH A/E PRIOR TO START OF INSTALLATION OF GYPSUM BOARD ASSEMBLIES.

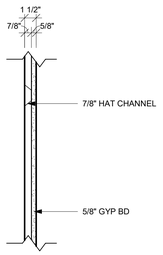
G. WHERE FIRE RATED WALLS ARE INDICATED BY WALL TYPE, USE UL OR EQUIVALENT APPROVED RATING SYSTEM INCLUDING TOP OF WALL AND PENETRATIONS.

[1]RATED CMU WALL TABLE:

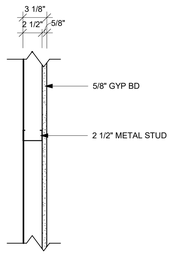
1 HOUR	MINIMUM 2.8 EQUIVALENT WALL THICKNESS
2 HOUR	MINIMUM 4.2 EQUIVALENT WALL THICKNESS

WALL ASSEMBLY R-VALUE COMPONENT TABLE:

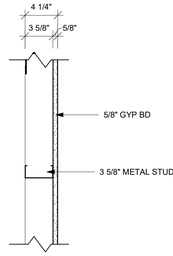
COMPONENT	R-VALUE
FILM (INSIDE)	.68
5/8" GYP BOARD	.52
6" MTL STUD	- -
8" CMU	1.11
CONCRETE	.08 PER INCH (above grade); .11 PER INCH (foundation)
1/2 GYP SHEAT	.69
FILM (OUTSIDE)	.17
RIGID FOAM	5 PER INCH
SPRAY FOAM	7 PER INCH
DEAD AIR	.85
BRICK	.44
STONE	.44
MTL PANEL	.62
1/2 PLYWOOD	.62
SEE WALL TYPE FOR TOTAL WALL R-VALUE	



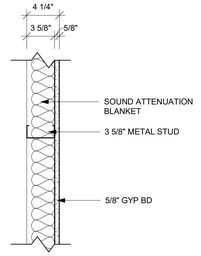
PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
D1	1 1/2"	1 1/2"	-	-	27



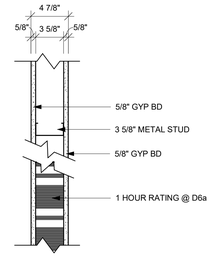
PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
D2	3 1/8"	3"	-	-	30



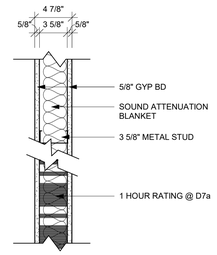
PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
D4	4 1/4"	4"	-	-	33



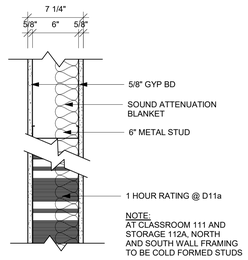
PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
D5	4 1/4"	4"	-	-	39



PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
D6	4 7/8"	5"	-	-	38
D6a	4 7/8"	5"	1HR	U419	40

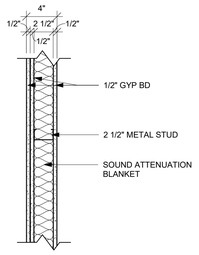


PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
D7	4 7/8"	5"	-	-	49
D7a	4 7/8"	5"	1HR	U419	51

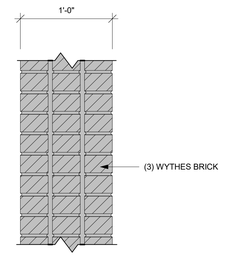


NOTE:
AT CLASSROOM 111 AND STORAGE 112A, NORTH AND SOUTH WALL FRAMING TO BE COLD FORMED STUDS

PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
D11	7 1/4"	7"	-	-	47
D11a	7 1/4"	7"	1HR	U419	51

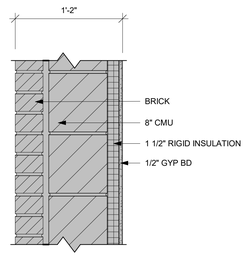


PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
D14	4"	4"	-	-	30



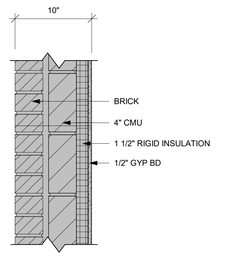
EXISTING

PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
X1	12"	12"	-	-	-



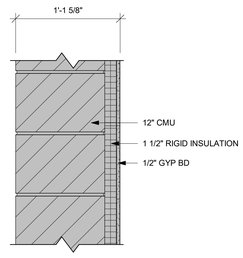
EXISTING

PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
X2	1'-2"	1'-2"	-	-	-



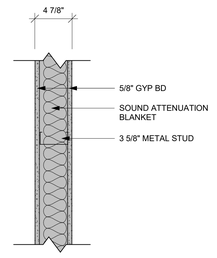
EXISTING

PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
X3	12"	12"	-	-	-



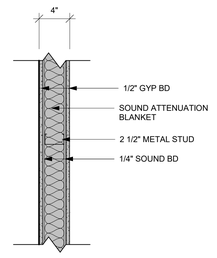
EXISTING

PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
X4	1'-1 5/8"	1'-2"	-	-	-



EXISTING

PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
X5	4 7/8"	5"	-	-	-



EXISTING

PARTITION TYPE	PARTITION WIDTH		FIRE RATING	UL #	STC RATING
	ACTUAL	NOMINAL			
X6	4"	4"	-	-	-

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: 405 8TH STREET NORTH LA CROSSE, WI

Sheet Title: **WALL TYPES**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **HSR**

Key Plan:

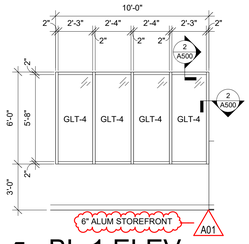
Revisions:

No.	Description	Date
A01	ADDENDUM #1	8-9-2024

Graphic Scale: **VARIES**

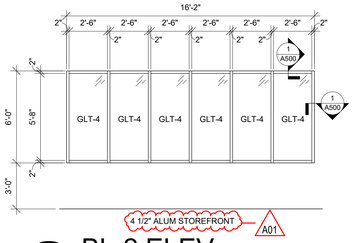
Last Update: **8/9/2024 8:18:32 AM**

A600



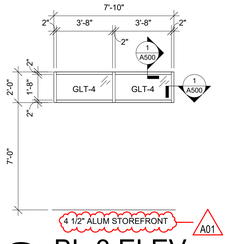
1 BL-1 ELEV

1/4" = 1'-0"



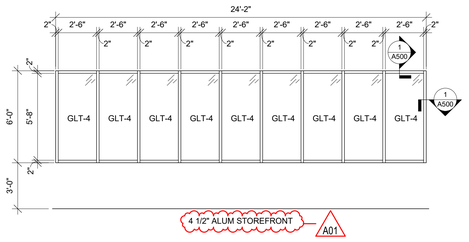
2 BL-2 ELEV

1/4" = 1'-0"



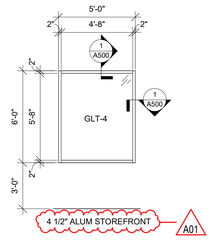
3 BL-3 ELEV

1/4" = 1'-0"



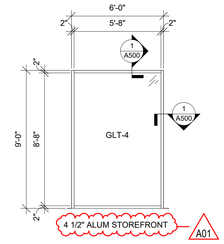
4 BL-4 ELEV

1/4" = 1'-0"



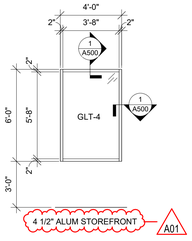
5 BL-5 ELEV

1/4" = 1'-0"



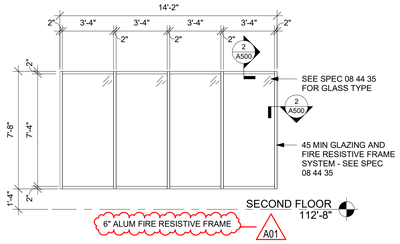
6 BL-6 ELEV

1/4" = 1'-0"



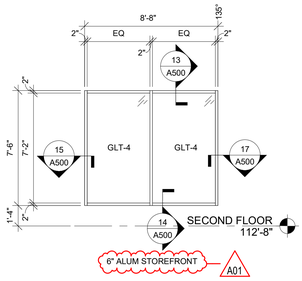
7 BL-7 ELEV

1/4" = 1'-0"



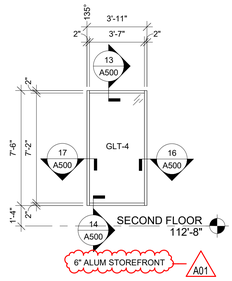
8 BL-8 ELEV

1/4" = 1'-0"



9 BL-9 ELEV

1/4" = 1'-0"



10 BL-10 ELEV

1/4" = 1'-0"

DOOR SCHEDULE

MARK	DOOR SIZE W	H	T	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	GLASS TYPE	FRAME TYPE	FRAME DEPTH	FRAME MATERIAL	FRAME FINISH	GLASS TYPE	DETAILS HEAD	JAMB	SILL	FIRE LABEL	HDWR GROUP	SIGNAGE	REMARKS
101.1	3'-0"	7'-0"	1 1/2"	DOOR E	ALUM	CLEAR ANODIZED	GLT-12	WS6602	6"	ALUM	CLEAR ANODIZED	GLT-12	1A501/10A501	9A501	9A500	---	1	---	
101.2	3'-0"	7'-0"	1 1/2"	DOOR E	ALUM	CLEAR ANODIZED	GLT-12	WS6602	6"	ALUM	CLEAR ANODIZED	GLT-12	1A501/10A501	9A501	9A500	---	1	---	1,3
101.3	3'-4"	7'-1"	1 1/2"	DOOR E	EXIST ALUM	CHAMPAGNE	EXIST GLT	EXISTING	4 1/2"	ALUM	CHAMPAGNE	EXIST GLT	---	---	---	---	11	---	8
102.1	3'-0"	7'-0"	1 1/2"	DOOR E	ALUM	CLEAR ANODIZED	GLT-12	W9A602	6"	ALUM	CLEAR ANODIZED	GLT-12	1A501/10A501	5A501/9A501	9A500	---	1	---	
102.2	3'-0"	7'-0"	1 1/2"	DOOR E	ALUM	CLEAR ANODIZED	GLT-12	W9A602	6"	ALUM	CLEAR ANODIZED	GLT-12	1A501/10A501	5A501/9A501	9A500	---	1	---	1,3
102.3	6'-2"	7'-0"	1 3/4"	DOOR B	EXIST SCWD	STAIN	EXIST GLT	FRAME AA	9"	EXIST HM	PAINT	EXIST GLT	---	---	---	90 MIN	11	---	8
105E	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	STAIN	---	FRAME GG	5 3/4"	HM	PAINT	GLT-4	7A500	7A500	---	---	2	---	
105K	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	STAIN	---	FRAME GG	5 3/4"	HM	PAINT	GLT-4	7A500	7A500	---	---	2	---	
105L	3'-0"	7'-0"	1 3/4"	DOOR B	SCWD	STAIN	GLT-4	FRAME AA	5 3/4"	HM	PAINT	---	7A500	7A500	---	---	2	---	
109	2'-10"	7'-0"	1 1/2"	DOOR B	EXIST SCWD	STAIN	EXIST GLT	EXISTING	5 3/4"	EXIST HM	PAINT	EXIST GLT	---	---	---	---	3	---	1,2
109A	3'-0"	7'-0"	1 3/4"	DOOR A	SCWD	PAINT	---	FRAME GG	5"	HM	PAINT	GLT-4	7A500	7A500	---	---	4	---	
109B	3'-0"	7'-0"	1 3/4"	DOOR A	SCWD	PAINT	---	FRAME AA	5 3/4"	HM	PAINT	---	7A500	7A500	---	---	5	---	
110.1	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	PAINT	GLT-4	FRAME JJ	4 1/2"	ALUM	CLEAR ANODIZED	GLT-4	5A500	5A500	---	---	6	---	1
110.2	10'-0"	9'-0"	2"	DOOR H	GLASS SECTIONAL	---	SEE SPEC 08 36 13	SEE DOOR H ELEV	7 1/4"	---	---	---	11A500	12A500	A01	---	-	---	4,5
110.3	12'-0"	9'-4"	2"	DOOR H	GLASS SECTIONAL	---	SEE SPEC 08 36 13	SEE DOOR H ELEV	11-5 7/8"	STL	---	---	6A500	8A500	10A500	---	-	---	4,5,7
111	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	PAINT	GLT-4	FRAME KK	4 1/2"	ALUM	CLEAR ANODIZED	GLT-4	5A500	5A500	---	---	4	---	
112.1	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	PAINT	GLT-4	FRAME LL	4 1/2"	ALUM	CLEAR ANODIZED	GLT-4	5A500	5A500	---	---	6	---	1
112.2	10'-0"	9'-0"	2"	DOOR H	GLASS SECTIONAL	---	SEE SPEC 08 36 13	SEE DOOR H ELEV	7 1/4"	---	---	---	11A500	12A500	A01	---	-	---	4,5
112A.1	3'-0"	7'-0"	1 3/4"	DOOR A	SCWD	PAINT	---	FRAME AA	8 1/4"	HM	PAINT	---	2A500	2A500	---	---	2	---	
112A.2	8'-0"	8'-0"	1 1/2"	DOOR J	FLUSH SECTIONAL	---	---	SEE DOOR J ELEV	7 1/4"	---	---	---	11A500	12A500	A01	---	-	---	4,6
112A.3	8'-0"	8'-0"	1 1/2"	DOOR J	FLUSH SECTIONAL	---	---	SEE DOOR J ELEV	7 1/4"	---	---	---	11A500	12A500	A01	---	-	---	4,6
205	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	PAINT	GLT-4	FRAME MM	4 1/2"	ALUM	CLEAR ANODIZED	GLT-4	5A500	5A500	---	---	4	---	
206	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	PAINT	GLT-4	FRAME NN	4 1/2"	ALUM	CLEAR ANODIZED	GLT-4	5A500	5A500	---	---	2	---	
207	6'-0"	7'-0"	1 3/4"	DOOR E	SCWD	PAINT	GLT-4	FRAME OO	4 1/2"	ALUM	CLEAR ANODIZED	GLT-4	5A500	5A500	---	---	9	---	
207A	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	PAINT	GLT-4	FRAME AA	4 1/2"	ALUM	CLEAR ANODIZED	---	5A500	5A500	---	---	7	---	
208.1	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	PAINT	GLT-4	FRAME PP	4 1/2"	ALUM	CLEAR ANODIZED	GLT-4	5A500	5A500	---	---	6	---	1
208.2	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	PAINT	GLT-4	FRAME QQ	4 1/2"	ALUM	CLEAR ANODIZED	GLT-4	5A500	5A500	---	---	10	---	
209	3'-0"	7'-0"	1 3/4"	DOOR A	SCWD	PAINT	---	FRAME AA	5 3/4"	HM	PAINT	---	7A500	7A500	---	---	8	SEE SHEET G002	
210	3'-0"	7'-0"	1 3/4"	DOOR A	SCWD	PAINT	---	FRAME RR	4 1/2"	ALUM	CLEAR ANODIZED	GLT-4	5A500	5A500	---	---	2	---	
211D	3'-0"	7'-0"	1 3/4"	DOOR B	SCWD	PAINT	GLT-4	FRAME AA	5 3/4"	HM	PAINT	---	7A500	7A500	---	---	2	---	
215	3'-0"	7'-0"	1 3/4"	DOOR E	SCWD	PAINT	GLT-4	FRAME PP	4 1/2"	ALUM	CLEAR ANODIZED	GLT-4	5A500	5A500	---	---	4	---	

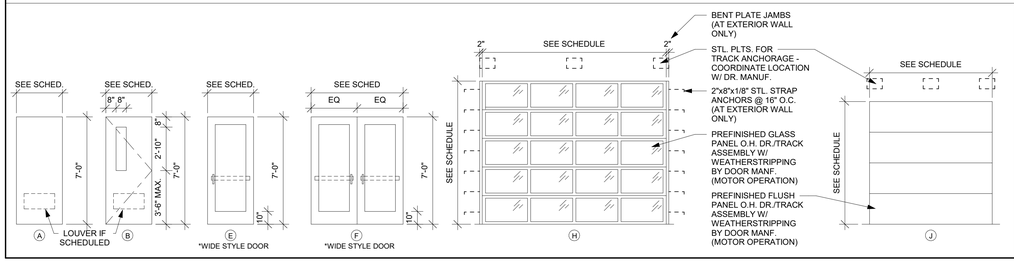
****SEE KEY NOTE 8 ON FLOOR PLANS FOR EXISTING DOORS TO BE REMOVED, SALVAGED, STAINED AND REINSTALLED - SEE 09 93 00 FOR OPAQUE STAIN. THIS WORK IS TO BE DONE BY DOOR CONTRACTOR AND ALL HARDWARE TO BE REMOVED AND REINSTALLED AFTER NEW PAINTING IS COMPLETE.****

DOOR SCHEDULE GENERAL NOTES

HM = HOLLOW METAL IHM = INSULATED HOLLOW METAL ALUM = ALUMINUM SCWD = SOLID CORE WOOD DOOR

A. SEE SPECIFICATIONS FOR DOOR HARDWARE GROUPS
B. ALL HM (HOLLOW METAL) AND IHM (INSULATED HOLLOW METAL) DOORS AND FRAMES SHALL BE PAINTED
C. ALL DOUBLE DOORS TO HAVE TWO EQUAL LEAFS UNLESS NOTED OTHERWISE

DOOR TYPES



DOOR SCHEDULE REMARKS

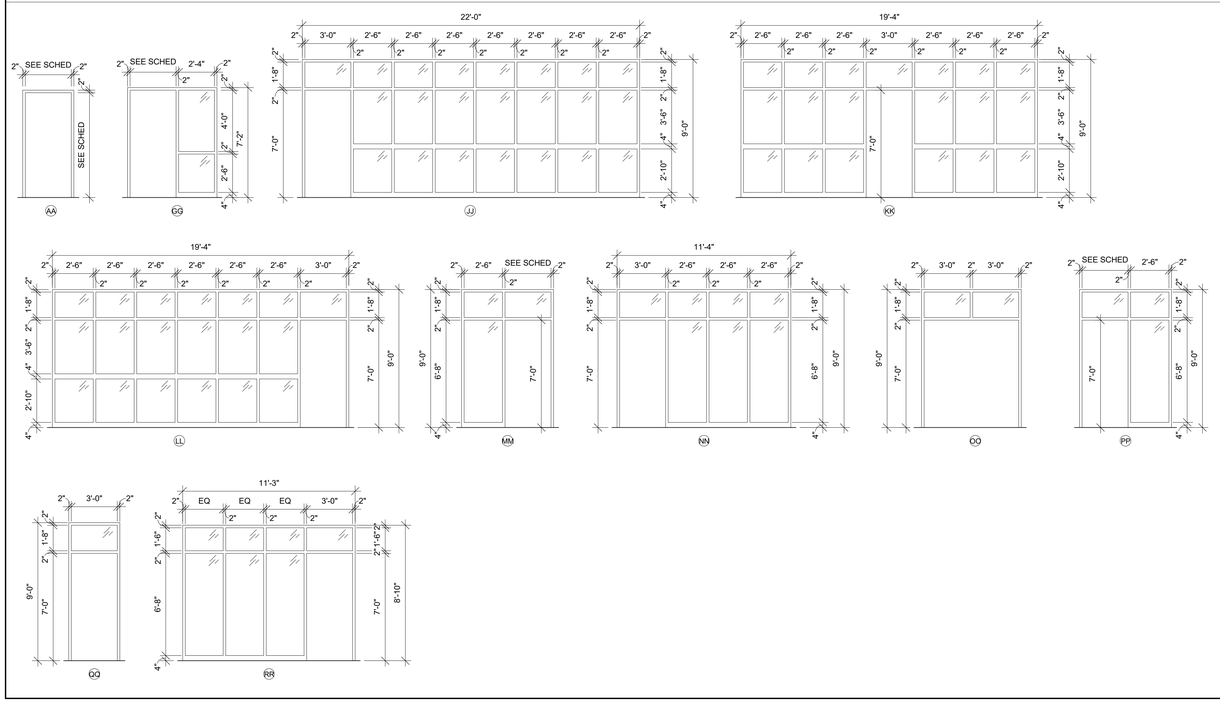
1. ELECTRONIC CARD ACCESS AND ELECTRIC STRIKE REQUIRED.
2. EXISTING DOOR AND FRAME TO REMAIN.
3. ADA POWER OPERATOR REQUIRED.
4. VERIFY DOOR THICKNESS WITH MANUF.
5. GLASS OVERHEAD SECTIONAL DOOR - ELECTRIC OPERATION.
6. FLUSH OVERHEAD SECTIONAL DOOR - ELECTRIC OPERATION.
7. JAMB DEPTH VARIES.
8. EXISTING DOOR TO RECEIVE NEW ADA POWER OPERATORS.

DOOR FRAME GENERAL NOTES

HM = HOLLOW METAL IHM = INSULATED HOLLOW METAL ALUM = ALUMINUM STL = STEEL

A. SEE SHEET A600 FOR ADDITIONAL FRAME TYPES
B. ALL HM (HOLLOW METAL) AND IHM (INSULATED HOLLOW METAL) FRAMES SHALL BE PAINTED.

DOOR FRAME TYPES



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Consultant:

Project Title: WESTERN TECHNICAL COLLEGE INNOVATION CENTER

Project Location: 405 8TH STREET NORTH LA CROSSE, WI

Sheet Title: DOOR SCHEDULE

HSR Project Number: 24003

Project Date: AUGUST 2024

Drawn By: HSR

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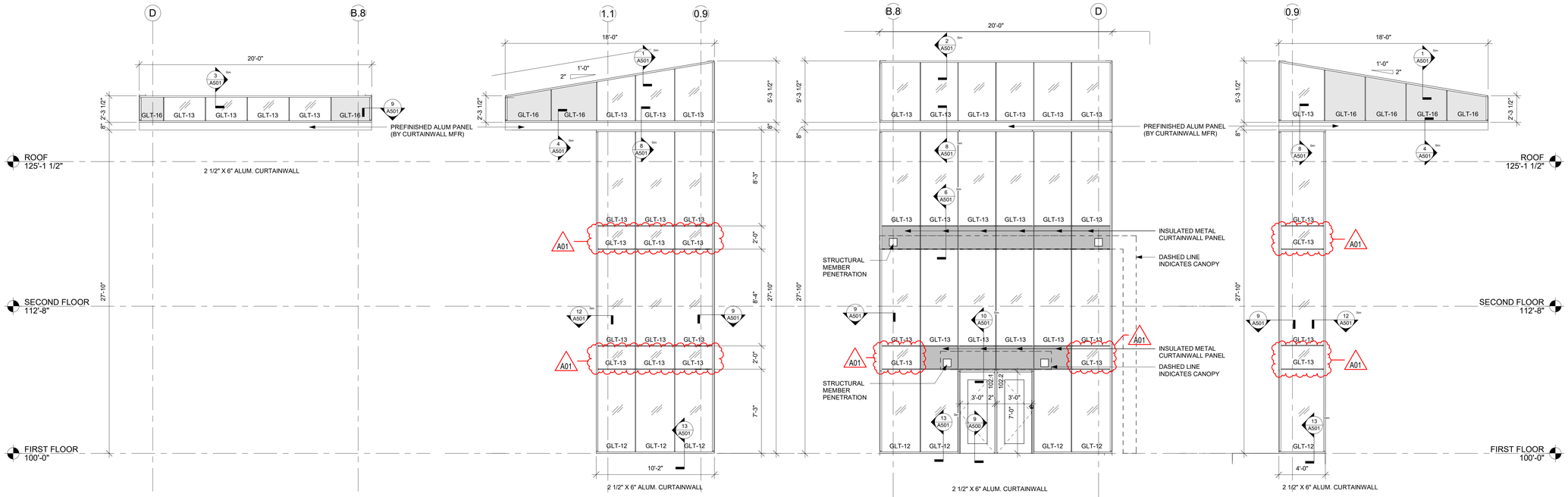
A601

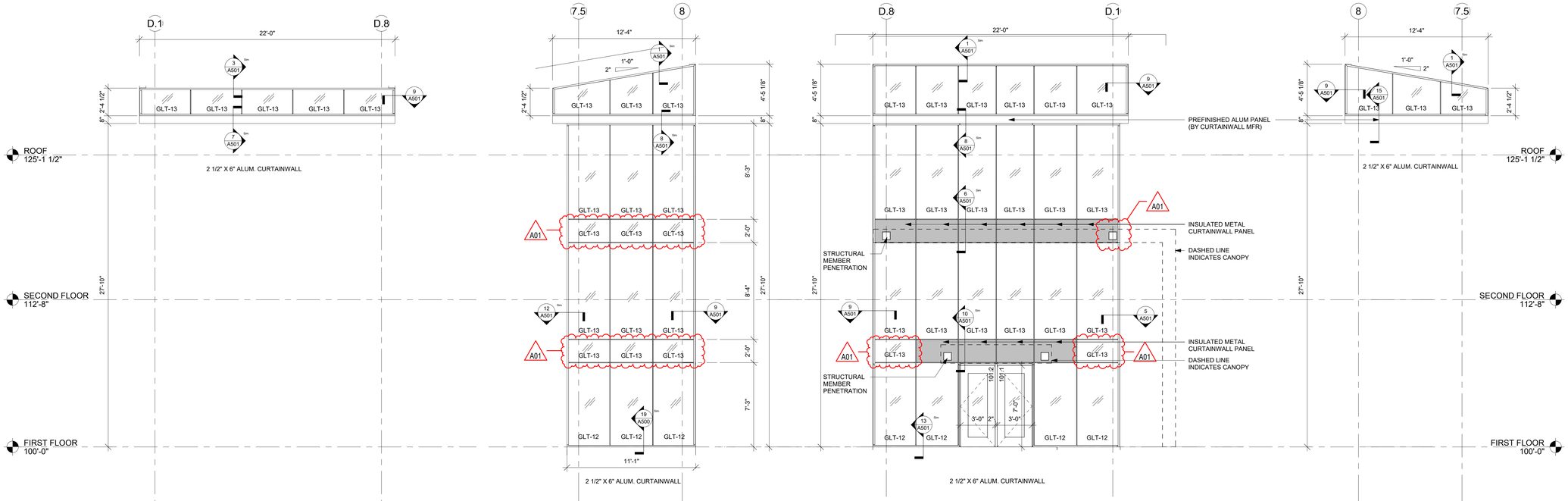


W7 WINDOW W7
1/4" = 1'-0"

W8 WINDOW W8
1/4" = 1'-0"

W9 WINDOW W9
1/4" = 1'-0"

W10 WINDOW W10
1/4" = 1'-0"

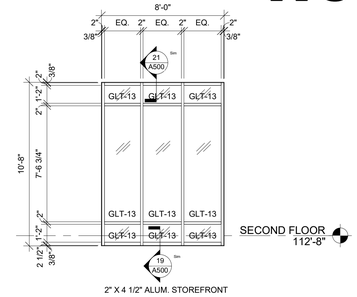


W3 WINDOW W3
1/4" = 1'-0"

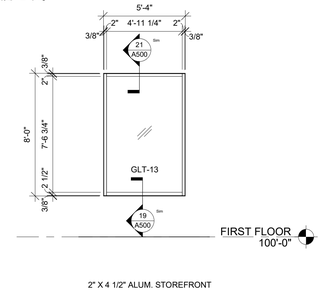
W4 WINDOW W4
1/4" = 1'-0"

W5 WINDOW W5
1/4" = 1'-0"

W6 WINDOW W6
1/4" = 1'-0"



W1 WINDOW W1
1/4" = 1'-0"



W2 WINDOW W2
1/4" = 1'-0"

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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **FRAME TYPES**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **HSR**

Key Plan:

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A602

INTERIOR GENERAL NOTES:

A. REFERENCES TO PAINT PERTAIN TO COLOR ONLY. PAINT TYPE SHALL BE IDENTIFIED IN THE ARCHITECTURAL SPECIFICATIONS.

B. PNT-1 FIELD PAINT; ACCENT PAINT AS INDICATED. SEE ID SHEETS.

C. REFER TO MASTER COLOR SCHEDULE ON ID000 FOR MATERIAL FINISH SPECIFICATIONS, ANNOTATIONS, AND ADDITIONAL INFORMATION.

D. TOILET ROOM WALL AND FLOOR GROUT LINES SHALL ALIGN TO CONTINUE PATTERN THROUGHOUT. SEE AXXX FOR ELEVATED PATTERNING.

E. VINYL COMPOSITE EDGE (VCE) TO BE INSTALLED AT DISSIMILAR FINISH AREAS; REFER TO ID SHEETS. INSTALL APPROPRIATE EDGE PROFILE TO PROTECT FINISH EDGES. COLOR AS SELECTED BY A/E.

F. AT DISSIMILAR FLOORING FINISHES, SET JOINT OF MATERIALS AT CENTER OF DOOR. TRANSITIONS TO BE ADA COMPLIANT.

INTERIOR FINISH KEY PLAN:

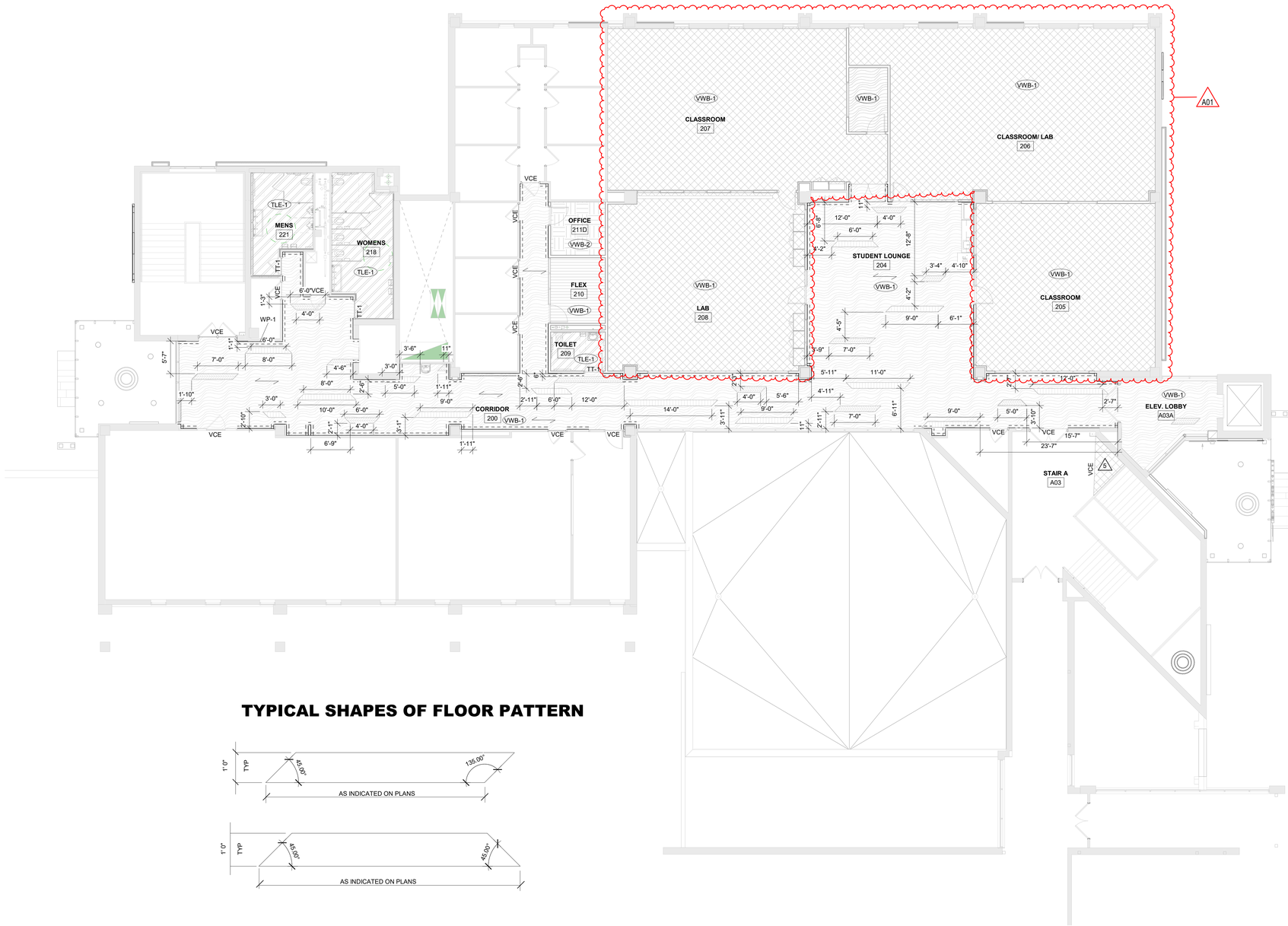
- A — SEE ROOM FINISH REMARKS
- XXX — WALL BASE
- PNT-X — ACCENT PAINT
- FLOOR GRAIN DIRECTION

INTERIOR FINISH LEGEND:

TLE-1	LVT-1	CPT-1
FAF-1	LVT-2	CPT-2
	LVT-3	CPT-3
		WCPT-1

ROOM FINISH REMARKS

1	PAINT ALL WALLS PNT-1 ACCENT AS INDICATED ON PLANS
2	PAINT ALL WALLS PNT-4 ACCENT AS INDICATED ON PLANS
3	FULL HEIGHT WALL & ACCENT TILE SEE ELEVATION 3 ON A210 FOR PATTERN
4	FULL HEIGHT WALL TILE ON ALL WALLS SEE ELEVATION 4 ON A210 FOR PATTERN
5	REPLACE EXISITING CARPET WITH LVT-1
6	WALL PROTECTION WP -1 ON ALL WALLS
7	WALL PROTECTION WP-2 ON ALL WALLS
8	PAINT GYP WALLS PNT-1
9	PAINT FIN TUBE COVER TO MATCH EXISTING
10	PAINT ALL EXPOSED STRUCTUAL STEEL PNT-5



TYPICAL SHAPES OF FLOOR PATTERN

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Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **FLOOR FINISH PLAN - SECOND FLOOR**

HSR Project Number: **24003**

Project Date: **AUGUST 2024**

Drawn By: **BME**

Key Plan:

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ID104

ABBREVIATIONS

ABBRV.	WORD OR PHRASE
&	AND
@	AT
Ø	DIAMETER
AB	ANCHOR BOLT
ADDL	ADDITIONAL
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
APA	AMERICAN PLYWOOD ASSOCIATION
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ASD	ALLOWABLE STRESS DESIGN
B/	BOTTOM OF
BC	BOTTOM CORD
BLDG	BUILDING
BLKG	BLOCKING
BM	BEAM
BOT	BOTTOM
BP	BASE PLATE
BRG	BEARING
BTWN	BETWEEN
C	CHANNEL
CFS	COLD-FORMED STEEL
CIP	CAST IN PLACE
CJ	CONTROL OR CONSTRUCTION JOINT
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE OR CONCENTRATED
CONN	CONNECTION
CONT	CONTINUOUS
CORR	CORRIDOR
CS	COLUMN STRIP
CTR	CENTER
DBL	DOUBLE
DEFL	DEFLECTION
DEMO	DEMOLITION
DFL	DOUGLAS FIR LARCH
DIA	DIAMETER
DIM	DIMENSION
DL	DEAD LOAD
DP	DRILLED PIER
DS	DRAG STRUT
DTL	DETAIL
DWG	DRAWING
DWL	DOWEL
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
ELEV	ELEVATION
ELEC	ELECTRICAL
EMBED	EMBEDMENT
EOD	EDGE OF DECK
EOS	EDGE OF SLAB
EP	EMBED PLATE
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FD	FLOOR DRAIN
FF	FINISH FLOOR ELEVATION
FIN	FINISH
FLR	FLOOR
FND	FOUNDATION
FRMG	FRAMING
FRT	FIRE RETARDANT TREATED
FS	FAR SIDE
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GC	GENERAL CONTRACTOR
GT	GIRDER TRUSS
GYP	GYPSUM
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HF	HEM FIR
HIF	HORIZONTAL INSIDE FACE
HOF	HORIZONTAL OUTSIDE FACE
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
HVAC	HEATING, VENTING & AIR COND.
HWS	HEADED WELD STUD
ID	INSIDE DIAMETER

ABBRV.	WORD OR PHRASE
IF	INSIDE FACE
INFO	INFORMATION
INT	INTERIOR
JST	JOIST
KLF	KIPS PER LINEAR FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE
2L	DOUBLE ANGLE
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LRFD	LOAD RESISTANCE FACTOR DESIGN
LSL	LAMINATED STRAND LUMBER
LVL	LAMINATED VENEER LUMBER
LW	LONG WAY
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MASONRY JOINT
MS	MIDDLE STRIP
MSR	MACHINE STRESS RATED
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPP	OPPOSITE
OSB	ORIENTED STRAND BOARD
PARA	PARALLEL
PC	PILE CAP
PCF	POUNDS PER CUBIC FOOT
PERP	PERPENDICULAR
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PLU/PLBG	PLUMBING
PLY	PLIES
PLYD	PLYWOOD
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	POST TENSIONED
PTW	PRESERVATIVE TREATED WOOD
R	RADIUS
RD	ROOF DRAIN
REF	REFERENCE
REINF	REINFORCEMENT
REQD	REQUIRED
REV	REVISION
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
SC	SLIP CRITICAL
SCHED	SCHEDULE
SHT	SHEET
SIM	SIMILAR
SMS	SELF-DRILLING METAL SCREWS
SOG	SLAB ON GRADE
SP	SOUTHERN PINE
SPEC	SPECIFICATION
SPF	SPRUCE-PINE-FIR
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STIF	STIFFENER
STL	STEEL
STR	STRUCTURAL
SW	SHEAR WALL
SYM	SYMMETRICAL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
T/	TOP OF
TC	TOP CHORD
TEMP	TEMPORARY
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
WF	WIDE FLANGE
WL	WIND LOAD
WP	WORKPOINT
WSP	WOOD STRUCTURAL PANEL
WT	WEIGHT
WWR	WELDED WIRE REINFORCEMENT

SLAB ON GRADE NOTES

1. ALL SLAB ON GRADE AREAS SHALL BE PROOF ROLLED. ALL SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH COMPACTED GRANULAR FILL.
2. REFER TO PLANS FOR SLAB ON GRADE REQUIREMENTS.
3. UNLESS NOTED OTHERWISE, SLAB ON GRADE TO BE CONSTRUCTED ON A MINIMUM OF 6" SUBBASE OF COMPACTED GRANULAR FILL. COMPACTION TO 95% MODIFIED PROCTOR.
4. SLAB ON GRADE SHALL INCLUDE STRUX 90/40 FIBER REINFORCEMENT BY GRACE CONCRETE PRODUCTS (OR APPROVED EQUAL). DOSAGE RATE SHALL BE 3.5 LBS/ CU YD. FIBER MANUFACTURER TO VERIFY DOSAGE RATE PRIOR TO CONSTRUCTION.
5. A VAPOR RETARDER SHALL BE PLACED BETWEEN THE BASE/SUBBASE AND THE CONCRETE FLOOR, SEE SPECIFICATIONS. DO NOT PLACE VAPOR RETARDER BENEATH POOL DECK SLABS.
6. LIMITS OF DROPPED AND DEPRESSED FLOOR AREAS TO BE LOCATED FROM ARCHITECTURAL PLANS.
7. PROVIDE SAWCUT CONTROL JOINTS IN EACH DIRECTION FOR SLAB ON GRADE. CONTRACTOR SHALL INSTALL CONTROL JOINTS AS SOON AS CONCRETE WILL SUPPORT THE WEIGHT OF THE SAW AND OPERATOR WITHOUT DISTURBING THE FINISH.
8. MAXIMUM SLAB ON GRADE CONTROL JOINT SPACING = 12'-6" +/- 2'-0".
9. COORDINATE WITH ARCHITECTURAL AND PLUMBING DRAWINGS FOR ALL FLOOR DRAIN OR DRAINAGE LOCATIONS AND SLOPE SLAB ON GRADE TO DRAINS OR AS NEEDED FOR POSTIVE DRAINAGE. SLOPE ENTIRE SLAB IF 'SLOPE TO DRAIN' WILL RESULT IN MORE THAN 1 INCH OF LOSS OF SLAB THICKNESS.

FOUNDATION NOTES

1. SOIL BEARING CAPACITY = 4000 PSF
2. DESIGN FROST DEPTH FOR HEATED STRUCTURES = 4 FT BELOW GRADE
   DESIGN FROST DEPTH FOR UNHEATED STRUCTURES = 5 FT BELOW GRADE
3. FOUNDATION DESIGN CRITERIA IS BASED ON 1972 BUILDING CONSTRUCTION DOCUMENTS.
4. CROSS REFERENCE AND VERIFY ARCHITECTURAL AND STRUCTURAL DRAWINGS TO ASSURE PROPER DIMENSIONS AND PLACEMENT OF ALL ANCHOR BOLTS, INSERTS, NOTCHES, EDGES IN GRADE BEAMS, FOUNDATION WALLS AND PIERS.
5. REMOVE TOPSOIL FROM BENEATH ALL PROPOSED CONSTRUCTION AREAS.
6. SEE CIVIL DRAWINGS FOR BENCHMARK = ELEVATION 100'-0".
7. ALL MATERIAL USED IN GRADING OPERATIONS SHALL CONSIST OF COMPACTED FILL, INCLUDING UTILITY TRENCHES, WHICH IS FREE OF DEBRIS, BOULDERS OR ORGANIC MATERIAL. ALL FILL BELOW BUILDING FOOTPRINT SHALL BE PLACED IN MAXIMUM OF 8" LIFTS AND COMPACTED TO A MINIMUM OF 95% MODIFIED PROCTOR MAXIMUM DRY DENSITY. COMPACTION TESTING IS REQUIRED.
8. ALL FOOTINGS SHALL BEAR ON UNDISTURBED SOIL OR COMPACTED FILL HAVING A MINIMUM ALLOWABLE BEARING CAPACITY AS INDICATED ABOVE. THE DESIGN BEARING VALUES SHOULD BE VERIFIED BY A QUALIFIED TESTING AGENCY PRIOR TO PLACING CONCRETE.
9. THE STRUCTURAL ENGINEER SHALL BE NOTIFIED IF ACTUAL FIELD CONDITIONS DO NOT MEET BEARING REQUIREMENTS OR, IF QUESTIONABLE SOIL CONDITIONS ARE DISCOVERED INCLUDING BUT NOT LIMITED TO PEAT AND OTHER HIGH ORGANIC SOILS.
10. ALL BEARING SOIL OR FILL MUST BE PROTECTED FROM FREEZING. THE CONTRACTOR SHALL PROVIDE PROTECTION TO PREVENT FROST PENETRATION BELOW THE CONCRETE BEARING ELEVATIONS. ANY FROZEN SOIL BELOW THE FOUNDATION BEARING LEVEL MUST BE REMOVED PRIOR TO PLACING CONCRETE.
11. BACKFILL EVENLY ON EACH SIDE OF FOUNDATION WALLS AND RETAINING WALLS. BACKFILL EVENLY AROUND PERIMETER BASEMENT WALLS AFTER SLAB ON GRADE AND FIRST ELEVATED FLOOR ARE IN PLACE. NO BACKFILL CAN BE PLACED UNTIL WALL HAS ATTAINED FULL CONCRETE STRENGTH, OR BRACING OR SHORING IS PROVIDED TO SUPPORT ANY BASEMENT WALLS.
12. NO HOLES, TRENCHES, OR DISTURBANCES OF THE SOIL SHALL BE ALLOWED WITHIN THE VOLUME DESCRIBED BY 45 DEGREE LINES SLOPING FROM THE BOTTOM EDGE OF THE FOOTING. IF SUCH ARE REQUIRED, FOOTINGS MUST BE LOWERED, UNLESS OTHERWISE NOTED.
13. NO CONCRETE SHALL BE PLACED ONTO OR AGAINST SUBGRADES THAT ARE FROZEN, CONTAIN FROST, SNOW, OR ANY STANDING WATER.

CONCRETE NOTES

1. MATERIAL SPECIFICATIONS

FOOTINGS	4,000 PSI @ 28 DAYS
FOUNDATIONS	4,000 PSI @ 28 DAYS
PIERS & COLUMNS	4,000 PSI @ 28 DAYS
INTERIOR SLAB ON GRADE	4,000 PSI @ 28 DAYS
EXTERIOR SLABS	4,500 PSI @ 28 DAYS
ALL OTHER CIP CONCRETE NOT NOTED	4,000 PSI @ 28 DAYS
PRECAST CONCRETE	DETERMINED BY PRECAST SUPPLIER
PRECAST CONCRETE TOPPING	5,000 PSI @ 28 DAYS
CONCRETE REINFORCING STEEL	60 KSI, ASTM A615
WELDED WIRE REINFORCEMENT	65 KSI, ASTM A185

2. ANCHORS INTO CONCRETE (UNO)

ANCHOR RODS	ASTM F1554 (SEE SCHEDULE FOR GRADE)
ADHESIVE ANCHORS	HILTI HAS-E THREADED ROD WITH HIT-HY 200 V3 INJECTION ADHESIVE OR APPROVED EQUAL
EXPANSION ANCHORS	HILTI KWIK BOLT III OR APPROVED EQUAL
POWDER DRIVEN FASTENERS	HILTI DS OR APPROVED EQUAL

3. REINFORCING CLEAR COVER (MIN)

   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
   CONCRETE EXPOSED TO EARTH OR WEATHER
   #6 THROUGH #18 BARS: 2"
   #5 BARS AND SMALLER: 1 1/2"
   CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
   SLABS, WALLS, & JOISTS
   #14 & #18 BARS: 1 1/2"
   #11 BARS AND SMALLER: 3/4"
   BEAMS & COLUMNS
   PRIMARY REINFORCEMENT, TIES, & SPIRALS: 1 1/2"

4. UNLESS LONGER LENGTH IS REQD BY ACI CODE OR NOTED OTHERWISE ON THE DRAWINGS, ALL REINFORCING SHALL BE LAPPED PER SCHEDULE:

CLASS "B" TENSIONS LAP SPLICE LENGTHS	4,000 PSI CONCRETE			5,000 PSI CONCRETE		
BAR SIZE	STANDARD	TOP BAR	STD HOOK DEV LENGTH	STANDARD	TOP BAR	STD HOOK DEV LENGTH
#3	19"	24"	8"	17"	22"	7"
#4	25"	33"	10"	23"	29"	9"
#5	31"	41"	12"	28"	36"	11"
#6	37"	49"	15"	34"	43"	13"
#7	54"	71"	17"	49"	63"	15"
#8	62"	81"	19"	56"	72"	17"
#9	70"	91"	22"	62"	81"	20"
#10	79"	102"	25"	69"	90"	22"
#11	87"	113"	27"	76"	99"	24"

A. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE BELOW.
B. SPLICE LENGTHS ARE BASED ON THE DIAMETER OF THE LARGER BAR BEING SPLICED.
C. MINIMUM HOOKED BAR EXTENSION = MIN BEND DIAMETER + 12db.
D. DIVIDE SPLICE LENGTHS BY 1.3 TO GET DEVELOPMENT LENGTHS.
E. UNLESS LONGER LENGTH IS REQD BY ACI CODE

5. ALL CONCRETE DESIGN AND CONSTRUCTION SHALL CONFORM WITH THE LOCAL BUILDING CODE REQUIREMENTS AND THOSE OF THE LATEST EDITION OF THE ACI MANUAL OF CONCRETE PRACTICE.
6. ALL CONCRETE, UNLESS SPECIFICALLY NOTED, SHALL BE NORMAL WEIGHT (145 PCF).
7. CALCIUM CHLORIDE AND OR ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL NOT BE USED. NO ALUMINUM, UNLESS COATED WITH A REACTION INHIBITOR COATING, SHALL BE EMBEDDED IN CONCRETE.
8. ALL CONCRETE SUBJECT TO EXTERIOR EXPOSURE SHALL BE AIR ENTRAINED TO 6% (+/- 1.5%) AND HAVE A MAXIMUM 1" AGGREGATE.
9. EXTERIOR BASEMENT AND EXPOSED RETAINING WALLS SHALL HAVE VERTICAL CONTROL JOINTS SPACED NOT MORE THAN 30'-0" ON CENTER. EACH JOINT SHALL BE ¾" DEEP AND V-CHAMFERED ON BOTH SIDES.
10. STRAIGHT LENGTHS OF FROST/FOUNDATION WALLS SHALL HAVE AN EXPANSION JOINT AT 300 FT MAX SPACING.
11. PIPE SLEEVES OVER 1 1/2" IN DIAMETER WHICH PASS THROUGH CONCRETE WALLS OR SLABS SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE. ALL OTHER SLEEVES SHALL BE 18 GAUGE GALVANIZED SHEET METAL. SLEEVES SHALL BE ONE SIZE LARGER THAN OUTSIDE DIAMETER OF PIPE PASSING THROUGH SLEEVE. VERIFY SIZE AND NUMBER WITH MECHANICAL, ELECTRICAL, AND PLUMBING CONTRACTORS. SEE TYPICAL FOUNDATION DETAILS.
12. NO ALUMINUM CONDUITS, SLEEVES, EMBEDS, ETC. SHALL BE PLACED IN CONCRETE.
13. HORIZONTAL WALL REINFORCEMENT SHALL BE MADE CONTINUOUS AT ALL CORNERS OR CORNER BARS PROVIDED. SEE TYPICAL FOUNDATION DETAILS.
14. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION AND DIMENSIONS OF CONCRETE REVEALS, NOTCHES, REGLETS, DRIPS, PADS, CURBS, CHAMFER BLOCKOUTS AT DOORWAYS, AND ALL OTHER PROJECT REQUIREMENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
15. SUBMIT CONCRETE DESIGN MIXES TO STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION. SUBMIT HISTORICAL STRENGTH TESTING DATA FOR EACH MIX PER ACI 318 OR AUTHORITY HAVING JURISDICTION.
16. SUBMIT STEEL REINFORCEMENT SHOP DRAWINGS TO STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.

EXISTING CONCRETE SLAB NOTES

1. DO NOT CORE OR CUT ANY OPENINGS INTO THE FLOOR OR ROOF SLAB AT THE COLUMN CAPS (THICKENED SLAB AREAS NEAR COLUMNS).
2. CORES OR OPENINGS LESS THAN 12" ARE APPROVED IF THEY ARE NO LESS THAN 60" CLEAR SPACE AWAY FROM ANY OTHER FLOOR/ROOF OPENING.
3. PIPE/CONDUIT CORES LESS THAN 6" IN DIAMETER MUST BE SPACED AT LEAST 4 DIAMETERS CLEAR BETWEEN CORES.

MASONRY NOTES

1. MATERIAL SPECIFICATIONS

CONCRETE MASONRY UNITS	F'_m= 2,250 PSI, ASTM C90 NORMAL WEIGHT UNITS
MORTAR: TYPE S	1,900 PSI, ASTM C270
MASONRY GROUT	3,000 PSI, ASTM C476
MASONRY REINFORCING STEEL	60 KSI, ASTM A615

2. ALL MASONRY WALLS SHALL HAVE LADDER TYPE JOINT REINFORCING CONSISTING OF TWO W1.7 LONGITUDINAL WIRES LOCATED VERTICALLY 16" OC.
3. ALL HORIZONTAL JOINT REINFORCING SHALL HAVE A MINIMUM OF 5/8" COVER AND BE HOT DIP GALVANIZED.
4. PROVIDE A VERTICAL REINFORCING BAR OF THE SAME SIZE AS THE TYPICAL VERTICAL WALL REINFORCING BAR IN GROUTED CELL, FULL HEIGHT, WITHIN 16" EACH SIDE OF WALL OPENINGS (DOORS AND WINDOWS ETC) AND WITHIN 8" OF CONTROL JOINTS AND ENDS OF WALLS AND WALL INTERSECTIONS. WHEN WALLS ARE DESIGNATED AS SHEAR WALLS OR THE WALL OPENING IS 6'-0" OR GREATER 2X THE TYPICAL VERTICAL BAR SHALL BE USED.
5. CELLS UNDER LINTEL BEARING SHALL BE FULLY GROUTED TO THE UNDERSIDE OF THE LINTEL.
6. ALL CELLS CONTAINING VERTICAL REINFORCEMENT SHALL BE GROUTED SOLID. GROUT LIFT HEIGHTS SHALL NOT EXCEED 4'-0", GROUT POUR HEIGHTS SHALL NOT EXCEED 24'-0". MECHANICAL CONSOLIDATION BETWEEN LIFTS IS REQUIRED. CLEAN-OUTS ARE REQUIRED AT THE BASE OF EACH GROUT POUR THAT EXCEEDS 5'-0".
7. REINFORCEMENT EMBEDDED IN GROUT SHALL HAVE A THICKNESS OF GROUT BETWEEN THE MASONRY UNIT AND THE REINFORCEMENT OF NOT LESS THAN ½".
8. BLOCK SHALL BE LAID IN RUNNING BOND PATTERN, AND SHALL INTERLOCK AT ALL WALL CORNERS AND INTERSECTIONS UNO.
9. CMU WALLS SHALL BE REINFORCED WITH #4 VERTICAL BARS AT 48" OC UNO.
10. CMU WALLS SHALL HAVE VERTICAL CONTROL JOINTS SPACED NOT MORE THAN 24'-0" OC.
11. UNLESS NOTED OTHERWISE ON THE DRAWINGS ALL REINFORCING SHALL BE LAPPED PER SCHEDULE.
12. USE FULL MORTAR BEDDING FOR ALL EXT AND LOAD-BEARING WALLS.

MASONRY REINFORCEMENT LAP SPLICE LENGTHS	
BAR SIZE	F'm = 2,250 PSI
#3	12"
#4	12"
#5	18"
#6	35"
#7	48"
#8	74"
#9	96"

STEEL DECK NOTES

1. MATERIAL SPECIFICATIONS

   DECK 44 KSI MINIMUM ASTM A653 (GALV)
   ASTM A1008 (UNCOATED OR PAINTED)

2. STEEL DECK SHALL BE TYPE, GAUGE, AND COATING AS INDICATED ON THE DOCUMENTS
3. SUBSTITUTE MECHANICAL FASTENERS FOR WELDS WHEN THE SUPPORTING ELEMENT HAS A THICKNESS OF 1/4" OR LESS.
4. MECHANICAL FASTENERS MAY BE SUBSTITUTED FOR WELDS IF INFORMATION IS PROVIDED TO THE ENGINEER CONFIRMING EQUIVALENT DIAPHRAGM STRENGTH AND STIFFNESS IS ACHIEVED.
5. ALL STEEL DECK SHALL MEET OR EXCEED TO THE MINIMUM SECTION PROPERTIES LISTED IN THE STEEL DECK INSTITUTE DESIGN MANUAL.
6. PLACE STEEL DECK OVER A MINIMUM OF THREE (3) SPANS IN THE SPAN DIRECTION NOTED ON PLAN UNLESS FRAMING GEOMETRY REQUIRES THE USE OF SINGLE/DOUBLE SPAN DECKS.
7. ROOF DECK END LAPS SHALL OCCUR AT SUPPORTS WITH A 4" MINIMUM LAP LENGTH PAST THE CENTERLINE OF THE SUPPORTS.
8. DECK SHALL HAVE PAINTED FINISH UNLESS NOTED OTHERWISE.
9. GALVANIZED DECK SHALL HAVE A MINIMUM COATING OF G60.
10. THE MAXIMUM LOAD THAT MAY BE HUNG FROM STEEL ROOF DECK IS 50LBS, PROVIDED THAT NO OTHER LOADS ARE HUNG FROM THE DECK WITHIN A 30" RADIUS. HANG ALL DUCTWORK, PIPING, ETC THAT EXCEEDS THIS CRITERION DIRECTLY FROM STRUCTURAL STEEL OR SUPPLEMENTAL STEEL MEMBERS.
11. DECK SHALL BE STORED OFF GROUND WITH ONE END ELEVATED TO PROVIDE DRAINAGE AND SHALL BE PROTECTED FROM THE ELEMENTS WITH A WATERPROOF COVERING, VENTILATED TO AVOID CONDENSATION.

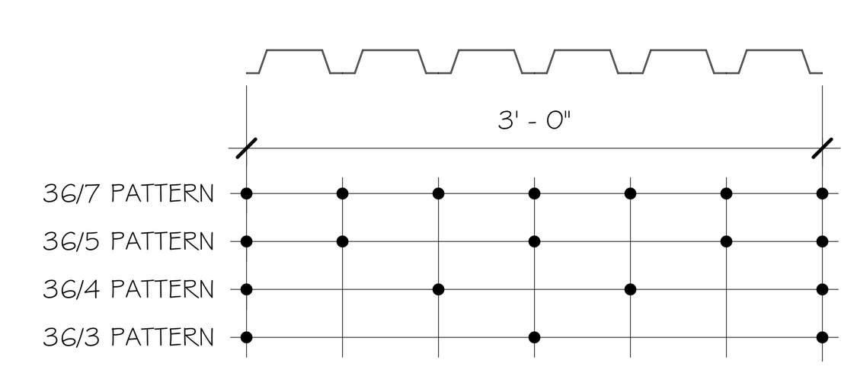
SUPPORT FASTENERS

SUPPORT FASTENERS SHALL BE 5/8" PUDDLE WELDS AT PANEL LAYOUT ENDS, INTERMEDIATE SUPPORTS, AND PANEL LAPS.

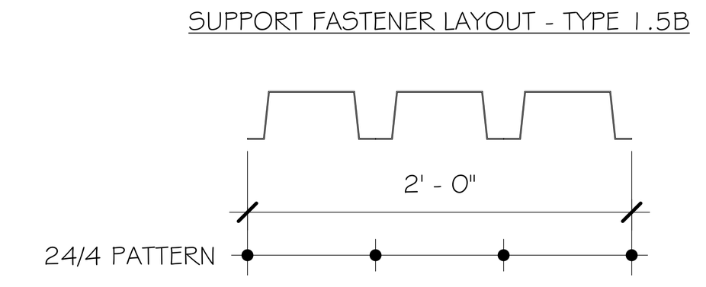
TYPE 1.5B DECK: PANEL WELDS SHALL BE AT A 36/4 PATTERN UNO
TYPE 3N DECK: PANEL WELDS SHALL BE AT A 24/4 PATTERN UNO

SIDELAP FASTENERS

SIDELAP FASTENERS SHALL BE #10 TEK SCREWS
SIDELAP FASTENERS SHALL BE LOCATED AT 2'-0"OC UNO

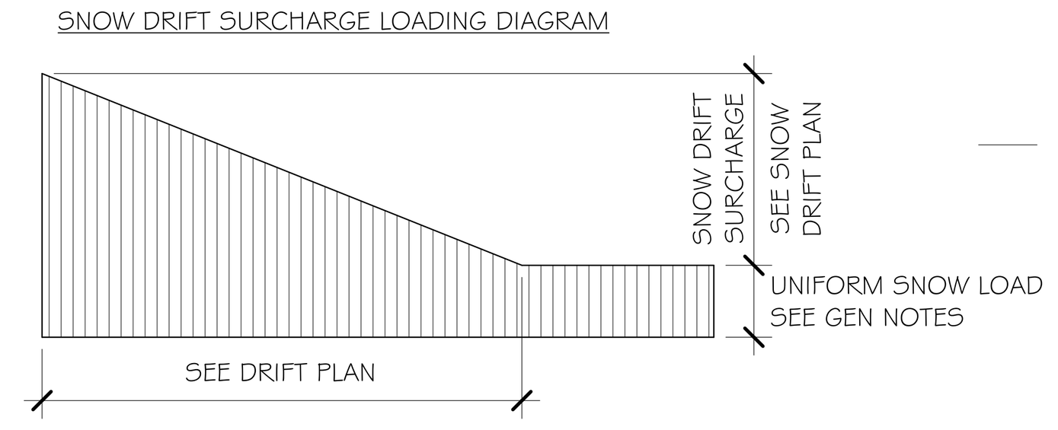


SUPPORT FASTENER LAYOUT - TYPE 1.5B



SUPPORT FASTENER LAYOUT - TYPE 3N

SNOW DRIFT SURCHARGE LOADING DIAGRAM



NOTE: SNOW DRIFT SURCHARGE IS ADDITIVE TO UNIFORM SNOW LOADS

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON ON EXISTING STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.
2. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING AND FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES. THE STRUCTURAL ENGINEER ASSUMES NO LIABILITY FOR THE STRUCTURE DURING CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION.
4. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS AND EXISTING FIELD CONDITIONS PRIOR TO THE START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH ARCHITECT. DO NOT SCALE DRAWINGS.
5. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, CIVIL, AND OTHER DESIGN CONSULTANT'S DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THE SHOP DRAWINGS. ANY APPARENT DISCREPANCIES, LIMITATIONS OR CONCERNS RESULTING FROM THIS COORDINATION SHOULD BE RESOLVED WITH THE ARCHITECT IMMEDIATELY.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO CONSTRUCTING. NOTIFY THE ARCHITECT OF ANY DISCREPANCY IMMEDIATELY.
7. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL BUILDING MATERIALS AND COMPONENTS. COMPONENT LOCATIONS ARE SHOWN FOR DESIGN INTENT, NOT EXACT LOCATION, SPECIFICALLY. INDEPENDENTLY PREPARED SHOP DRAWINGS ARE REQUIRED OF ALL TRADES FOR COORDINATION AND BEST PRACTICE. ERRORS OR OMISSIONS IN INSTALLATION DUE TO THE CONTRACTOR'S FAILURE TO COORDINATE THE WORK WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. ALL ABANDONED FOOTINGS, UTILITIES, AND OTHER STRUCTURES THAT WILL INTERFERE WITH NEW CONSTRUCTION ARE TO BE REMOVED.

STEEL NOTES

1. MATERIAL SPECIFICATIONS

WIDE FLANGE SECTIONS		50 KSI, ASTM A992
ANGLES, PLATES, AND CHANNELS		36 KSI, ASTM A36
SQUARE AND RECTANGULAR HSS		46 KSI, ASTM A500 GRADE B
PIPE		35 KSI, ASTM A53 GRADE B
HIGH STRENGTH BOLTS	3/4" UNO	ASTM A325-N
HEAVY HEX NUTS		ASTM A563
WELDING ELECTRODES	3/16" UNO	E70XX AWS 5.1
ANCHOR RODS		36 KSI, ASTM F1554
TENSION CONTROL - TWIST OFF BOLT/ NUTS WASHER ASSEMBLY		ASTM F3125 GRADE F1852
WASHERS		ASTM F436
HEADED WELDED STUDS		ASTM A108, TYPE B

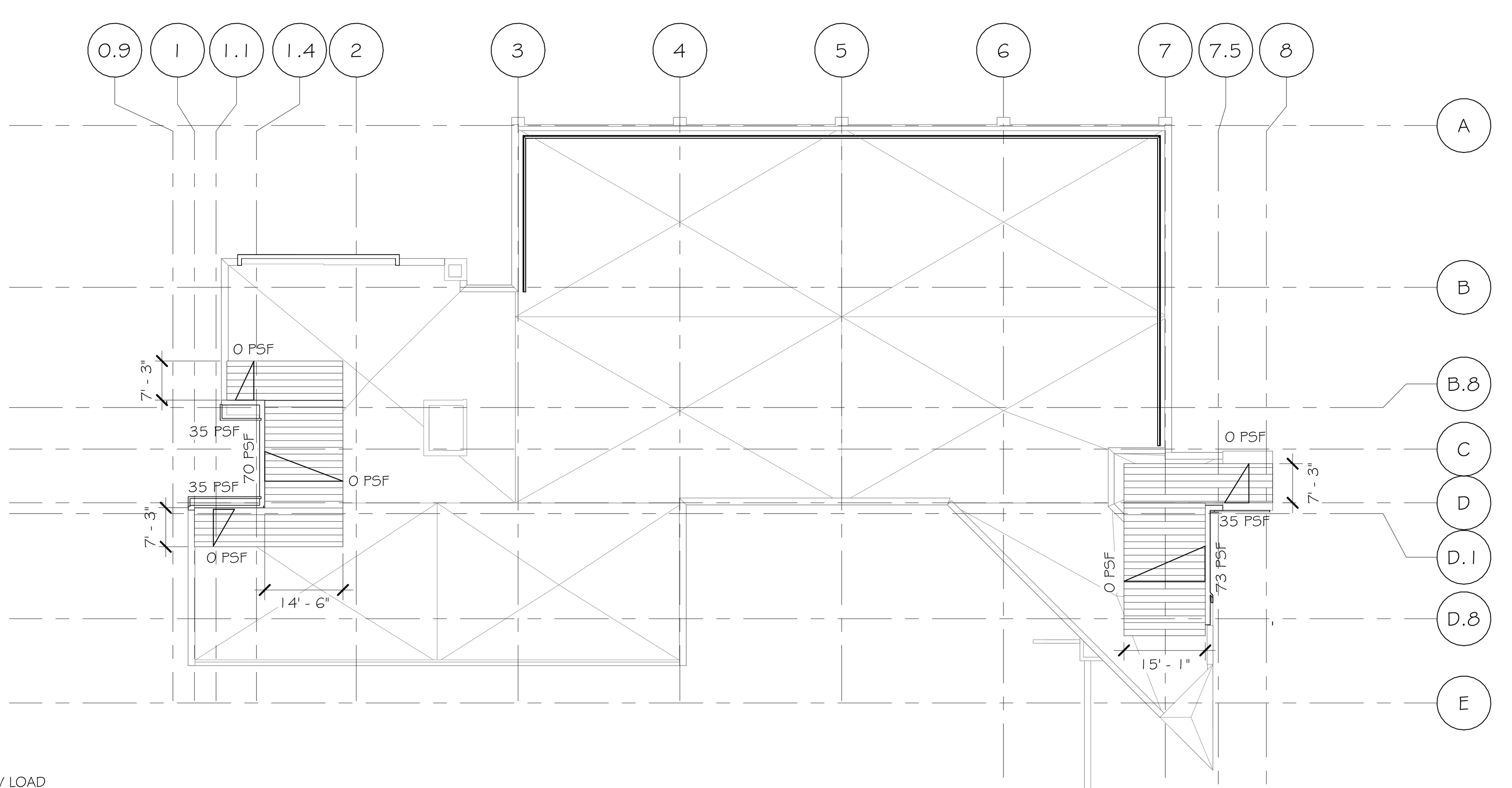
2. ALL CONNECTION BOLTING IS TO BE WITH A-325N BOLTS UNLESS NOTED OTHERWISE. BOLTS NEED ONLY BE TIGHTENED TO THE SNUG-TIGHT CONDITION. SNUG-TIGHT IS DEFINED AS THE TIGHTNESS OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A PERSON USING AN ORDINARY SPUD WRENCH.
3. HEADED WELDED STUDS ARE TO BE NELSON STUDS OR APPROVED EQUAL.
4. ALL WELDING SHALL COMPLY WITH THE AWS D1.1 STRUCTURAL WELDING CODES. ALL WELDING TO BE PERFORMED BY AWS PRE-QUALIFIED WELDERS CERTIFIED FOR THE GIVEN APPLICATION.
5. SEE SPECIFICATIONS FOR REQUIRED FINISHED TO BE APPLIED TO STEEL FRAMING.
6. SUBMIT SHOP DRAWINGS DETAILING FABRICATION OF STRUCTURAL STEEL COMPONENTS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY BRACING OF STRUCTURE DURING CONSTRUCTION.
8. THE CONNECTION DETAILS SHOWN ON THE DRAWINGS ARE CONCEPTUAL AND DO NOT INDICATE THE REQUIRED COMPONENT SIZES, WELDS, OR DIMENSIONS UNLESS SPECIFICALLY NOTED. FINAL DESIGN & DETAILING OF THE CONNECTIONS IS THE RESPONSIBILITY OF THE FABRICATOR. PERFORM DESIGN USING INDUSTRY STANDARDS AND CRITERIA DEFINED IN THE CONTRACT DOCUMENTS. SUBMIT DESIGN CALCULATIONS PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED.
9. ALL REACTIONS SHOWN ON THE PLAN ARE ASD FACTORED. DESIGN CONNECTIONS FOR 13k MIN ASD FACTORE REACTION, UNLESS NOTED OTHERWISE.

GALVANIZED STEEL NOTES

1. GALVANIZING FOR IRON OR STEEL PRODUCTS AND HARDWARE SHALL CONFORM TO ASTM A123, A153.
2. GALVANIZING FOR STEEL DECK SHALL CONFORM TO ASTM A924.
3. ALL GALVANIZED MEMBERS SHALL BE GALVANIZED BY THE "DRY GALVANIZING PROCESS" AS DEFINED BY AGA (FLUX AND GALVANIZING APPLIED IN SEPARATE STEPS). PROVIDE ALTERNATE COST TO GALVANIZE PER THE "WET" METHOD (FLUX AND GALVANIZING IN ONE STEP). GALVANIZED MEMBERS SHALL NOT BE QUENCH COOLED.
4. ALL WELDING OF GALVANIZED MATERIAL SHALL BE PERFORMED IN SUCH A MANNER AS TO SATISFY ALL OSHA AND AWS REQUIREMENTS. ALL FIELD WELDED LOCATIONS SHALL BE PREPARED AND PRIMED WITH A ZINC RICH PRIMER PRIOR TO PAINTING PER THE MANUFACTURES RECOMMENDATIONS. THE SPECIFIC PRIMER TO BE USED SHALL BE TNEMEC SERIES 90-97 TNEME-ZINC @ 3.0-4.0 MILS DRY FILM THICKNESS OR APPROVED EQUAL.

ARCHITECTURALLY EXPOSED STRUCTURAL STEEL

1. EXPOSED TUBE STEEL FRAMES IN ENTRY VESTIBULES TO BE FABRICATED AND FIELD CONNECTED TO AN AISC AESS CATEGORY 3 LEVEL.



1 ROOF SNOW DRIFT PLAN
SCALE: 1" = 20'-0"

SHEET LIST			
SHEET NUMBER	SHEET NAME	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION
S001	STRUCTURAL NOTES	08/09/2024	Addendum 1
S101	FOUNDATION PLAN	08/09/2024	Addendum 1
S102	SECOND FLOOR FRAMING PLAN		
S103	ROOF FRAMING PLAN	08/09/2024	Addendum 1
S301	FOUNDATION DETAILS & SCHEDULES		
S401	MASONRY DETAILS & SCHEDULES		
S501	STEEL DETAILS & SCHEDULES	08/09/2024	Addendum 1
S502	ELEVATION DETAILS		

A01

DESIGN LOADS

1. DESIGN CODE DATA

   2015 INTERNATIONAL BUILDING CODE
   WISCONSIN STATE BUILDING CODE
   ASCE 7-10: MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
   AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
   ACI 318-14: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
   ACI 530-13: BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES
   ANSI/AWC NDS-2015: NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION
   AWC SDPWS-2015: SPECIAL DESIGN PROVISION FOR WIND AND SEISMIC

2. RISK CATEGORY= III (PER ASCE 7-10 TABLE 1.5-1)
3. DEAD LOADS:

   ROOF 20 PSF

4. ROOF LIVE LOAD:

   LESS THAN 200 SF 20 PSF
   200 SF TO 600 SF LINEAR INTERPOLATE
   GREATER THAN 600 SF 12 PSF

5. SNOW LOADS:

   MAIN ROOF
   P_g = 40 PSF
   P_f = 28 PSF
   C_e = 0.9
   C_t = 1.0
   I = 1.1

   SEE SNOW DRIFT PLAN FOR ADDITIONAL SNOW DRIFT SURCHARGE LOADING

6. WIND DESIGN CRITERIA

   WIND SPEED = 120 MPH
   EXPOSURE = B
   ENCLOSURE CLASSIFICATION = ENCLOSED
   K_d= 0.85
   I = 1.0
   K_{zt}= 1.0
   BASE VELOCITY PRESSURE, Q_h=22.2 PSF

   COMPONENT & CLADDING WIND PRESSURES [PSF] PER (ASCE 7-10 FIGURE 30.4) [ULTIMATE LOADING]

	COMPONENT TRIBUTARY AREA			
ROOF	10SF	50SF	100SF	500SF
ZONE 1 NEG	-26.1	-24.6	-23.9	-23.9
ZONE 2 NEG	-43.9	-33.0	-28.4	-28.4
ZONE 3 NEG	-66.0	-39.7	-28.4	-28.4
ALL ZONE POS.	16.0	16.0	16.0	16.0
ZONE 2 OVERHANG	-37.7	-36.1	-35.5	-24.4
ZONE 3 OVERHANG	-62.0	-31.0	-17.7	-17.7
PARAPET	10SF	20SF	50SF	100SF
CASE A ZONE 2	60.2	54.4	46.8	41.1
CASE A ZONE 3	60.2	54.4	46.8	41.1
CASE B ZONE 2	-42.1	-40.0	-37.2	-35.1
CASE B ZONE 3	-48.2	-45.0	-40.7	-37.5
WALLS	10SF	100SF	200SF	500SF
ZONE 4 NEG	-25.9	-22.4	-21.3	-19.9
ZONE 5 NEG	-31.9	-24.9	-22.7	-19.9
ALL ZONE POS.	23.9	20.4	19.3	17.9

   POSITIVE AND NEGATIVE SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM THE SURFACES, RESPECTIVELY. END ZONES EXTEND FROM CORNERS OF BUILDING A DISTANCE EQUAL TO 10% LEAST HORIZONTAL BUILDING DIMENSION BUT NOT LESS THAN 3'-0"

7. SEISMIC DESIGN CRITERIA

   S_s= 0.053g
   S_1= 0.036g
   SEISMIC SITE CLASSIFICATION =D
   S_{DS} = 0.057g
   S_{D1} = 0.057g
   SEISMIC DESIGN CATEGORY =A
   SEISMIC BASE SHEAR (N-S)= <1.0 KIPS
   SEISMIC BASE SHEAR (E-W)= <1.0 KIPS
   ANALYSIS PROCEDURE= EQUIVALENT LATERAL FORCE

8. MAXIMUM ALLOWABLE DEFLECTION CRITERIA:

ROOF FRAMING*:	L/360 LIVE LOAD; L/240 TOTAL LOAD
STEEL/PRECAST FLOOR FRAMING :	L/360 LIVE LOAD; L/240 TOTAL LOAD
EXTERIOR WALLS*:	L/240 WIND LOAD
BRICK :	L/

* APPLY 0.42 FACTOR TO C&C WIND LOAD TABLE FOR DEFLECTION CRITERIA OF ROOF FRAMING AND EXTERIOR WALLS

ARCHITECTURE ENGINEERING INTERIOR DESIGN

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Project Title: WESTERN TECHNICAL COLLEGE INNOVATION CENTER

Project Location: 405 8TH STREET NORTH LA CROSSE, WI

Sheet Title: STRUCTURAL NOTES

HSR / Ramaker Project Number: 24003 / 60597

Project Date: AUGUST 2024

Drawn By: KLC

Key Plan:

Revisions:

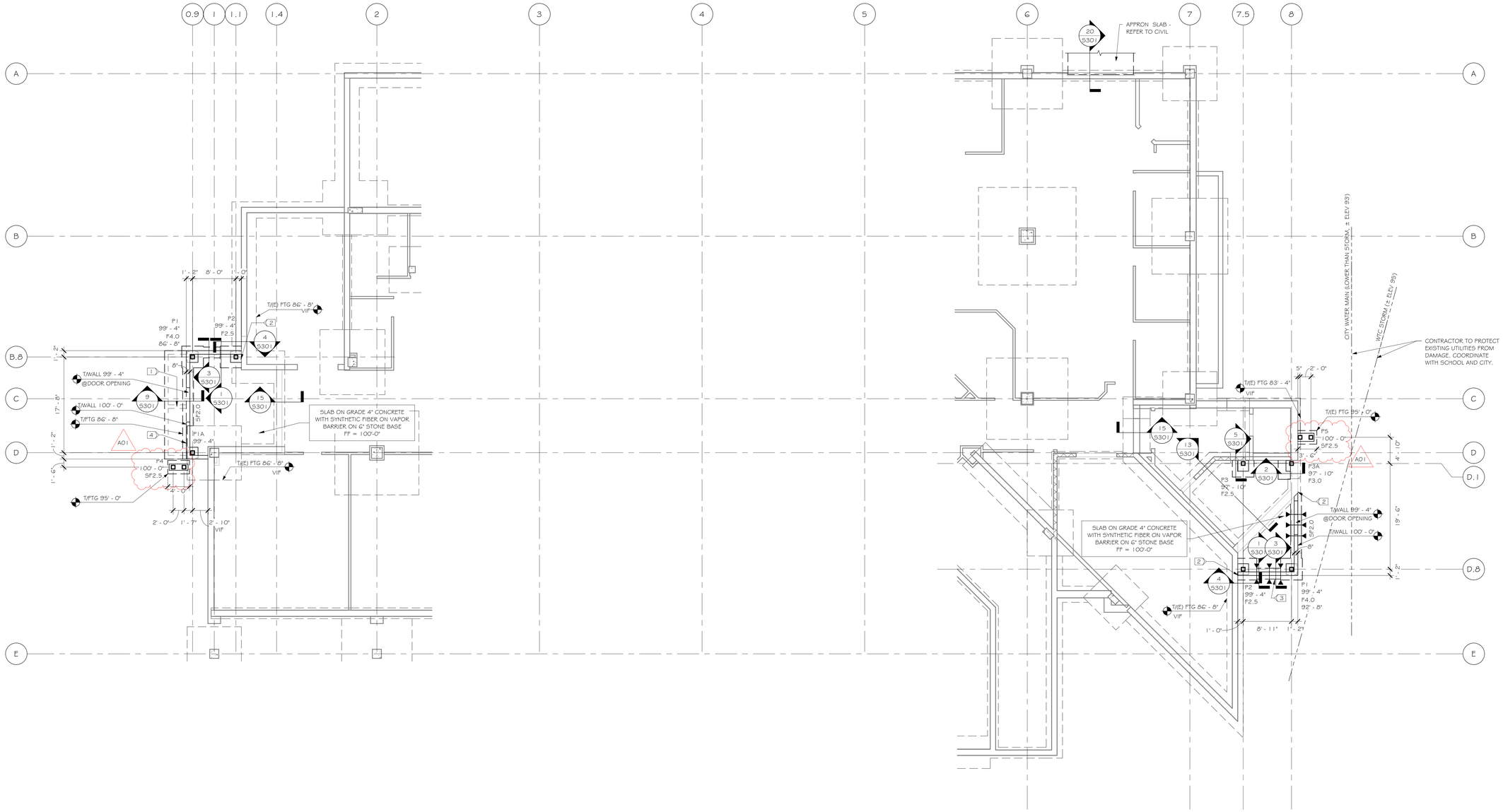
No.	Description	Date
A01	Addendum 1	08/09/2024

Graphic Scale: VARIES

Last Update: 8/7/2024 11:45:37 AM

S001

FOUNDATION PLAN NOTES
1. VERIFY ALL DIMENSIONS W/ ARCH DRAWINGS
2. SLAB ON GRADE SHALL BE 4" NORMAL WEIGHT CONCRETE W/ SYNTHETIC FIBERS, SEE S001
3. TOP OF FIRST FLOOR SLAB ELEVATION 100'-0" UNO
4. TOP OF FOUNDATION WALL ELEVATION 100'-0" UNO
5. SEE S001 FOR GENERAL STRUCTURAL NOTES & ABBREVIATIONS
6. SEE S301 FOR TYPICAL FOUNDATION DETAILS & SCHEDULES
7. SEE S401 FOR TYPICAL MASONRY DETAILS
8. SEE S501 FOR TYPICAL STEEL DETAILS & SCHEDULES & BASE PLATE INFO
9. ELEVATION NOTED IN PIERMARK XX-X" = TOP OF FOOTING OR TOP OF PIER



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

STRIP FOOTING SCHEDULE

TYPE	WIDTH	THICKNESS	BOTTOM BARS	TOP BARS	COMMENTS
SF2.0	2' - 0"	1' - 0"	(3)#5xCONT		
SF2.5	2' - 6"	1' - 0"	(3)#5xCONT		

CONCRETE PIER SCHEDULE

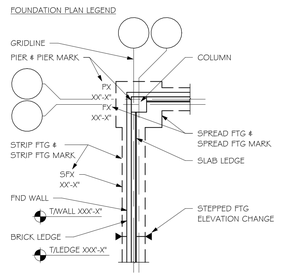
TYPE	B	H	b	h	VERT BARS	TIES	COMMENTS
P1	2' - 0"	2' - 0"	6"	6"	(5)#8	#3@12"OC	ON S301
P1A	2' - 0"	2' - 0"	6"	6"	(5)#8	#3@12"OC	DOWEL VERT BARS INTO TOP OF EXISTING FTG
P2	2' - 0"	2' - 0"	0"	6"	(5)#8	#3@12"OC	ON S301
P3	2' - 0"	2' - 0"	0"	0"	(5)#8	#3@12"OC	ON S301
P3A	2' - 0"	10"	0"	0"	(6)#6	#3@12"OC	ON S301
P4	3' - 6"	1' - 2"	0"	0"	(10)#6	#3@12"OC	
P5	3' - 0"	1' - 6"	0"	0"	(10)#6	#3@12"OC	

SPREAD FOOTING SCHEDULE

TYPE	LENGTH	WIDTH	THICKNESS	BOTTOM BARS	TOP BARS	COMMENTS
F3.0	3' - 6"	2' - 3"	2' - 0"	(2)#5 LONG x (4)#5 TRANSVERSE	(3)#5 LONG, (4)#5 TRANSVERSE	REFER TO 1/S301
F2.5	4' - 0"	2' - 6"	2' - 0"	(3)#5 LONG x (4)#5 TRANSVERSE	(4)#5 LONG, (4)#5 TRANSVERSE	7/S301
F4.0	4' - 0"	4' - 0"	1' - 0"	(4)#5 EW		7/S301

Keynote Legend	
Key Value	Keynote Text
1	INTERMEDIATE STOOP WALL
2	MATCH BOTTOM OF (E) FOOTING. DOWEL FOOTING TO (E) FOOTING WITH (2)#4x18", DOWEL WALL TO (E) WALL WITH (1)#4x18" TOP AND BOTTON OF WALL.
3	CONTRACTOR PROVIDE MINIMUM OF 2 STEPS BETWEEN FOOTING PADS.
4	CONTRACTOR COORDINATE NEW FOOTING AND WALL WITH EXISTING FOOTING. DOWEL TO EXISTING FOOTING.

FOUNDATION PLAN LEGEND



ARCHITECTURE
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Consultant:

Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **FOUNDATION PLAN**

HSR / Ramaker Project Number: **24003 / 60597**

Project Date: **AUGUST 2024**

Drawn By: **KLC**

Key Plan:

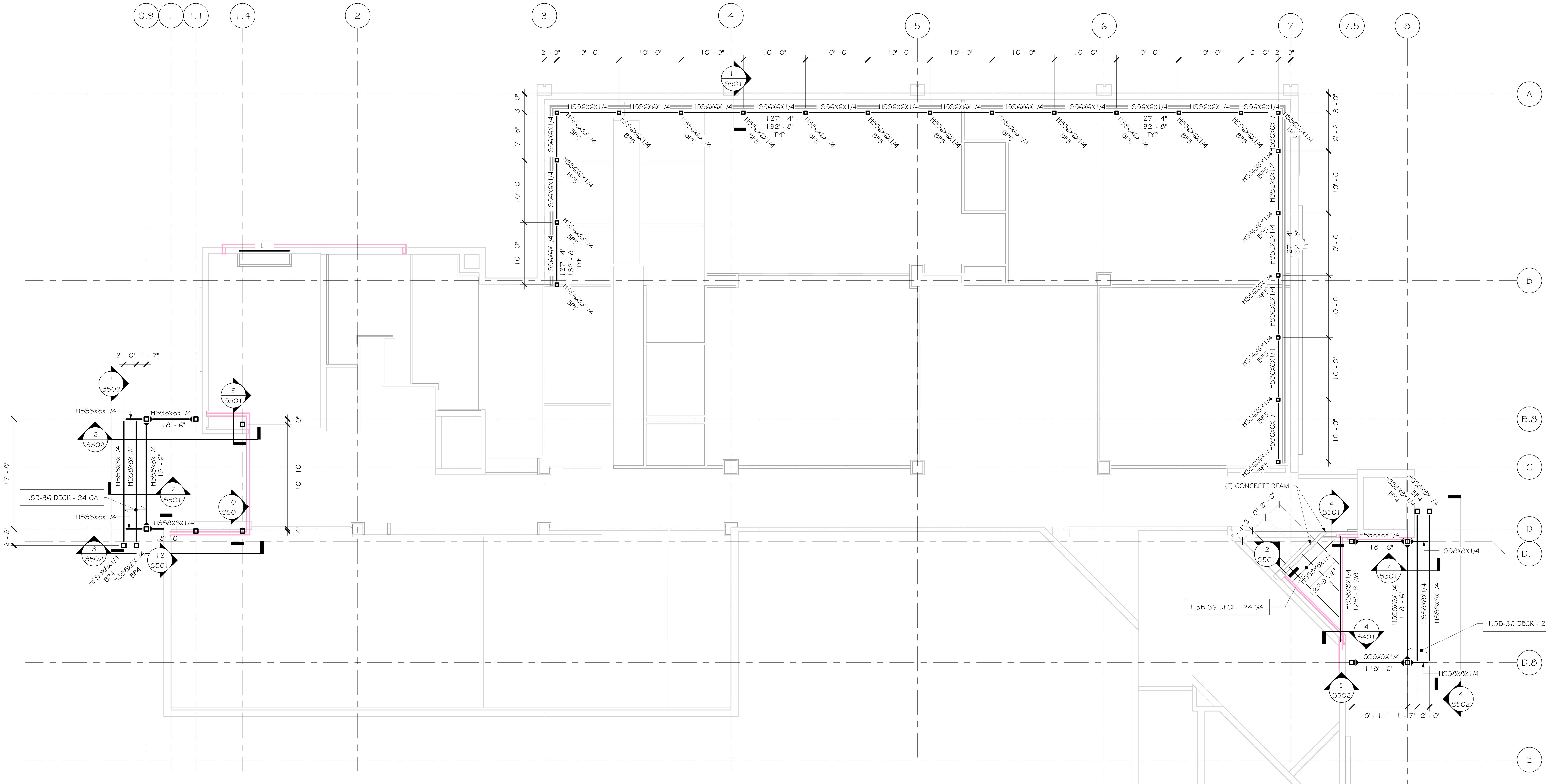
Revisions:

No.	Description	Date
A01	Addendum 1	08/09/2024

Graphic Scale: **VARIES**

Last Update: **8/7/2024 11:45:38 AM**

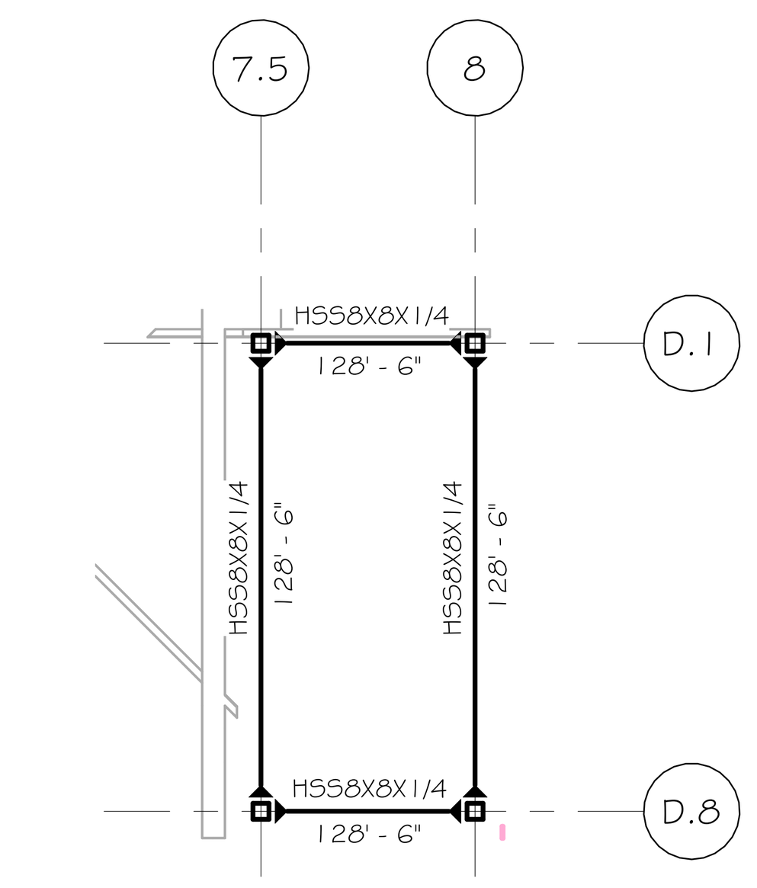
S101



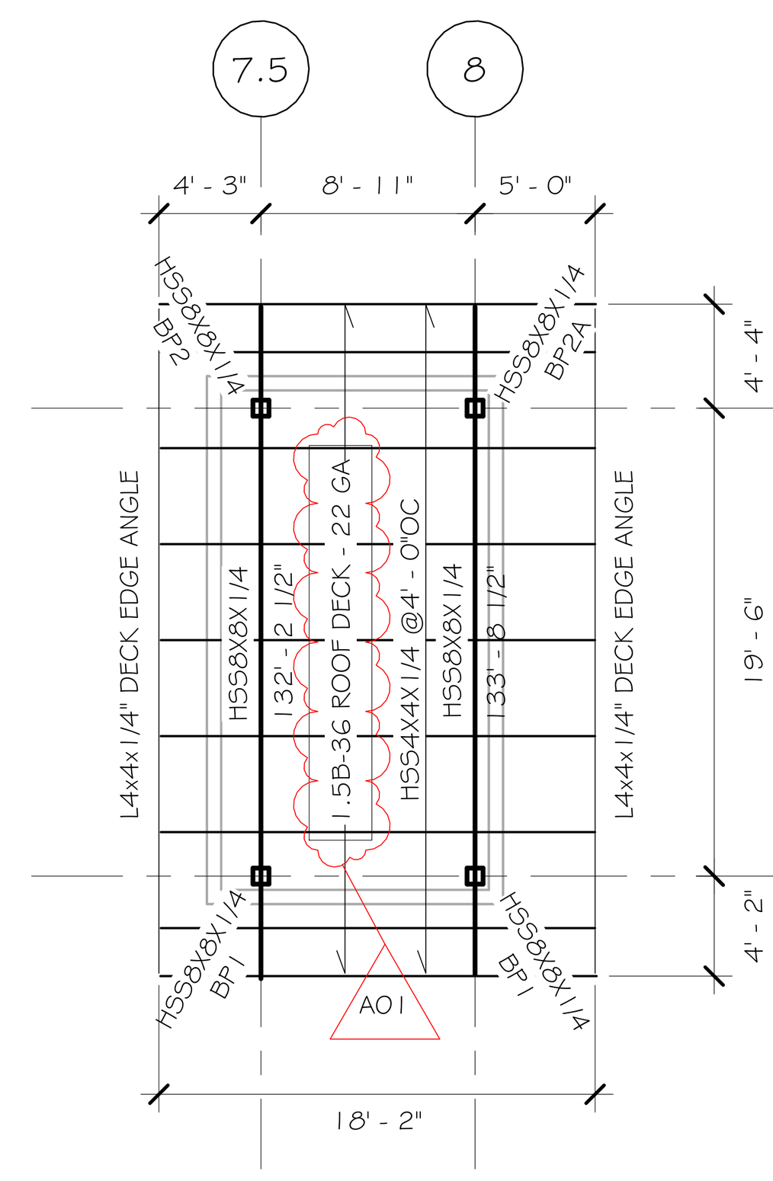
1 THIRD FLOOR/ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"

PLAN NOTES

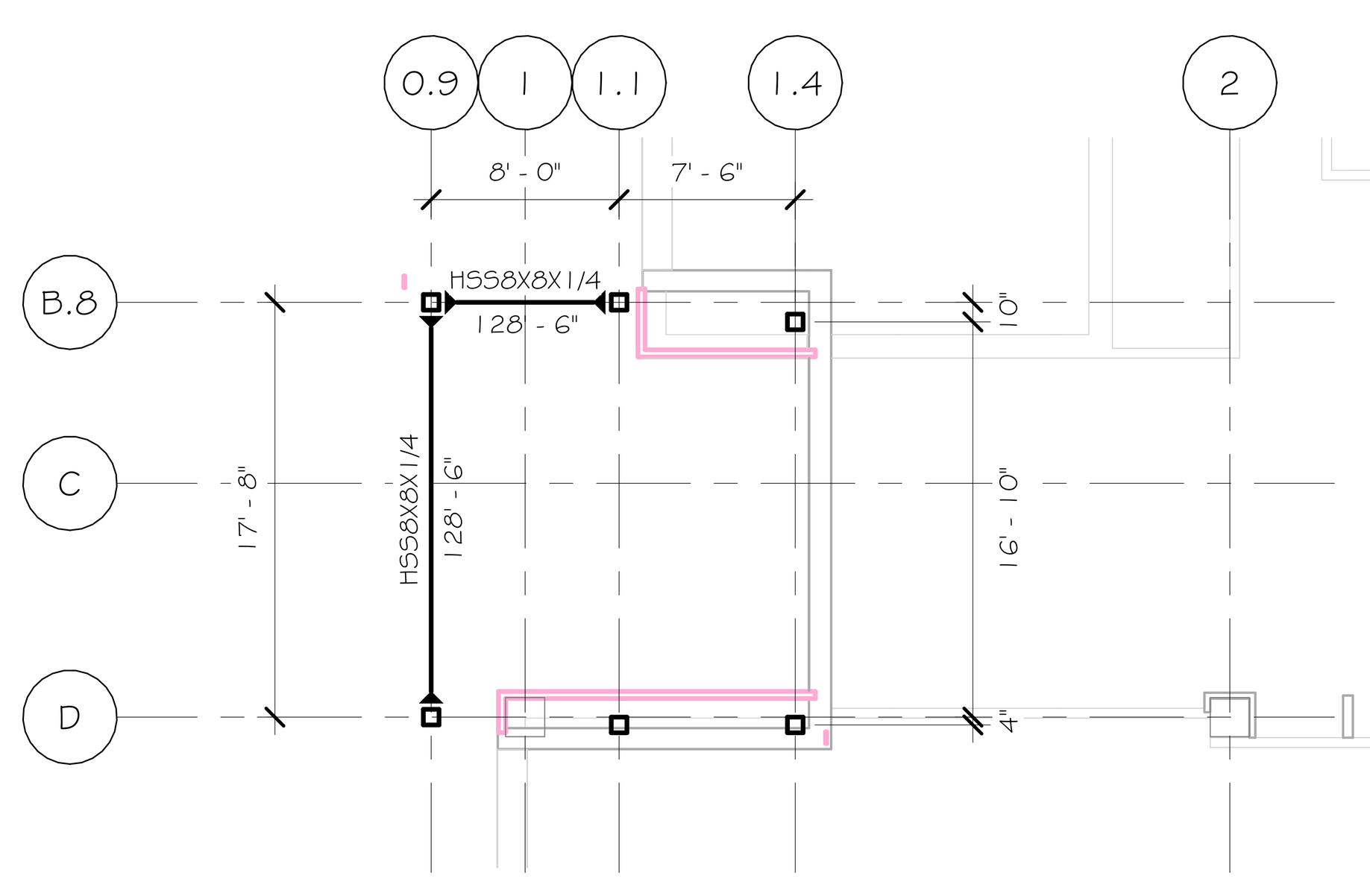
1. VERIFY ALL DIMENSIONS W/ ARCH DRAWINGS
2. SEE S001 FOR GENERAL STRUCTURAL NOTES & ABBREVIATIONS
3. SEE S301 FOR TYPICAL FOUNDATION DETAILS & SCHEDULES
4. SEE S401 FOR TYPICAL MASONRY DETAILS
5. SEE S501 FOR TYPICAL STEEL DETAILS & SCHEDULES & BASE PLATE INFO
6. EXPOSED STEEL, INCLUDING ROOF STEEL, OF ENTRIES IS TO DETAILED, FABRICATED AND INSTALLED TO AN AESS LEVEL OF CATEGORY 3.
7. INTERIOR STEEL OF THE ENTRIES WILL BE PAINTED, NOT GALVANIZED.
8. ROOF DECK WILL BE GALVANIZED.
9. CANOPY STEEL, OUTRIGGERS THROUGH THE CURTAINWALL SYSTEM, AND ROOF DECK WILL BE GALVANIZED.
10. AT ALL COLUMN/POST TO ROOF DECK LOCATIONS REMOVE SLOPED TOPPING TO REVEAL 11" CONCRETE DECK. REGROUT CONCRETE TOPPING TO MATCH EXISTING TOPPING.
11. TOP OF CONCRETE SLAB AT ROOF 125'-1 1/2". SLOPED TOPPING RESULT IN TOP OF CONCRETE TOPPING AT ± 125'-6 1/2" ALONG ROOF EDGE (VIF).



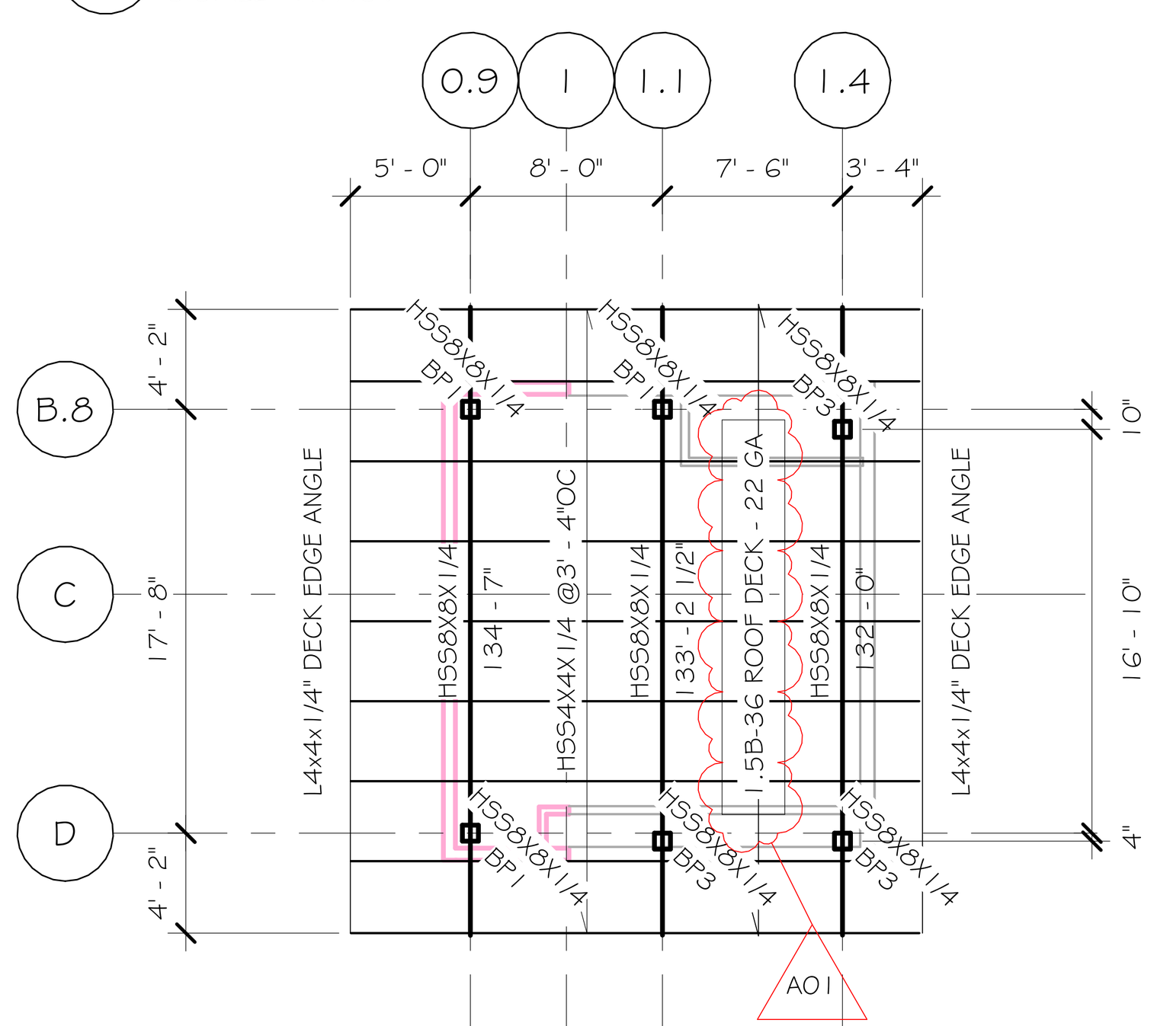
4 SOUTH TOWER LEVEL 4 FRAMING PLAN
SCALE: N.T.S.



5 SOUTH TOWER ROOF FRAMING PLAN
SCALE: N.T.S.

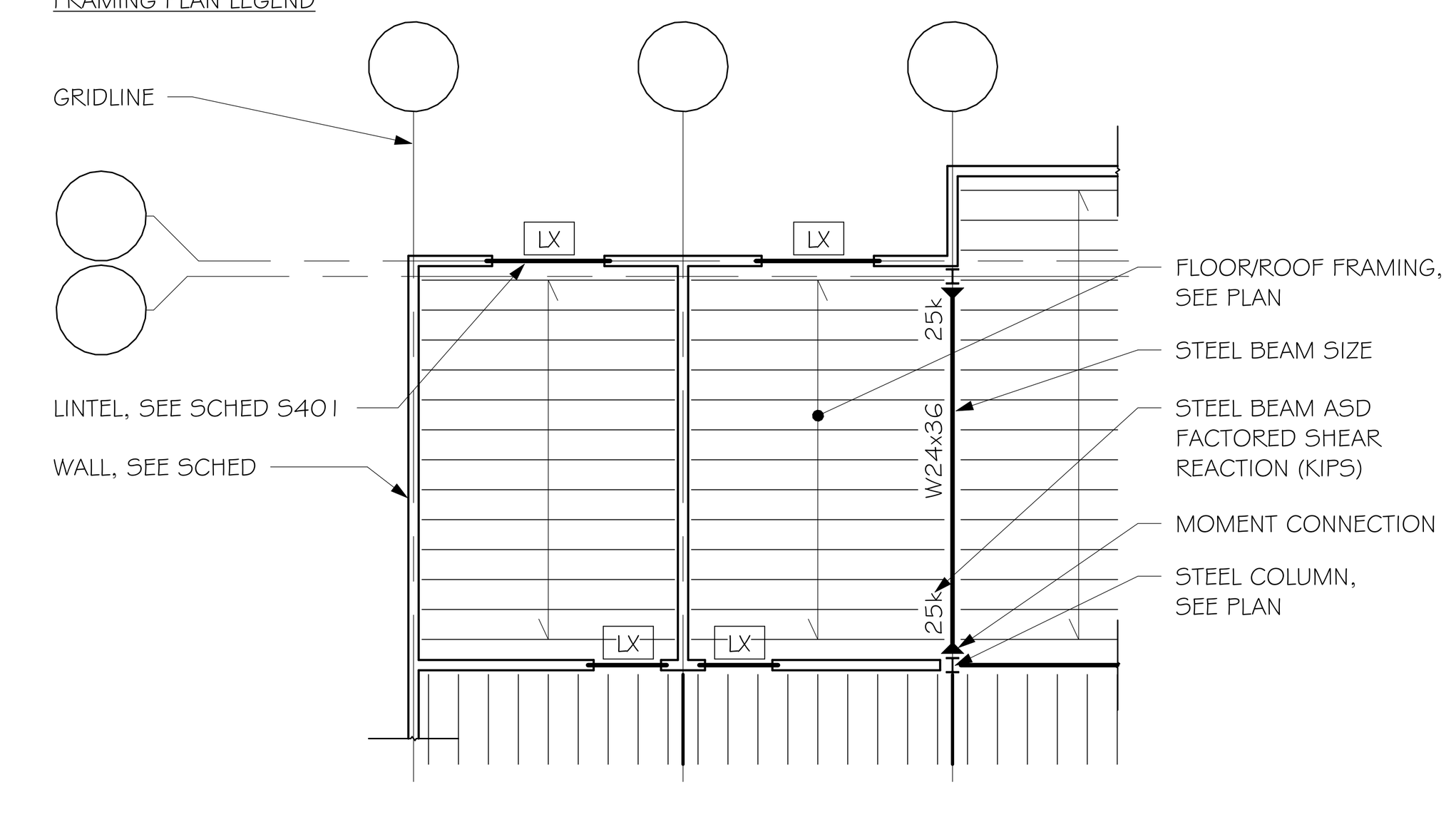


2 NORTH TOWER LEVEL 4 FRAMING PLAN
SCALE: N.T.S.



3 NORTH TOWER ROOF FRAMING PLAN
SCALE: N.T.S.

FRAMING PLAN LEGEND



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Project Title: WESTERN TECHNICAL COLLEGE INNOVATION CENTER

Project Location: 405 8TH STREET NORTH LA CROSSE, WI

Sheet Title: ROOF FRAMING PLAN

HSR / Ramaker Project Number: 24003 / 60597

Project Date: AUGUST 2024

Drawn By: KLC

Key Plan:

Revisions:

No.	Description	Date
A01	Addendum 1	08/09/2024

Graphic Scale: VARIES

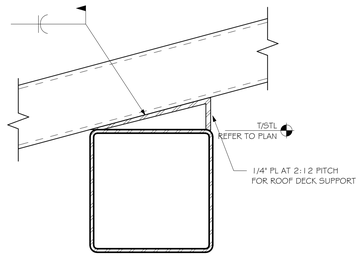
Last Update: 8/7/2024 11:45:38 AM

S103

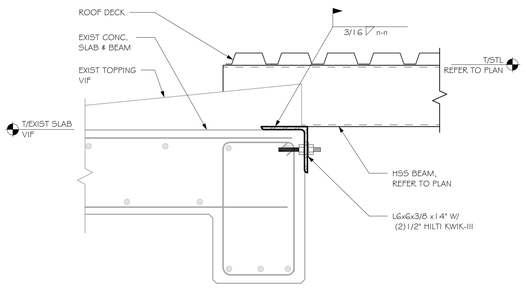
BASE PLATE SCHEDULE

TAG	TYPE	SIZE	ANCHOR RODS	B ANCHOR SPACING	N ANCHOR SPACING	COMMENTS
BP1	A	16"x16"x1"	(4) 1"Ø	12"	12"	
BP2		18"x16"x1"	(4) 1"Ø	10"	12"	REFER TO DETAIL 17/S301
BP2A		18"x16"x1"	(4) 1"Ø	10"	12"	REFER TO DETAIL 17/S301. USE HIT-HY 200 V3 + HAS WHEN ANCHORING INTO EXISTING FND WALL
BP3	A5	10"x16"x1/2"	(4) 1/2"Ø	6"	12"	HIT-HY 200 V3 + HAS ANCHOR W/ MIN. 4" EMBED
BP4	A5	8"x16"x1/2"	(4) 1/2"Ø	4"	12"	
BP5	A	16"x16"x1/2"	(4) 3/4"Ø	12"	12"	HIT-HY 200 V3 + HAS ANCHOR W/ MIN. 5" EMBED

BASE PLATE SCHEDULE NOTES:
1. ANCHOR ROD MATERIAL SHALL BE F1554 GRADE 36, TYP
2. PROVIDE 1'-0" ANCHOR ROD EMBED @ CIP CONC BELOW, UNO
3. PROVIDE 0'-9" ANCHOR ROD EMBED, EPOXY SET @ PRECAST CONC BELOW, UNO



1 BEAM DECK PLATE
SCALE: N.T.S.



2 LOW ROOF HSS CONN. TO (E) CONCRETE BEAM
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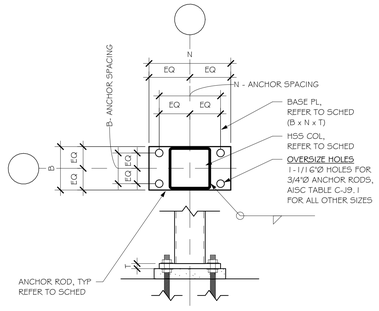
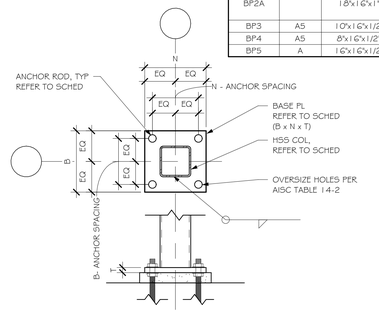
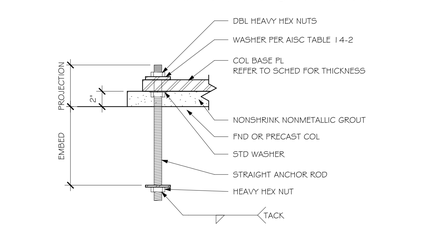


3 STEEL COLUMN BASE PLATE - TYPE A5
SCALE: N.T.S.

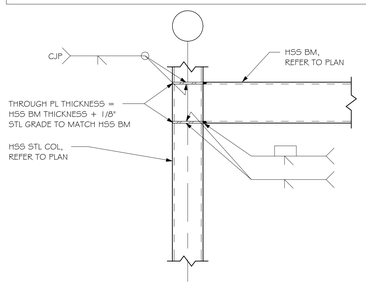


4 STEEL COLUMN BASE PLATE - TYPE A
SCALE: N.T.S.



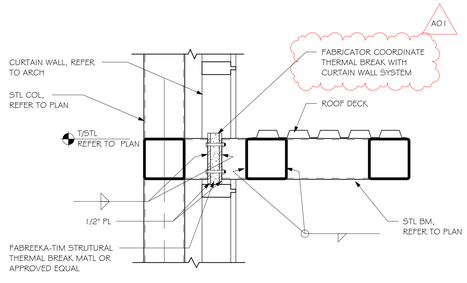
5 TYPICAL ANCHOR ROD DETAIL
SCALE: N.T.S.

NOTES:
1. DESIGN CONNECTION TO DEVELOP 100% OF BEAM REACTION SHOWN ON PLAN. 15 K MIN.
2. PROVIDE ERECTION SEAT OR OFFSET ANGLES WHERE REQUIRED BY OSHA
3. LENGTH OF DOUBLE ANGLES SHALL BE AT LEAST ONE HALF THE DEPTH OF THE FRAMED MEMBER
4. ALL BOLTED DOUBLE ANGLE CONNECTIONS IN ACCORDANCE W/ AISC ALSO ACCEPTABLE

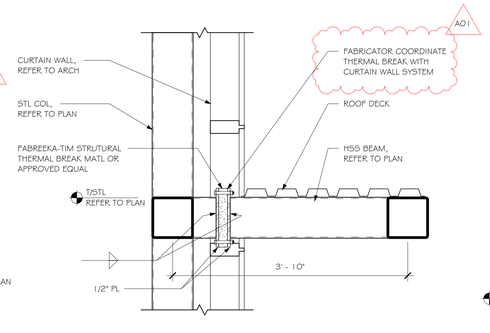


TYPICAL HSS BEAM TO HSS COLUMN MOMENT CONNECTION
SCALE: N.T.S.

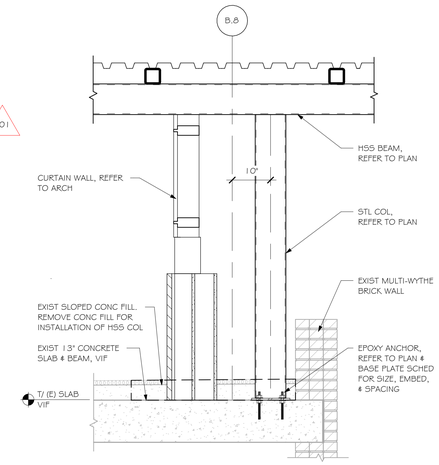
NOTES:
1. DESIGN CONNECTION TO DEVELOP 100% OF BEAM REACTION SHOWN ON PLAN. 15 K MIN.
2. PROVIDE ERECTION SEAT OR OFFSET ANGLES WHERE REQUIRED BY OSHA
3. LENGTH OF DOUBLE ANGLES SHALL BE AT LEAST ONE HALF THE DEPTH OF THE FRAMED MEMBER
4. ALL BOLTED DOUBLE ANGLE CONNECTIONS IN ACCORDANCE W/ AISC ALSO ACCEPTABLE



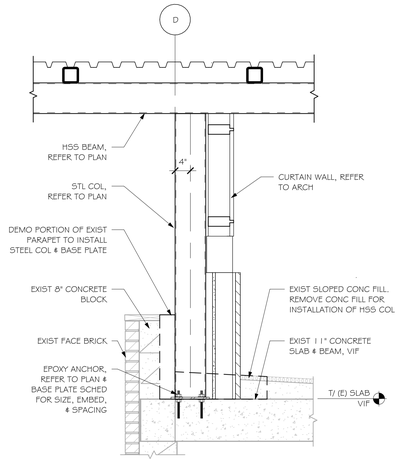
7 VESTIBULE THERMAL ISOLATION CONNECTION
SCALE: N.T.S.



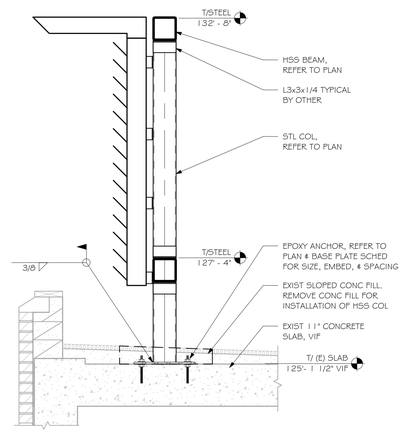
8 VESTIBULE CANOPY CONNECTION
SCALE: N.T.S.



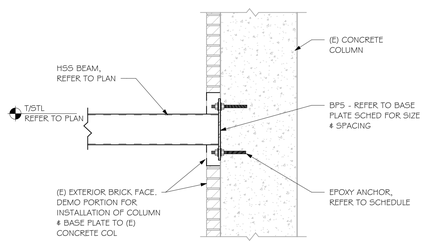
9 HSS COL CONNECTION AT ROOF
SCALE: N.T.S.



10 HSS COL CONNECTION AT ROOF
SCALE: N.T.S.



11 SCREENWALL CONNECTION
SCALE: N.T.S.



12 HSS CONNECTION TO (E) CONCRETE COL
SCALE: N.T.S.

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Project Title: **WESTERN TECHNICAL COLLEGE INNOVATION CENTER**

Project Location: **405 8TH STREET NORTH LA CROSSE, WI**

Sheet Title: **STEEL DETAILS & SCHEDULES**

HSR / Ramaker Project Number: **24003 / 60597**

Project Date: **AUGUST 2024**

Drawn By: **KLC**

Key Plan:

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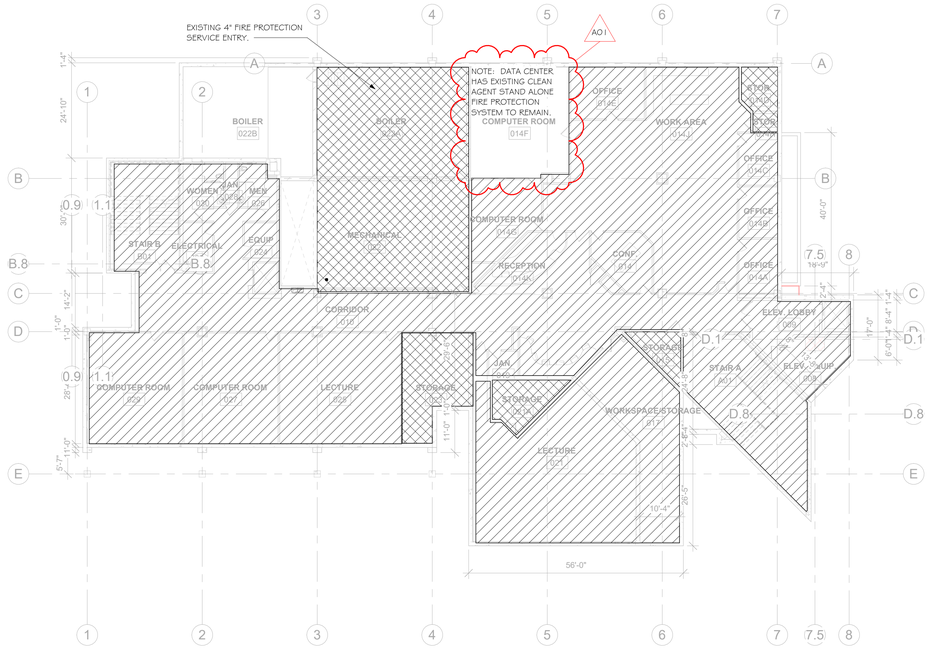
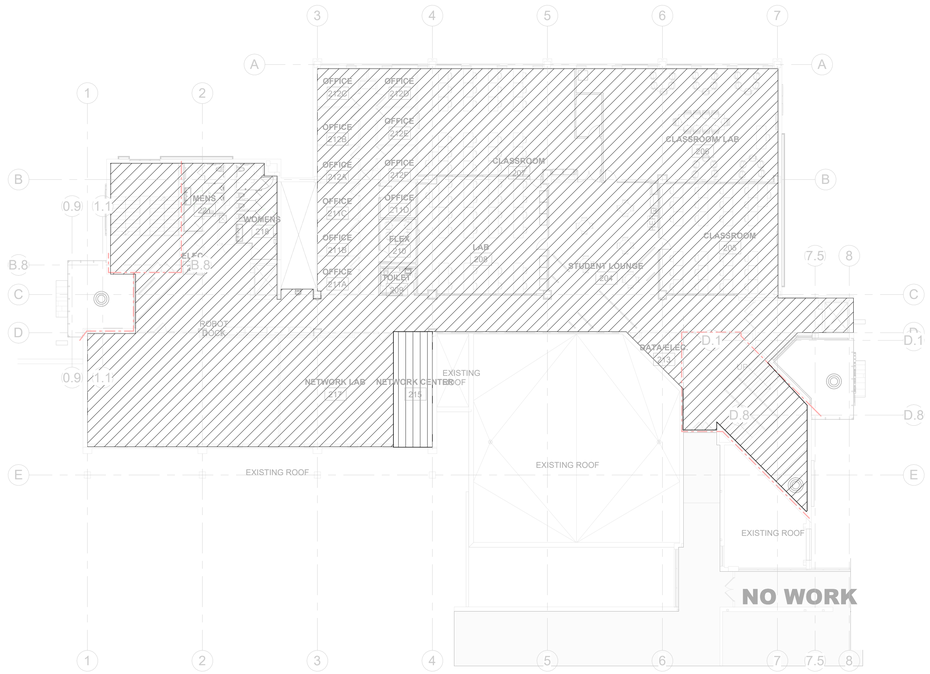
S501



1 BELOW GRADE PLAN
SCALE: 1/16" = 1'-0"

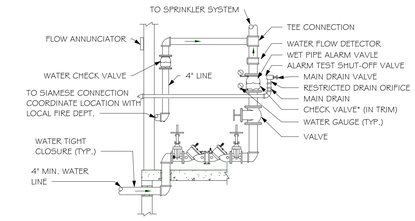


3 SECOND FLOOR PLUMBING PLAN
SCALE: 1/16" = 1'-0"

2 FIRST FLOOR PLUMBING PLAN
SCALE: 1/16" = 1'-0"

- NFPA 13 LIGHT HAZARD
- NFPA 13 ORDINARY HAZARD
- SERVER ROOM 215, CLEAN AGENT SYSTEM (NFPA 2001) RECOMMENDED IF SERVERS ARE OF A CRITICAL IMPORTANCE.

ELEVATOR SHAFT NOTE. IF ELEVATOR SHAFT IS NON COMBUSTIBLE AND IF ELEVATOR IS NOT A HYDRAULIC ELEVATOR SPRINKLERS MAY BE OMITTED. ALSO IF ELEVATOR IS NOT HYDAULIC THE SPRINKLERS MAY BE OMITTED IN THE MACHINE ROOM. HYDRAULIC ELEVATORS REQUIRE SPRINKLER IN PIT AND TOP OF SHAFT AND IN MACHINE ROOM. THIS NOTE IS FOR GUIDANCE ENSURE ALL NFPA, ELEVATOR AND LOCAL CODES AND STANDARDS ARE FOLLOWED.



4 FIRE PROTECTION RISER SCHEMATIC
SCALE: N.T.S.

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Project Title: HSR WTC Wanek Innovation Center
Project Location: LACROSSE, WI
Sheet Title: FIRE PROTECTION SCOPE PLAN

HSR/Ramaker Project Number: 24003/60597
Project Date: AUGUST 2024
Drawn By: DER
Key Plan:

Revisions:

No.	Description	Date
1	Addendum #01	08/09/2024

Graphic Scale: VARIES
Last Update: 8/6/2024 10:38:44 AM

FP100

Keynote Legend	
Key Value	Keynote Text
1	REMOVE EXISTING WATER CLOSET AND FLUSH VALVE. CAP SUPPLY AND SANITARY IN PREPARATION OF DIRECT REPLACEMENT NEW FIXTURE INSTALLATION.
2	REMOVE EXISTING WATER CLOSET AND FLUSH VALVE. REMOVE SUPPLIES AND SANITARY INCLUDING CARRIER CAP AT MAINS.
3	REMOVE EXISTING WASH FOUNTAIN. CAP SUPPLIES AND SANITARY IN PREPARATION OF NEW FIXTURE INSTALLATION.
4	REMOVE EXISTING URINAL AND FLUSH VALVE. CAP SUPPLY AND SANITARY IN PREPARATION OF RECONNECTION TO REPOSITIONED NEW URINALS.
5	REMOVE EXISTING LAVATORY, FAUCET AND SUPPLY LINES. CAP SUPPLIES AND SANITARY AT MAINS.

EXISTING STORM, SANITARY, SANITARY VENT, COLD WATER, HOT WATER, AND HOT WATER RETURN PIPING IN CHASE TO REMAIN. RELOCATION POSSIBLE IF NEEDED.

REMOVE EXISTING WATER COOLERS IN PREPARATION OF REPLACEMENT.

NOTE: VISUALLY INSPECT EXISTING DRAIN PIPING MAINS WITH A SEWER CAMERA FOR SOUNDNESS AND PARTIAL BLOCKAGES. IF PIPING IS FOUND TO BE SOUND HYDRO-JET EXISTING MAIN PIPING WITH MAXIMUM 2000PSI SYSTEM TO THE POINT OF BUILDING EXIT. IF PIPING STURTURAL CONDITION ISSUES ARE DISCOVERED REPLACE EXISTING PIPING TO RETURN SYSTEM TO FULL SAFE FUNTION.FOLLOW ASTM F3618-22 USE CARE WITH EXISTING CAST IRON RUNS.

A01

REINSTALL IN ROOM 105D

REINSTALL IN ROOM 105M

DN

UP

NO WORK

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

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Project Title: HSR WTC Wanek Innovation Center

Project Location: LACROSSE, WI

Sheet Title: PLUMBING REMOVAL FIRST FLOOR PLAN

HSR/Ramaker Project Number: 24003/60597

Project Date: AUGUST 2024

Drawn By: DER

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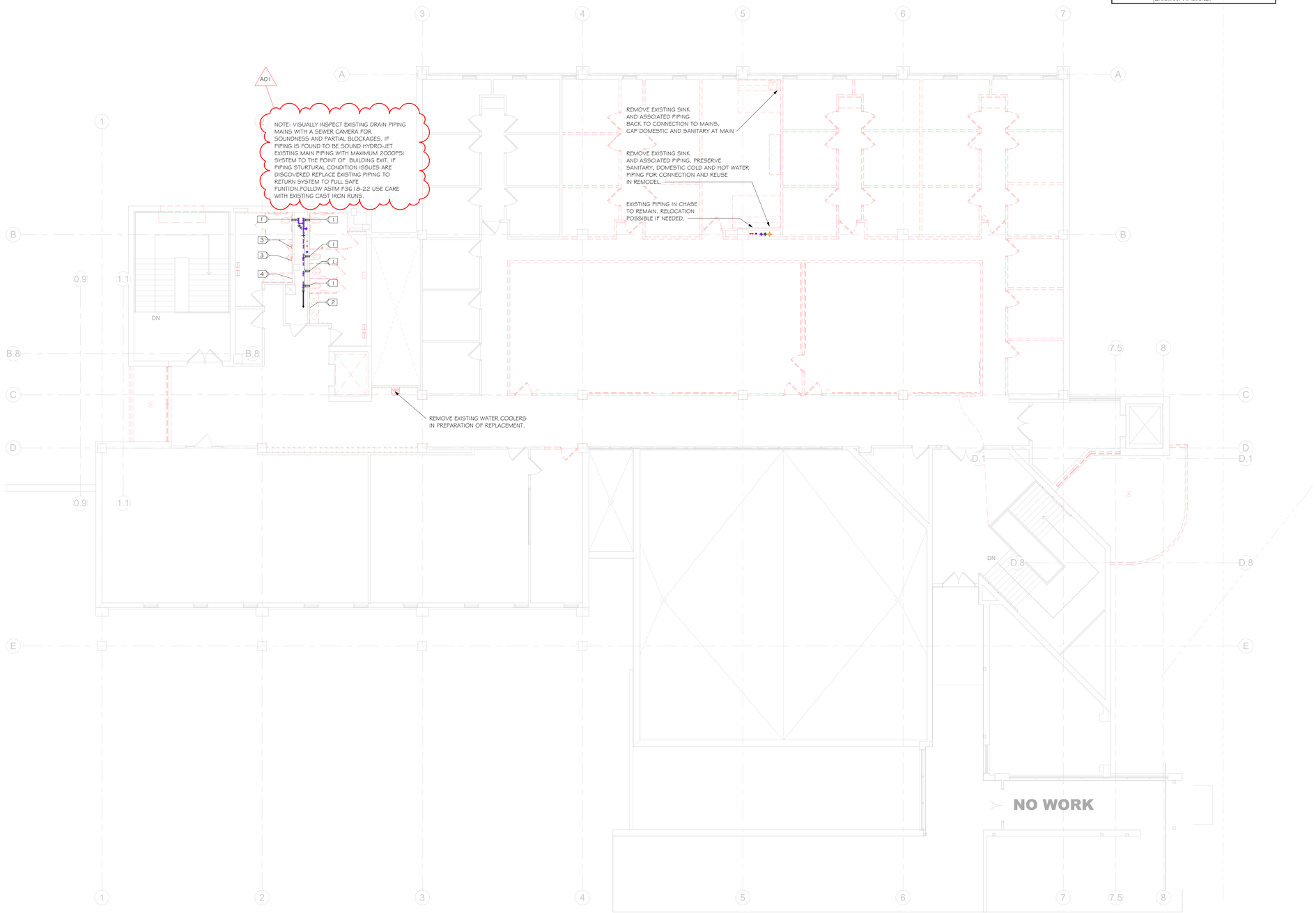
No.	Description	Date
A01	Addendum #01	08/09/2024

Graphic Scale: VARIES

Last Update: 8/8/2024 8:35:46 AM

P91

Keynote Legend	
Key Value	Keynote Text
1	REMOVE EXISTING WATER CLOSET AND FLUSH VALVE, CAP SUPPLY AND SANITARY IN PREPARATION OF DIRECT REPLACEMENT NEW FIXTURE INSTALLATION.
2	REMOVE EXISTING WASH FOUNTAIN, CAP SUPPLIES AND SANITARY IN PREPARATION OF NEW FIXTURE INSTALLATION.
3	REMOVE EXISTING URINAL AND FLUSH VALVE, CAP SUPPLY AND SANITARY IN PREPARATION OF RECONNECTION TO REPOSITIONED NEW URINALS.
4	REMOVE EXISTING LAVATORY, FAUCET AND SUPPLY LINES, CAP SUPPLIES AND SANITARY AT MAINS.



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

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Project Title: HSR WTC Wanek Innovation Center

Project Location: LACROSSE, WI

Sheet Title: PLUMBING REMOVAL SECOND FLOOR PLAN

HSR/Ramaker Project Number: 24003/60597

Project Date: AUGUST 2024

Drawn By: DER

Key Plan:

Revisions:

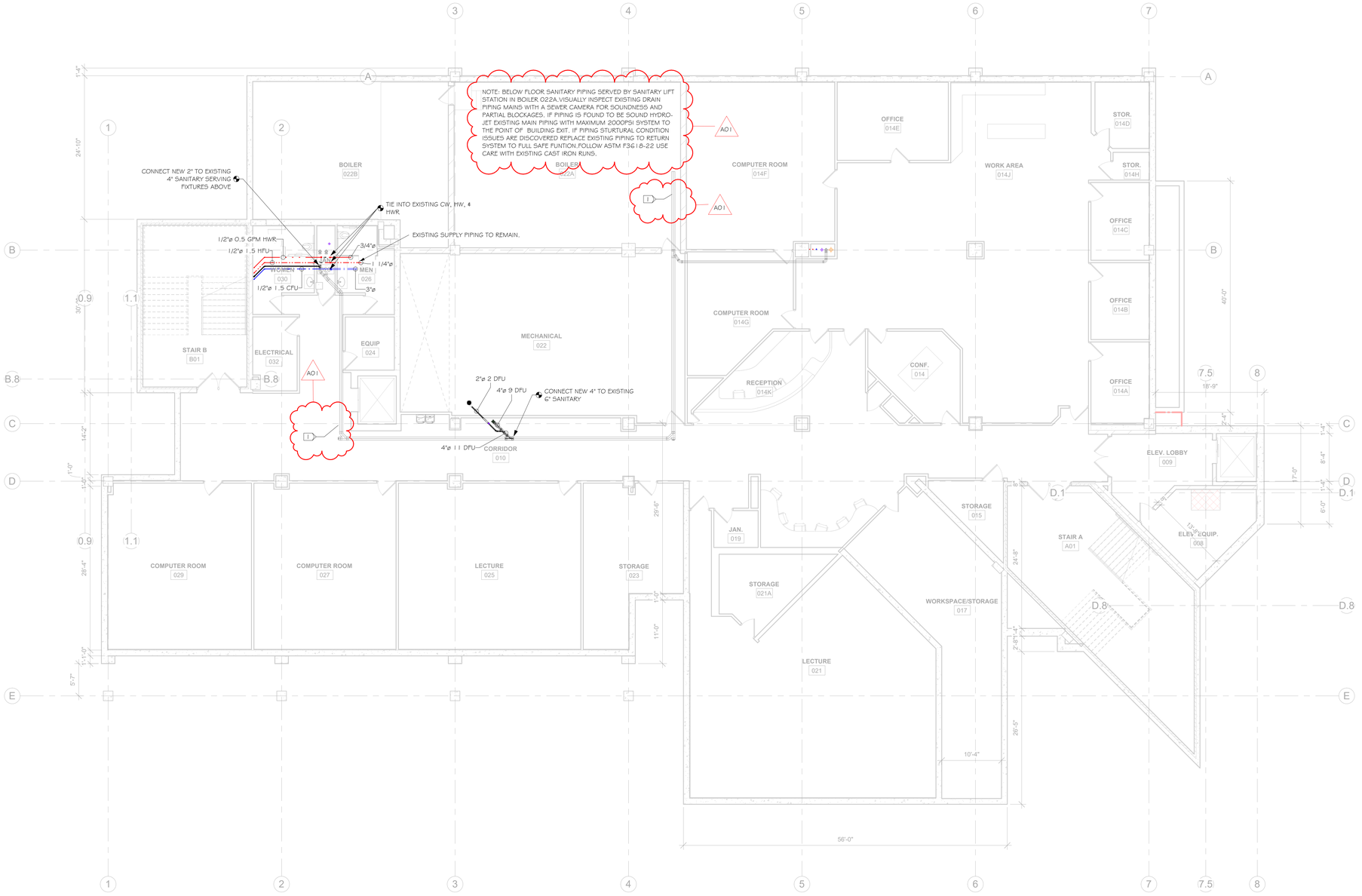
No.	Description	Date
A01	Addendum #01	08/09/2024

Graphic Scale: VARIES

Last Update: 8/8/2024 8:35:47 AM

P92

Keynote Legend	
Key Value	Keynote Text
1	ENSURE EXISTING PIPE HAS BEEN CLEANED PER NOTE ON PLUMBING SHEET P9.1.



1 BELOW GRADE PLAN
SCALE: 1/8" = 1'-0"

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Project Title: HSR WTC Wanek Innovation Center
Project Location: LACROSSE, WI
Sheet Title: PLUMBING BELOW GRADE

HSR/Ramaker Project Number: 24003/60597

Project Date: AUGUST 2024

Drawn By: DER

Key Plan:

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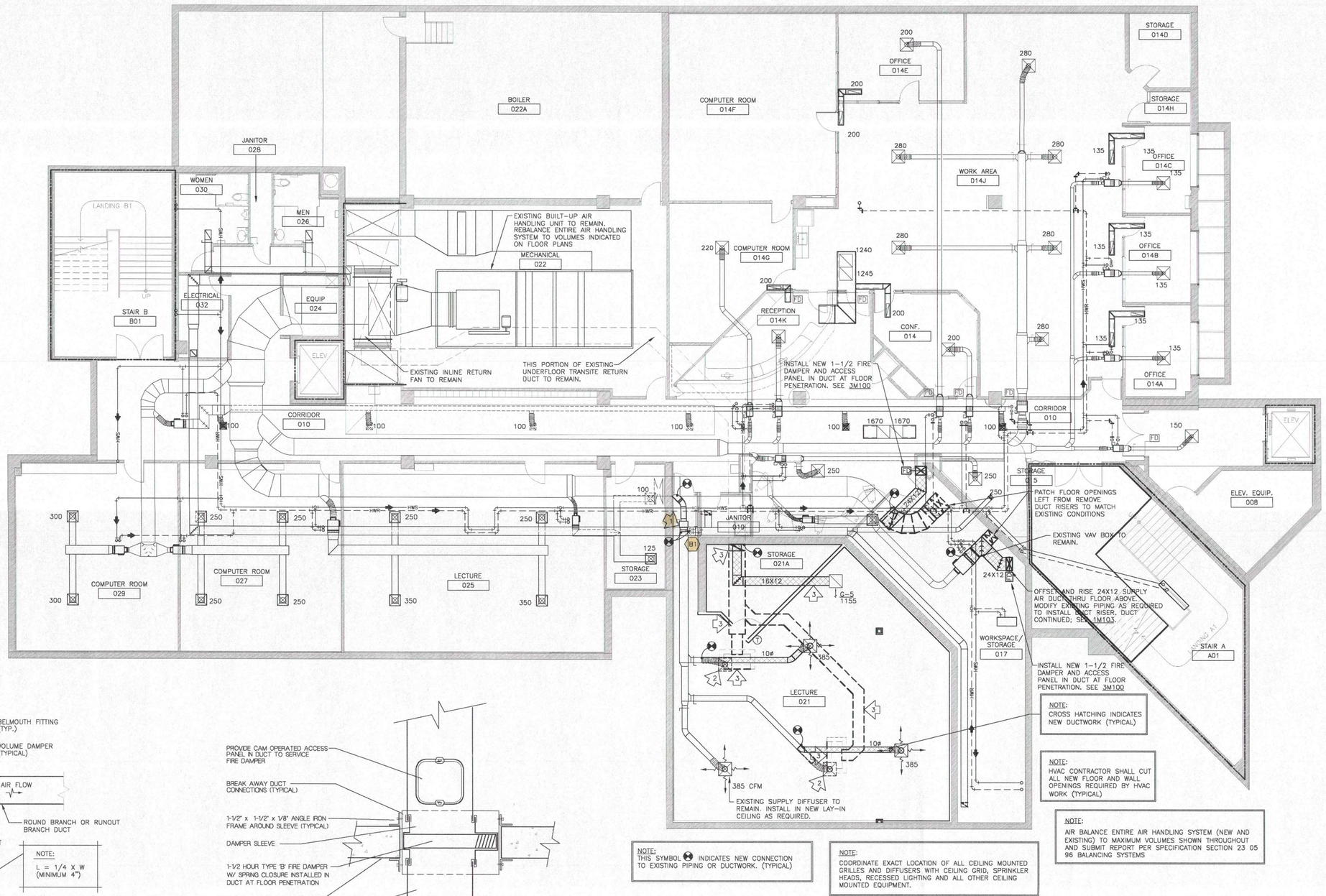
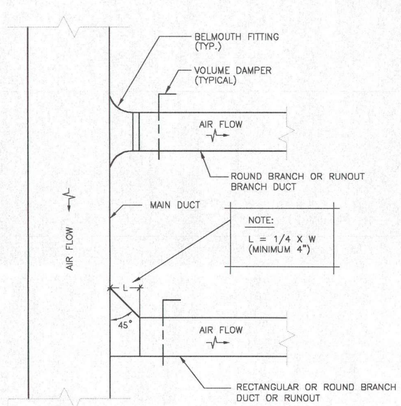
P100



1 BASEMENT DUCTWORK PLAN
1/8" = 1'-0"



2 TYPICAL BRANCH TAKE-OFF
NTS

NOTES
1. FIRE DAMPER MUST BE INSTALLED IN STRICT ACCORDANCE WITH NFPA 90-A
2. PROVIDE ACCESS DOOR IN DUCT ADJACENT TO FIRE DAMPER
3. DO NOT FASTEN ANGLE IRON FRAME TO FLOOR STRUCTURE
4. ANGLE IRON FRAME MUST OVERLAP OPENING BY 1" (MINIMUM) ON ALL SIDES

3 TYPICAL HORIZONTAL FIRE DAMPER
NTS

AIR DUCT CLEANING NOTE:
SEE SECTION 23 01 30 HVAC AIR DUCT CLEANING FOR SCOPE DETAILS. ALL AHU DUCTWORK, VAV BOXES, ASSOCIATED COILS, GRILLES, RESTROOM EXHAUST DUCTWORK. THIS PLAN IS FOR REFERENCE ON EXISTING BASEMENT DUCTWORK.

HVAC REMODEL/REMODEL NOTES

1. REMOVE EXISTING VAV BOX WITH REHEAT COIL AND REPLACE WITH NEW. MAKE NEW PIPING AND DUCT CONNECTIONS TO EXISTING.
2. REMOVE CEILING DIFFUSER AND RELOCATE WHERE SHOWN. EXTEND BRANCH DUCTS AND MAKE NEW DUCT CONNECTIONS TO INLETS. RE-BALANCE TO AIR FLOW SHOWN.
3. THIS PORTION OF UNDERFLOOR TRANSITE RETURN DUCT SHALL BE EXPOSED BY G.C. AND REMOVED BY OWNER'S ABATEMENT CONTRACTOR. THE HVAC CONTRACTOR SHALL REMOVE RETURN GRILLES IN FLOOR SOFFIT AND MAKE NEW RETURN DUCT CONNECTION TO EXISTING TRANSITE DUCT AND RISE NEW SHEET METAL DUCT EXPOSED TIGHT TO WALL AND OFFSET INTO CEILING SPACE.

NORTH

1 EXISTING BASEMENT PLAN
1/8" = 1'-0"

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Consultant:

Project Title: WESTERN TECHNICAL COLLEGE
INNOVATION CENTER

Project Location: 405 8TH STREET NORTH
LA CROSSE, WI

Sheet Title: EXISTING BASEMENT PLAN

HSR Project Number: 24003

Project Date: AUGUST 2024

Drawn By: JB

Key Plan:

Revisions:

No.	Description	Date
A1	ADDENDUM #01	08/09/2024

Graphic Scale: VARIES

Last Update: 8/7/2024 4:56:55 PM

A1

M104