ADDENDUM NO. 1

TO: PLANS AND SPECIFICATIONS FOR
STATE OF MISSOURI

Harrisonville Readiness Center
Repairs to Interior/Exterior
1503 S. Jefferson Parkway
Harrisonville, MO 64701
PROJECT NO. T2334-01

Bid Opening Date: 1:30 PM, September 9, 2025 (Not Changed)

Bidders are hereby informed of the following:

SPECIFICATION CHANGES*:*

Revise SECTION 00 01 10 TABLE OF CONTENTS
Add SECTION 00 43 22 UNIT PRICES to Table of Contents
Add SECTION 01 22 00 UNIT PRICES to Table of Contents
Delete SECTION 10 51 29 PHENOLIC LOCKERS from Table of Contents
Add SECTION 22 13 19.13 - SANITARY DRAINS to Table of Contents
Add SECTION 22 42 00 - COMMERICAL PLUMBING FIXTURES to Table of Contents

Revise SECTION 00 01 15 - LIST OF DRAWINGS
Revise dates of revised sheets in Addendum 01

Revise SECTION 00 52 13 – CONSTRUCTION CONTRACT, ARTICALE 2. TIME OF COMPETION. The 120 working days is revised to 180 working days.

Add SECTION 01 22 00 UNIT PRICES

Revise SECTION 01 33 00 SUBMITTALS, Part 3, Section 3.1 Required Submittals, A - Schedule registry table. Remove reference to 09 65 13 Resilient Base and Accessories and 12 36 61.19 Phenolic Lockers.

Revise SECTION 06 16 00 SHEATHING. Add 2.2 ROOF SHEATHING

Revise SECTION 07 41 13.16 STAMDING- SEAM METAL ROOF PANELS, Part 2, 2.3 Underlayment Materials, B Slip Sheet. Delete slip sheet from specifications.

Revise SECTION 07 54 23 - THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING.
Delete Vapor Retarder from section.
Revise Part 2, 2.2 Performance Requirements, D, 1 Wind-Uplift Capacity from 120 to 90 psf
Revise Part 2, 2.3 Thermoplastic Polyolefin (TPO) Roofing System, A, 2 Thickness from 60mil to 80 mil, nominal
Delete Part 2, 2.5 Vapor Retarder in its entirety
Revise Part 2, 2.6 Roof Insulation and Accessories, B, 2 Compressive Strength Grade from 3 to 2 and psi from 25 to 20.
Delete Part 2, 2.6 Roof Insulation and Accessories, D, 1, a and b in their entirety.

Delete Part 2, 2.6 Roof Insulation and Accessories, D, 3 & 4 in their entirety.
Delete Part 3, 3.4 Installation of Vapor Retarder in its entirety
Delete Part 3, 3.5 Installation of Roof Insulation and Accessories, C, 9 and 10 in their entirety.

Revise SECTION 08 71 00 – DOOR HARDWARE, 3.7 Door Hardware Schedule, A Hardware Set 1

Add SECTION 22 13 19.13 - SANITARY DRAINS

Add SECTION 22 42 00 - COMMERCIAL PLUMBING FIXTURES

DRAWING CHANGES:

Revise AS-102 SITE DETAILS – Delete details 1 and 3

Revise A-102 ROOF PLAN – 1 ROOF PLAN and ROOF PLAN NOTES

Revise A-401 ENLARGED PLANS – 1 ENLARGED FLOOR PLAN RESTROOM

Revise A-402 ENLARGED PLANS – 1 ENLARGED FLOOR PLAN LOCKEROOM and FLOOR PLAN NOTES

Revise A-404 INTERIOR ELEVATIONS WOMANS RESTROOM –ELEVATION, 2-WOMAN RESTROOM SOUTH

Revise A-600 SCHEDULES – Delete hardware set

Revise M401 - ENLARGED MECHANICAL PLAN – ENLARGED MECHANICAL PLAN and MECHANICAL KEYNOTES

Revise M701 - MECHANICAL SCHEDULES – PLUMBING FIXTURE SCHEDULE and SHOWER ISO

Revise E102 – POWER FLOOR PLAN – POWER FLOOR PLAN

Revise E401 ENLARGED ELECTRICAL PLANS – ENLARGED RESTROOM POWER PLAN

BIDDER QUESTIONS AND RESPONSES:

1. We discussed about not using the carriers on the wall hung lavatories just using the wall bracket.
   Yes, just wall brackets for sinks at men's restroom.

2. The stool on note 3-page M401 is different then the one on the schedule. We are good with the on scheduled.
   Schedule will be updated accordingly.

3. The schedule does show the same stool for the ADA and standard stools. Are they wanting to have the higher toilets for all of them?
   No, the toilets will be standard height and ADA height. Schedule and drawings will be updated accordingly.

4. The trench drains for the shower area, are there any spec's on them?
   Trench drain specifications in has been added to Addendum 01

5. The ISO drawing shows 3 but the M401 shows 2 with one going under the wall?
   Iso drawing has been updated to match Architectural plans.

6. Do we have spec's on the shower valves. Are they surface mounted or are we putting them in the block wall.
   They will be inside the wall.

7. The urinals on M401 note 5 existing to remain insure no damage. On ADP-401 note 3 says to remove the toilets and urinals. Are we pulling and resetting after the walls are painted.
   Yes, the toilets and urinals are to be removed for epoxy wall finish and reset.

8. Do we need a per unit cost for repair/replacement on the flush valves?
   Per owner direction, all flush valves are to be replaced; replacements to be manual flush valves.

9. What is the square footage of the building?
   The gross area of the building is 18,000 sqft

10. What is the projected start date of the project?
    The start date will depend on when the bids come in and the letter of intent/NTP is issued. It can be within a few days or a few weeks depending on the circumstances of the bids. The work days will always start from the NTP date. The pre-construction meetings are set up thereafter by the CA.

11. What is the existing Fire Alarm system to match?
    The building does not have a Fire Alarm system. The fire horn strobe have been removed from the project.

12. TPO roofing specification calls for 30-year warranty but specified 60 mil TPO. A 30-year warranty requires minimum 80 mil thickness TPO membrane. Please advise if this will be 20-year warranty or 80 mil system?
    Specification revised to a minimum 80 mil membrane for a 30-year warranty.

13. The TPO specification specifies a 120 psf uplift capacity for the new roof. This uplift far exceeds the calculated pressures for this structure and will require additional installation requirements to achieve this type of uplift rating. Would a standard 90 psf uplift resistance be acceptable for the new roof assembly as 90 psf in the field of the roof should also exceed calculated uplift pressures.
    Specification revised to a standard 90 psf for the field of the roof.

14. TPO specification section 2.5 references a vapor barrier for the roof. This isn't noted in the TPO roof details. Can it be clarified if a vapor barrier is required for the new TPO roof assembly? Note that certain products that meet the 2.5 product requirements for vapor

barrier could keep the assembly from being class 1 interior fire resistant without the use of a thermal barrier.

Specification revised. Vapor barrier removed from the TPO assembly.

15. TPO specification calls for the insulation to be grade 3 (25 psi). Grade 2 (20 psi) is standard roof insulation. Please clarify if Grade 2 20 psi is acceptable. Please clarify if roof insulation is to be R-30 minimum per detail or 4" per roof plan notes and specifications

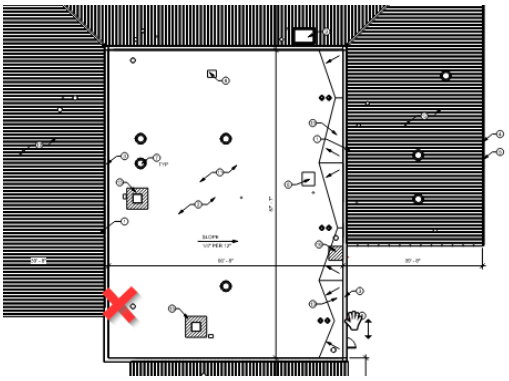
    Specification revised to Grade 2 (20psi) roof insulation.

16. TPO specification references induction plates for the membrane. Please clarify if the new TPO assembly is to be adhered or induction weld attachment.

    Specification revised. Roof to be fully adhered. Induction Welding Plates removed from specifications.

17. Is the core information for the existing roof assembly available? Can it be clarified if the existing deck is flat (requiring full tapered insulation) or structurally sloped?

    See the sample image below taken at the pre-bid meeting and sketch of approximate location of sample. Sample is 3 ½" thick. Deck is on structurally sloped frame. Tapered insulation will be needed for crickets at east side of roof.



18. Can the existing wall and roof assembly be confirmed beneath the standing seam roof and metal wall panels? The new standing seam detail seems to indicate installing the new metal roof direct to steel deck. Please clarify if a sheathing substrate is present beneath standing seam and panels and or if a new sheathing substrate is to be installed with the new assemblies

    No, the existing walls and deck is not observable. It is assumed that there is an existing wood substrate from the attached shop drawings for the roof and hat channels for the walls. It is assumed that that the substrate is in good condition and only minor areas will need to be replaced due to damage. See revised sheet A-102 ROOF PLAN note 17.

19. Pipe Drawings – The current set appears to lack plumbing/piping drawings. Please confirm whether complete plumbing drawings will be issued.

    No, we do not have existing drawings of the building. The notes just refer to tying into the nearest mains. Exact tie ins will need to be field verified.

20. Line Sizing – No line sizing information is provided. Please clarify how line sizes should be determined

    Line size has been added to drains. Sheet M701 has been revised. Existing line size is unknow will need to be field verified.

21. Tie-in Points – The documents do not indicate tie-in points for plumbing connections. Please advise the intended locations and requirements.
    Existing line size & location is unknow will need to be field verified.

22. Plan note #2 on M401 specifies the intent for the new shower systems in Women's Restroom 107. Under this plan note, it references providing and installing a Zurn Z415B floor drain. This plan note is depicted (3) times in the new shower cluster, so it is assumed there are (3) FD's required. This new shower cluster also calls for (3) new trench drains on both A-401 and M401. Is the intent to provide (3) trench drains and (3) floor drains? 23. There is also a reference to plan note #8 in the common area of the shower cluster for a floor drain as well. Please confirm overall drainage intent. If trench drains are required, please provide specifications. There are no specs currently provided.
    Refer to responses #4 and #5 in Addendum #1

23. Plan note #3 & #4 on A-401 calls for the removal and re-install of the existing urinals (typ). Plan note #5 on M401 calls for the existing urinals to remain (typ). Please confirm intent.
    Refer to responses #7 in Addendum #1

24. What is the existing key system for the Harrisonville Readiness Center?
    The keying system for the new door will be Best.

25. The door schedule on the drawings (Page A-600) show hardware Set 1 as 3 hinges x Push plate x Pull plate x closer x kickplate. The Hardware Specification 087100-11 Shows hardware Set 1 as 3 hinges x Entry function mortise lock x closer x kick plate. Which hardware set 1 do we have to supply? The set on the drawings or the set in the specifications.
    Hardware set remove from sheet A-600 SCHEDUES. Hardware set in specification section 08 71 00 DOOR HARDWARE, PART 3, SECTION 3.7 HARDWARE SHEDULE, A Hardware Set 1 Revised.

26. On page AS-100 – the parking lot says, "cap and seal". On page AS-102 – there are two different details "variable height" and "mill & overlay".
    a. I would just like confirmation on what to bid.
    There is no Mill and Overlay on the project the details on AS-102 revised in Addendum 01.

27. The parking lot does not have any curb and gutter around the perimeter; are you open to an edge mill and overlay?
    There is no Mill and Overlay on the project the details on AS-102 revised in Addendum 01 to removed details 1 Mill & Overlay Pavement Section and 3 Variable Height Overlay Section.

28. The drawings show three (3) trench drains in the new women's showers. However, these trench drains are not identified in the fixture schedule. Please clarify the following: Are these trench drains required to be provided and installed? If so, please provide the specifications, manufacturer, and model to be used. Confirm if they should be tied into the plumbing schedule or if they are a separate scope item.
    Yes, the trench drains are required to be installed. Trench drain specifications has been added to the project in Addendum 01. Sheet M701 MECHANICAL SCHEDULES has been revised in Addendum 01.

29. Sheet E 401. Are the fixtures above the sinks in the locker rooms being replaced, the new type isn't listed on the lighting schedule.
    These will be existing to remain. They will need to be removed for the new wall coating and reinstalled.

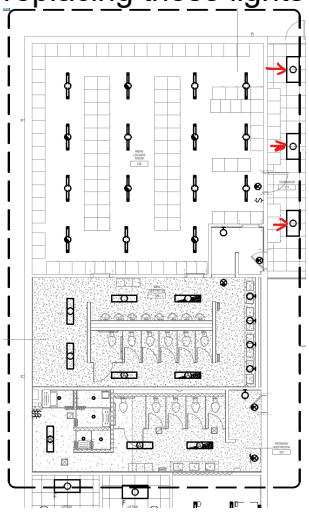
30. Sheet E401. Are the type A and D emergency fixtures battery back-up, they are not listed on the lighting schedule?
    They will be battery back-up and listed in the remarks in the light fixture schedule.

31. Sheet E 101. What is the fixture type in the Vault?
    Fixture will need to be field coordinated and replace with similar LED fixture.
32. Sheet 401.Are we changing all the H/S devices in the Men's locker room or just 1?
    Horn strobes are not needed and have been removed for the project scope.

33. Print E101 note 2. What make and model of low voltage switching do you want? Is it 120 low voltage or like a watt stopper low voltage?
    Voltage switch to be compatible with existing high-bay lights for off/on function. Leviton e5601 or equal.

34. Sheet E 101 the lights in the hallway are not shown to be replaced, are they?
    If fixtures are not LED – they should be replaced with LED fixture type F

35. The 3 fixtures in the hallway on print E101 don't have fixture designations. Are we replacing these lights or are they ETR? See below for more details.



    If fixtures are not LED – they should be replaced with LED fixture type F

36. Sheet AS-100 shows cap and seal asphalt, per section 012300 indicates Cap and seal existing parking lot and restripe, but details on sheet AS-102 indicates mill and overlay. Please advise that base bid includes no asphalt paving work, and the alternate is for only "Cap and Seal", and that there is no Mill and Overlay on this project.
    There is not Mill and Overlay on the project the details on AS-102 revised in Addendum 01.

37. Sheet A-401 Note 21 indicates for new concrete floor slab in entire Men's Restroom 109, Woman's Restroom 107, Woman's Shower 108. The Keynote is not shown in Men's Shower 110. Sheet ADP-401 indicates to remove floor tile and grind slab smooth to prepare for floor finish, with the only indication of slab demo in Woman's Shower 108 per

Note 14. Please provide clarification as to the extent of slab demo and patch back needed.

Note 21 removed from Men's Restroom on sheet A-401. For extent of removal of existing slab and replacement refer to ADP-401 hatched area.

38. Men's Locker Room 126 and Specification 105129. Sheet ADP-401 only shows a portion of the Men's Locker Room 126 and only shows a few of the lockers being removed for relocation. Sheet A-402 gives the impression that there maybe more lockers that need removed and relocated. Can the # of lockers that need to be moved and relocated be clarified.

    Reference response to question 39.

39. Men's Locker Room 126 and Specification 105129. Sheet A402 indicates that there are some lockers that need to be relocated to a Womens Locker Room. We couldn't find a Drawing showing the Woman's Locker Room. Please Advise.

    Existing lockers in existing Woman's locker room (ADP-401 note 13) to be relocated to Men's Locker Room with remaining unused locker turned over to owner. Note 20 on A-402 revised in Addendum 01.

40. The specifications call for the roof warranty to be 30 years but later specify a 60 Mil TPO. This would need to be a minimum of 80 Mil per manufacturer's base requirements. Would you like us to proceed with an 80 Mil/30-Year warranty or a 60 Mil 20-Year warranty?

    See the response to question #12.

41. Under the TPO specification, the insulation is called to be loose laid while the cover board is called to be adhered 075423-11,3.5/C/10. This is not an approved installation method. We can either fasten the top layer of insulation and adhere the cover board or fasten the cover board through the loose-laid insulation. Either way, we can meet performance specifications concerning uplift.

    Insulation is to be full adhered

42. On the next page, under the cover board installation specification, there is a call to install a slip sheet under the membrane and above the cover board. This is not approved in single ply roofing and does not work. Are we approved to omit this?

    The slip sheet is removed from the specifications in Addendum 01

43. There are multiple references to the steel deck specification section, but this is not available at this time. Will it be available before bids are due?

    No steel deck specification section to be provided. Refer to attachment Roof Deck shop submittal dated 12/13/86 for metal deck to match for replacement.

44. Specifications call for the roof specialties to be by PAC-Clad or Drexel, which doesn't match the standing seam specification. Is it possible to submit product substitution request for this.

    Yes, product substitution is allowed. Use required forms for review and approval.

45. Is the steel deck under the single ply roofing structurally sloped?

    Yes, the deck under the single ply is structurally sloped.

46. There is a Specification 105129 Phenolic Lockers, but we do not see any new lockers required, are we missing something?

There are no new lockers. 105129 Phenolic Locker specification removed from specification manual. Refer to response to question #46 for additional information.

GENERAL:

1. Please contact April Howser, Contract Specialist, at 573-751-0053 or April.Howser@oa.mo.gov for questions about bidding procedures, MBE\WBE\SDVE Goals, and other submittal requirements.

2. The deadline for technical questions is August 29, 2025, at Noon.

3. Changes to, or clarification of, the bid documents are only made as issued in the addenda.

4. All correspondence with respect to this project must include the State of Missouri project number as indicated above.

5. Current Plan Holders list available online at: *Bid Listing/ Electronic Plans (Projects Currently Bidding) | Office of Administration (mo.gov)* T233401 - Harrisonville Readiness Center-Repairs to Interior/Exterior, Readiness Center Building.

6. Prospective Bidders contact American Document Solutions, 1400 Forum Blvd Suite 7A, Columbia MO 65203, 573-446-7768 to order official plans and specifications.

7. All bids shall be submitted on the bid form without additional terms and conditions, modifications, or stipulations. Each space on the bid form shall be properly filled including a bid amount for the alternates. Failure to do so will result in rejection of the bid.

8. MBE/WBE/SDVE participation requirements can be found in DIVISION 00. The MBE/WBE/SDVE participation goals are 10%/10%/3%, respectively. Only certified firms as of the bid opening date can be used to satisfy the MBE/WBE/SDVE participation goals for this project. If a bidder is unable to meet a participation goal, a Good Faith Effort Determination Form must be completed. Failure to complete this process will result in rejection of the bid.

ATTACHMENTS:

1. Pre-Bid Sign-In Sheet
2. SECTION 00 01 10 TABLE OF CONTENTS
3. SECTION 00 01 15 LIST OF DRAWINGS
4. SECTION 00 43 22 UNIT PRICES FORM
5. SECTION 01 22 00 UNIT PRICES
6. SECTION 01 33 00 SUBMITTALS
7. SECTION 06 16 00 SHEATHING
8. SECTION 07 41 13.16 STANDING SEAM METAL ROOF PANELS

9. SECTION 07 54 23 THERMOPLASTIC- POLYOLEFIN (TPO) ROOFING
10. SECTION 08 71 00 DOOR HARDWARE
11. SECTION 22 13 19.13 - SANITARY DRAINS
12. SECTION 22 42 00 - COMMERCIAL PLUMBING FIXTURES
13. Roof Deck shop submittal dated 12/13/86
14. Mtl Roof Shop 1-1
15. Mtl Roof Shop 2-3
16. Mtl Roof Shop 3-3
17. AS-102 SITE DETAILS
18. A-102 ROOF PLAN
19. A-401 ENLARGED PLANS
20. A-402 ENLARGED PLANS
21. A-404 INTERIOR ELEVATIONS WOMANS RESTROOM
22. A-600 SCHEDULES
23. M401 - ENLARGED MECHANICAL PLAN
24. M701 - MECHANICAL SCHEDULES
25. E102 – POWER FLOOR PLAN
26. E401 ENLARGED ELECTRICAL PLANS

By the Order of:

Fred L. Decker Jr., Project Manager
Division of Facilities Management,
Design and Construction
September 3, 2025

END ADDENDUM NO. 1

Pre-Bid Meeting Attendance Sheet
Harrisonville Readiness Center-Repairs
Harrisonville Readiness Center
Harrisonville, Missouri

Project No. T2334-01
August 20, 2025 11:00AM

Name & Title	Company Name & Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee & E-Mail Address of Individual filling out Bid Documents
FLD Fred L. Decker Jr. Project Manager	OA-FMDC		573-751-8521	fred.decker@oa.mo.gov
Andy Carroll Sr. Architect PMU	OA-FMDC		573-751-8913	andy.carroll@oa.mo.gov
Ken Plautz Sr. Designer	Wellner Architects, Inc.		816-381-9045	kplautz@wellner.com
Jason Barker Architect	Wellner Architects, Inc.		816-381-9047	jason@wellner.com
BE. Bill Edwards PM MOWG	MONG D & C		573-638-9534	billy.j.edwards66.nfg@army.mil
TAKACH, MATTHEW RNCO	1251 ST		417 619 0052	MATTHEW.P.TAKACH.MIL@ARMY.MIL

Pre-Bid Meeting Attendance Sheet
Harrisonville Readiness Center-Repairs
Harrisonville Readiness Center
Harrisonville, Missouri

Project No. T2334-01
August 20, 2025 11:00AM

Name & Title	Company Name Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee and E-Mail Address of Individual filling out Bid Documents
Josh Hutchinson Project Mgr	Anchor Contractors LLC LC	MBE/ WBE	660-988-1234	Josh@anchorma.com
STEVE KELLEY PM RYAN TAYLOR	BROWN AND ROOT BROWN AND ROOT	GEN GEN	816 585 3753 573-441-0362	STEVE.KELLEY@BROWNANDROOT.COM RYAN.TAYLOR@BROWNANDROOT.COM
SCOTT TOWLEN ESTIMATOR	QUESTEC		816-806-2270	SCOTT.TOWLEN AT QUESTEC.US
JENNIFER HART PRESIDENT/OWNER	HARTLINE CONSTRUCTION	GC/WBE	816-921-6002 (C) 913-269-0481	JHART@HARTLINEKC.COM
Joe Johnson Estimator	Fine Cut Drilling & Sawing	Sub	816-680-2333	Joe@Finecutusa.com
Stuart Smith	Ambassador Drywall		8162780277	SmithAmbassador@Gmail.com

Pre-Bid Meeting Attendance Sheet
Harrisonville Readiness Center-Repairs
Harrisonville Readiness Center
Harrisonville, Missouri

Project No. T2334-01
August 20, 2025 11:00AM

Name & Title	Company Name Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee and E-Mail Address of Individual filling out Bid Documents
Todd Hinken	Camm Construction GC.		816-3658844	Todd@cammconstructioninc.com
Donnie Funk Est.	SCS DEMO		816-935-0977	dfunk@scs-kc.com
David Marr Est	Delta Innovative Services		913-371-7100	dmarr@deltaservices.com
AARON BRODERICK Chief	MARK One		562-948-7149	AARON.BRODERICK@markone.com
John Hunter	Westport Construction GC		660-885-2231	Bids@WCCMO.COM
Joe Reynolds	Childress Ptg		816/966/1700	joe@childressprinting.com
JOHN OKE-THOMAS	OKE-THOMAS	MBE	417.863-6262	JOHN@OKE-THOMAS.COM

Pre-Bid Meeting Attendance Sheet
Harrisonville Readiness Center-Repairs
Harrisonville Readiness Center
Harrisonville, Missouri

Project No. T2334-01
August 20, 2025 11:00AM

Name & Title	Company Name Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee and E-Mail Address of Individual filling out Bid Documents
Tom Davis Estimator	~~Tri-County Electric~~ TS	LBE	417 597 1726	TDavis@TricountyElectric.com
Dan Tottleben Estimator	Vazquez	MBE	816 812-3430	dant@vazquezcc.com
Jordan Reiff Project Manager	CAMM Construction		816-824-7189	Jreiff@cammconstructioninc.com
San Martino	In and Out Painting		816-350-9699	Sam@inandoutpaintkc.com
Paul Post	Roofers Local #20		816-313-9420	paul@roofers local20.com
SHANNON STEVART ESTIMATOR	BULLDOG DEMO	N/A	816 690 5649	SHANNON@BULLDOG-DEMO.COM

Pre-Bid Meeting Attendance Sheet
Harrisonville Readiness Center-Repairs
Harrisonville Readiness Center
Harrisonville, Missouri

Project No. T2334-01
August 20, 2025 11:00AM

Name & Title	Company Name Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee and E-Mail Address of Individual filling out Bid Documents
Tre Dixon Estimator	EC / Mark One	WBE	660-591-2007	tre.dixon@markone.com
David Madden	Vazquez CC	MBE	816-225-4576	davidma@vazquezcc.com
Michael Ashein	MSI Constructors		417-881 0903	Estimating@msiconstractors.com
Tandy Ibarra Small Projects Manager	Kosa electric		816 529 1415	Ibarra@Kosaelectric.com
Bryan Singleton Lead estimator	Dynamic Construction Group		816-908-1222	Bryan.Singleton@DynamicCG.Pro
MIKE THOMAS owner	MGT	MBE WBE	816 591 7815	~~Mike@MGTenterprise.com~~ micheal@mgtenterprise.com
Dalton Fifer UA	Weathercraft, Inc		573-635-0141	dtf@wcrfg.com

TABLE OF CONTENTS

END OF SECTION 000110

SECTION 000115 – LIST OF DRAWINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section provides a comprehensive list of the drawings that comprise the Bid Documents for this project.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 LIST OF DRAWINGS

A. The following list of drawings is a part of the Bid Documents:

TITLE	SHEET #	DATE
1. COVER SHEET	G-000	7/9/25
2. GENERAL INFORMATION	G-001	7/9/25
3. DEMOLITION ROOF PLAN	ADP-102	7/9/25
4. EXTERIOR DEMOLITION ELEVATIONS	ADP-201	7/9/25
5. ENLARGED DEMOLITION FLOOR PLAN	ADP-401	7/9/25
6. SITE PLAN	AS-100	7/9/25
7. SITE DETAILS	AS-102	7/9/25
8. FLOOR PLAN	A-100	7/9/25
9. REFLECTED CEILING PLAN	A-101	7/9/25
10. ROOF PLAN	A-102	**9/3/25**
11. EXTERIOR ELEVATIONS	A-201	7/9/25
12. ENLARGED PLANS	A-401	**9/3/25**
13. ENLARGED PLANS	A-402	7/9/25
14. ENLARGED REFLECTED CEILING PLANS	A-403	7/9/25
15. INTERIOR ELEVATIONS WOMANS RESTROOM	A-404	**9/3/25**
16. INTERIOR ELEVATION MENS RESTROOM	A405	7/9/25
17. DETAILS	A501	7/9/25
18. SCHEDULES	A600	**9/3/25**
19. GENERAL MECHANICAL INFORMATION	M001	7/9/25

20.	MECHANICAL FLOOR PLAN	M101	7/9/25
21.	MECHANICAL ROOF PLAN	M102	7/9/25
22.	ENLARGED MECHANICAL PLAN	M401	**9/3/25**
23.	MECHANICAL SCHEDULES	M701	**9/3/25**
24.	GENERAL ELECTRICAL INFORMATION	E001	7/9/25
25.	LIGHTING FLOOR PLAN	E101	7/9/25
26.	POWER FLOOR PLAN	E102	**9/3/25**
27.	POWER - ROOF	E103	7/9/25
28.	ENLARGED ELECTRICAL PLANS	E401	**9/3/25**
29.	DIAGRAMS	E501	7/9/25
30.	ELECTRICAL SCHEDULES	E701	7/9/25

END OF SECTION 000115

SECTION 004322 - UNIT PRICES FORM PROJECT NUMBER: T2334-01

1.0 Description

A. For changing specified quantities of work from those indicated by the contract drawings and specifications, upon written instructions of Owner, the following unit prices shall prevail. The unit prices include all labor, overhead and profit, materials, equipment, appliances, bailing, shoring, shoring removal, etc., to cover the finished work of the several kinds of work called for. Only a single unit price shall be given and it shall apply for either MORE or LESS work than that shown on the drawings and called for in the specifications or included in the Base Bid. In the event of more or less units than so indicated or included during construction the total contract price shall be decreased as appropriate or increased by contract change in accordance with General Conditions Article 4.1.

2.0 Unit Prices

A. Unit Price No. 1 – Metal Deck:

1. Description: Match existing metal deck. Refer to attached shop drawings labeled Roof Deck dated 12-13-1986, for roof deck assumed to be installed. Field verify installed deck matches provided shop drawings.
2. Unit of Measurement: Cost in place of one square foot of metal deck, as indicated on itemized invoice of supplier
3. Base Bid Quantity: one square foot

$ _____ per square foot

SECTION 012200 – UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

B. Quantities of Units to be included in the Base Bid are indicated in Section 004322 – Unit Prices.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Unit Prices.

B. Related Sections include the following:

1. Division 1 Section "Allowances" for procedures for using Unit Prices to adjust quantity allowances.
2. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
3. Division <Insert Division number> Section "<Insert Section title>"for procedures for measurement and payment for <Insert unit-price item>.

1.3 DEFINITIONS

A. Unit Price is an amount proposed by bidders, stated on the Bid Form Attachment 004322 a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Unit Prices include all necessary material plus cost for delivery, installation, insurance, overhead, and profit.

B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of Unit Prices. Methods of measurement and payment for Unit Prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of Work in-place that involves use of established Unit Prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A list of Unit Prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each Unit Price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. Unit Price No. 01 - Metal Deck

1. Description: Match existing metal deck. Refer to attached shop drawings labeled Roof Deck dated 12/13/86 for roof deck assumed to be installed. Field verify installed deck matches provided shop drawings.
2. Unit of Measurement: Cost in place of one square foot of metal deck, as indicated on itemized invoice of supplier.
3. Base Bid Quantity: One square foot

END OF SECTION 012200

SECTION 013300 – SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract including General and Supplementary Conditions, Bid Form, and other Division 1 Specification Sections apply to this Section.

B. Division 1, Section 013115 "Project Management Communications" for administrative requirements for communications.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submittals required for performance of the Work including the following:

1. Shop Drawings
2. Product Data
3. Samples
4. Quality Assurance Submittals
5. Construction Photographs
6. Operating and Maintenance Manuals
7. Warranties

B. Administrative Submittals: Refer to General and Supplementary Conditions other applicable Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:

1. Construction Progress Schedule including Schedule of Values
2. Performance and Payment Bonds
3. Insurance Certificates
4. Applications for Payment
5. Certified Payroll Reports
6. Partial and Final Receipt of Payment and Release Forms
7. Affidavit – Compliance with Prevailing Wage Law
8. Record Drawings
9. Notifications, Permits, etc.

C. The Contractor is obliged and responsible to check all shop drawings and schedules to assure compliance with contract plans and specifications. The Contractor is responsible for the content of the shop drawings and coordination with other contract work. Shop drawings and schedules shall indicate, in detail, all parts of an Item or Work including erection and setting instructions and integration with the Work of other trades.

D. The Contractor shall at all times make a copy, of all approved submittals, available on site to the Construction Representative.

1.3 SUBMITTAL PROCEDURES

A. The Contractor shall comply with the General and Supplementary Conditions and other applicable sections of the Contract Documents. The Contractor shall submit, with such promptness as to cause no delay in his work or in that of any other contractors, all required submittals indicated in Part 3.1 of this section and elsewhere in the Contract Documents. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    a. The Designer reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

B. Each drawing and/or series of drawings submitted must be accompanied by a letter of transmittal giving a list of the titles and numbers of the drawings. Each series shall be numbered consecutively for ready reference and each drawing shall be marked with the following information:

1. Date of Submission
2. Name of Project
3. Location
4. Section Number of Specification
5. State Project Number
6. Name of Submitting Contractor
7. Name of Subcontractor
8. Indicate if Item is submitted as specified or as a substitution

1.4 SHOP DRAWINGS

A. Comply with the General Conditions, Article 3.2.

B. The Contractor shall submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.

C. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings including the following information:

1. Dimensions
2. Identification of products and materials included by sheet and detail number
3. Compliance with specified standards
4. Notation of coordination requirements
5. Notation of dimensions established by field measurement
6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8½"x11" but no larger than 36"x48".

D. Shop Drawings submitted after 10am on Fridays will be log in on following Monday.

1.5 PRODUCT DATA

A. The Contractor shall comply with the General Conditions, Article 3.2.

B. The Contractor shall collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information including the following information:
   a. Manufacturer's printed recommendations
   b. Compliance with Trade Association standards
   c. Compliance with recognized Testing Agency standards
   d. Application of Testing Agency labels and seals
   e. Notation of dimensions verified by field measurement
   f. Notation of coordination requirements
2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

1.6 SAMPLES

A. The Contractor shall comply with the General Conditions, Article 3.2.

B. The Contractor shall submit full-size, fully fabricated samples, cured and finished as specified, and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.

1. The Contractor shall mount or display samples in the manner to facilitate review of qualities indicated. Prepare samples to match the Designer's sample including the following:
   a. Specification Section number and reference
   b. Generic description of the Sample

c. Sample source

d. Product name or name of the Manufacturer

e. Compliance with recognized standards

f. Availability and delivery time

2. The Contractor shall submit samples for review of size, kind, color, pattern, and texture. Submit samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least three (3) multiple units that show approximate limits of the variations.

b. Refer to other Specification Sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

c. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.

3. Field samples are full-size examples erected onsite to illustrate finishes, coatings, or finish materials and to establish the Project standard.

a. The Contractor shall comply with submittal requirements to the fullest extent possible. The Contractor shall process transmittal forms to provide a record of activity.

1.7 QUALITY ASSURANCE DOCUMENTS

A. The Contractor shall comply with the General Conditions, Article 3.2

B. The Contractor shall submit quality control submittals including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.

C. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the Manufacturer certifying compliance with specified requirements.

1. Signature: Certification shall be signed by an officer of the Manufacturer or other individual authorized to contractually bind the Company.

D. Inspection and Test Reports: The Contractor shall submit the required inspection and test reports from independent testing agencies as specified in this Section and in other Sections of the Contract Documents.

E. Construction Photographs: The Contractor shall submit record construction photographs as specified in this Section and in other Sections of the Contract Documents.

1. The Contractor shall submit digital photographs. The Construction Administrator shall determine the quantity and naming convention at the preconstruction meeting.

2. The Contractor shall identify each photograph with project name, location, number, date, time, and orientation.

3. The Contractor shall submit progress photographs monthly unless specified otherwise. Photographs shall be taken one (1) week prior to submitting.

4. The Contractor shall take four (4) site photographs from differing directions and a minimum of five (5) interior photographs indicating the relative progress of the Work.

1.8 OPERATING AND MAINTENANCE MANUALS AND WARRANTIES

A. The Contractor shall submit all required manufacturer's operating instructions, maintenance/service manuals, and warranties in accordance with the General Conditions, Article 3.5, and Supplementary Conditions along with this and other Sections of the Contract Documents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REQUIRED SUBMITTALS

A. Contractor shall submit the following information for materials and equipment to be provided under this contract.

SPEC SECTION		TITLE	CATEGORY
013200	1	Schedules	Construction Schedule
013200	1	Schedules	Schedule of Values
013200	1	Schedules	List of Subcontractors
013200	1	Schedules	Major Material Suppliers
01 7700	1	CSI Final Closeout Document	Schedule of Values
02 41 19	1	Selective Demolition	Test Report

03 3000	1	Cast-in-Place Concrete Product Data	Product Data
03 3000	2	Cast-in-Place Concrete Product Data	Design Mix
03 3000	3	Cast-in-Place Concrete Product Data	Shop Drawings
03 3000	4	Cast-in-Place Concrete Design Mix	Sample
03 3000	5	Cast-in-Place Concrete Design Mix	Certification
03 3000	6	Cast-in-Place Concrete Design Mix	Test Report
04 2000	1	Unit Masonry	Product Data
04 2000	2	Unit Masonry	Shop Drawing
04 2000	3	Unit Masonry	Design Mix
04 2000	4	Unit Masonry	Sample
04 2000	5	Unit Masonry	Certification
06 10000	1	Rough Carpentry	Product Data
06 10000	2	Rough Carpentry	Certification
06 1600	1	Sheathing	Product Data
06 1600	2	Sheathing	Shop Drawing

06 1600	3	Sheathing	Certification
06 1600	4	Sheathing	Test Report
07 2100	1	Thermal Insulation	Product Data
07 2100	2	Thermal Insulation	Test Report
07 4113.16	1	Standing Seam Metal Roof Panels	Product Data
07 4113.16	2	Standing Seam Metal Roof Panels	Shop Drawings
07 4113.16	3	Standing Seam Metal Roof Panels	Sample
07 4113.16	4	Standing Seam Metal Roof Panels	Test Report
07 4113.16	5	Standing Seam Metal Roof Panels	Warranty
07 4113.16	6	Standing Seam Metal Roof Panels	Operation / Maintenance Manual
07 5423	1	Thermoplastic-Polyolefin Roofing	Product Data
07 5423	2	Thermoplastic-Polyolefin Roofing	Shop Drawings
07 5423	3	Thermoplastic-Polyolefin Roofing	Sample
07 5423	4	Thermoplastic-Polyolefin Roofing	Certification
07 5423	5	Thermoplastic-Polyolefin Roofing	Test Report

07 5423	6	Thermoplastic-Polyolefin Roofing	Warranty
07 7100	1	Roof Specialties	Product Data
07 7100	2	Roof Specialties	Shop Drawings
07 7100	3	Roof Specialties	Sample
07 7100	4	Roof Specialties	Certification
07 7100	5	Roof Specialties	Test Report
07 7100	6	Roof Specialties	Warranty
07 7200	1	Roof Accessories	Product Data
07 7200	2	Roof Accessories	Shop Drawings
07 7200	3	Roof Accessories	Delegated Design Submittal
07 7200	4	Roof Accessories	Sample
07 7200	5	Roof Accessories	Operation / Maintenance Manual
07 9200	1	Joint Sealants	Product Data
07 9200	2	Joint Sealants	Shop Drawings
07 9200	3	Joint Sealants	Sample

07 9200	4	Joint Sealants	Test Report
07 9200	5	Joint Sealants	Warranty
07 9200	6	Joint Sealants	Operation / Maintenance Manual
08 1113	1	Hollow Metal Doors and Frames	Product Data
08 1113	2	Hollow Metal Doors and Frames	Shop Drawings
08 1113	3	Hollow Metal Doors and Frames	Schedule
08 7100	1	Door Hardware	Product Data
08 7100	2	Door Hardware	Shop Drawing
08 7100	3	Door Hardware	Schedule
08 7100	4	Door Hardware	Test Report
08 7100	5	Door Hardware	Warranty
08 7100	6	Door Hardware	Operation / Maintenance Manual
09 2216	1	Non-Structural Metal Framing	Product Data
09 2216	2	Non-Structural Metal Framing	Certification
09 2713	1	Glass fiber Reinforced Gypsum	Product Data

09 2713	2	Glass fiber Reinforced Gypsum	Shop Drawings
09 2900	1	Gypsum Board	Product Data
09 2900	2	Gypsum Board	Shop Drawings
~~09 6513~~	~~1~~	~~Resilient Base and Accessories~~	~~Product Data~~
~~09 6513~~	~~2~~	~~Resilient Base and Accessories~~	~~Sample~~
~~09 6513~~	~~3~~	~~Resilient Base and Accessories~~	~~Schedule~~
09 6723	1	Resinous Flooring	Product Data
09 6723	2	Resinous Flooring	Sample
09 6723	3	Resinous Flooring	Operation / Maintenance Manual
09 6723	4	Resinous Flooring	Manufacturer's Safety Data Sheet
09 9123	1	Interior Painting	Product Data
09 9123	2	Interior Painting	Sample
09 9123	3	Interior Painting	Schedule
10-2113.19	1	Plastic Toilet Compartments	Product Data
10 2113.19	2	Plastic Toilet Compartments	Shop Drawings

10 2113.19	3	Plastic Toilet Compartments	Sample
10 2113.19	4	Plastic Toilet Compartments	Schedule
10 2113.19	5	Plastic Toilet Compartments	Operation / Maintenance Manual
10 2113.19	6	Plastic Toilet Compartments	Delegated Design Submittal
10 2800	1	Toilet, Bath, and Laundry Accessories	Product Data
10 2800	2	Toilet, Bath, and Laundry Accessories	Schedule
10 2800	3	Toilet, Bath, and Laundry Accessories	Delegated Design Submittal
10 2800	4	Toilet, Bath, and Laundry Accessories	Warranty
10 2800	5	Toilet, Bath, and Laundry Accessories	Operation / Maintenance Manual
~~10 5129~~	~~1~~	~~Phenolic Lockers~~	~~Product Data~~
~~10 5129~~	~~2~~	~~Phenolic Lockers~~	~~Shop Drawings~~
~~10 5129~~	~~3~~	~~Phenolic Lockers~~	~~Sample~~
~~10 5129~~	~~4~~	~~Phenolic Lockers~~	~~Operation / Maintenance Manual~~
~~10 5129~~	~~5~~	~~Phenolic Lockers~~	~~Delegated Design Submittal~~
~~10 5129~~	~~6~~	~~Phenolic Lockers~~	~~Warranty~~

12 3661.19	1	Quartz Agglomerate Countertops	Product Data
12 3661.19	2	Quartz Agglomerate Countertops	Shop Drawings
12 3661.19	3	Quartz Agglomerate Countertops	Sample
12 3661.19	4	Quartz Agglomerate Countertops	Operation / Maintenance Manual
22 0529	1	CSI Hangers and Supports	Product Data
22 0553	1	Identification	Product Data
22 0593	1	Testing, Adjusting, and Balancing for Plumbing	TAB
22 0719	1	Plumbing Piping Insulation	Product Data
22 1000	1	Plumbing Piping	Product Data
22 1030	1	Plumbing Specialties	Product Data
22 1119	1	Domestic Water Piping Specialties	Product Data
22 1316	1	Sanitary Waste and Vent Piping	Product Data
22 1319	1	Sanitary Waste Piping Specialties	Product Data
22 3300	1	Electric, Domestic-Water Heaters	Product Data
22 4000	1	Plumbing Fixtures	Product Data

23 0548.13	1	Vibration Controls for HVAC	Product Data
23 0553	1	Identification for HVAC Piping and Equipment	Product Data
23 0593	1	Testing, Adjusting, and Balancing for Plumbing	TAB
23 0713	1	Duct Insulation	Product Data
23 3113	1	Metal Ducts	Product Data
23 3300	1	Air Duct Accessories	Product Data
23 3346	1	Flexible Ducts	Product Data
23 3700	1	Air Inlet and Outlet	Product Data
26 0529	1	Hangers and Supports for Electrical Systems	Product Data
26 0544	1	Sleeves and Sleeve Seals for Electrical Raceways and Cabling	Product Data
26 0553	1	Identification for Electrical Systems	Product Data
26 2726	1	Wiring Devices	Product Data
26 2813	1	Fuses	Product Data
26 2816	1	Enclosed Switches and Circuit Breakers	Product Data
26 5000	1	Lighting	Product Data

32 1216	1	Asphalt Paving	Product Data
32 1313	1	Concrete Paving	Product Data
32 1600	1	Sidewalks, and Curbs, Gutters	Product Data
32 1600	2	Concrete Paving Joint Sealant	Product Data

END OF SECTION 013300

SECTION 06 16 00 - SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof sheathing.
2. Parapet sheathing.
3. Sheathing joint-and-penetration treatment materials.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for plywood backing panels.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review air-barrier and water-resistant glass-mat gypsum sheathing requirements and installation, special details, transitions, mockups, air-leakage testing, protection, and work scheduling that covers air-barrier and water-resistant glass-mat gypsum sheathing.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Roof sheathing.
2. Parapet sheathing.
3. Composite nail base insulated roof sheathing.

B. Product Data Submittals: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Include physical properties of treated materials.
3. For fire-retardant treatments, include physical properties of treated plywood both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency in accordance with ASTM D5516.
4. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

5. For air-barrier and water-resistant glass-mat gypsum sheathing, include manufacturer's technical data and tested physical and performance properties of products.

C. Shop Drawings: For air-barrier and water-resistant glass-mat gypsum sheathing assemblies.

1. Show locations and extent of sheathing, accessories, and assemblies specific to Project conditions.
2. Include details for sheathing joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
3. Include details of interfaces with other materials that form part of air barrier.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, including list of ABAA-certified installers and supervisors employed by Installer, who work on Project.

B. Product Certificates: From air-barrier and water-resistant glass-mat gypsum sheathing manufacturer, certifying compatibility of sheathing accessory materials with Project materials that connect to or that come in contact with the sheathing.

C. Product Test Reports: For each air-barrier and water-resistant glass-mat gypsum sheathing assembly, indicating compliance with specified requirements, for tests performed by a qualified testing agency.

D. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated plywood.
2. Fire-retardant-treated plywood.
3. Foam-plastic sheathing.
4. Air-barrier and water-resistant glass-mat gypsum sheathing.

E. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer of air-barrier and water-resistant glass-mat gypsum sheathing.

1. Installer is to be licensed by ABAA in accordance with ABAA's Quality Assurance Program and is to employ ABAA-certified installers and supervisors on Project.

B. Testing Agency Qualifications:

1. For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.
2. For testing and inspecting agency providing tests and inspections related to air-barrier and water-resistant glass-mat gypsum sheathing: an independent agency, qualified in

accordance with ASTM E329 for testing indicated, and certified by Air Barrier Association of America, Inc.

1.6 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on field mockups.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Air-Barrier and Water-Resistant Glass-Mat Gypsum Sheathing Performance: Air-barrier and water-resistant glass-mat gypsum sheathing assembly, and seals with adjacent construction, are to be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies are to be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, tie-ins to other installed air barriers, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.

2.2 ROOF SHEATHING

A. Plywood Sheathing, Roofs: Match existing sheathing.

1. Span Rating: Match existing.
2. Nominal Thickness: Match existing.

2.3 PARAPET SHEATHING

A. Glass-Mat Gypsum Sheathing, Parapets: ASTM C1177/C1177M.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. CertainTeed; SAINT-GOBAIN
   b. Gold Bond Building Products, LLC provided by National Gypsum Company

2. Type and Thickness: Type X, 5/8 inch thick.

3. Size: 48 by 96 inches for vertical installation.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For parapet sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.
2. For parapet sheathing, provide fasteners with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours in accordance with ASTM B117.

B. Nails, Brads, and Staples: ASTM F1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Screws for Fastening Sheathing to Wood Framing: ASTM C1002.

E. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

F. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached.

1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C1002.

G. Screws for Fastening Composite Nail Base Insulated Roof Sheathing to Metal Roof Deck: Steel drill screws, in type and length recommended by sheathing manufacturer for thickness of sheathing to be attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours in accordance with ASTM B117. Provide washers or plates if recommended by sheathing manufacturer.

2.5 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

A. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.

1. Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches wide, 10 by 10 or 10 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. Table 2304.10.1, "Fastening Schedule," in the ICC's International Building Code.
2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in the ICC's International Residential Code for One- and Two-Family Dwellings.
3. ICC-ES evaluation report for fastener.

D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Coordinate parapet sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 INSTALLATION OF GYPSUM SHEATHING

A. Comply with GA-253 and with manufacturer's written instructions.

1. Fasten gypsum sheathing to wood framing with nails,or,screws.
2. Fasten gypsum sheathing to cold-formed metal framing with screws.
3. Install panels with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
4. Install panels with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.

B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.

C. Horizontal Installation: Install sheathing with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent panels

without forcing. Abut ends over centers of studs, and stagger end joints of adjacent panels not less than one stud spacing. Attach at perimeter and within field of panel to each stud.

1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
2. For sheathing under stucco cladding, panels may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.

D. Vertical Installation: Install vertical edges centered over studs. Abut ends and edges with those of adjacent panels. Attach at perimeter and within field of panel to each stud.

1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
2. For sheathing under stucco cladding, panels may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.

E. Seal sheathing joints in accordance with sheathing manufacturer's written instructions.

1. Apply elastomeric sealant to joints and fasteners and trowel flat. Apply sufficient amount of sealant to completely cover joints and fasteners after troweling. Seal other penetrations and openings.
2. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

F. Air-Barrier and Water-Resistant Glass-Mat Gypsum Sheathing:

1. Install accessory materials in accordance with sheathing manufacturer's written instructions and details to form a seal with adjacent construction, to seal fasteners, and ensure continuity of air and water barrier.

    a. Coordinate the installation of sheathing with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
    b. Install transition strip on roofing membrane or base flashing, so that a minimum of 3 inches of coverage is achieved over each substrate.

2. Connect and seal sheathing material continuously to air barriers specified under other Sections as well as to roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.
3. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
4. Wall Openings: Prime concealed, perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply preformed silicone extrusion, so that a minimum of 3 inches of coverage is achieved over each substrate. Maintain 3 inches of full contact over firm bearing to perimeter frames, with not less than 1 inch of full contact.

a. Transition Strip: Roll firmly to enhance adhesion.
b. Preformed Silicone Extrusion: Set in full bed of silicone sealant applied to walls, frame, and air-barrier material.

5. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, doors, and miscellaneous penetrations of sheathing material with foam sealant.
6. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.
7. Seal top of through-wall flashings to sheathing with an additional 6-inch- wide, transition strip.
8. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.
9. Repair punctures, voids, and deficient lapped seams in strips and transition strips extending 6 inches beyond repaired areas in strip direction.

END OF SECTION 06 16 00

SECTION 07 41 13.16 - STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Standing-seam metal roof panels.

B. Related Requirements:

1. Section 07 42 93 "Soffit Panels" for metal panels used in horizontal soffit applications.
2. Section 07 72 53 "Snow Guards" for prefabricated devices designed to hold snow on the roof surface, allowing it to melt and drain off slowly.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of roof accessories and roof-mounted equipment.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review structural loading limitations of deck purlins and rafters during and after roofing.
6. Review flashings, special details, drainage, penetrations, equipment curbs, and condition of other construction that affect metal panels.
7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
8. Review temporary protection requirements for metal panel systems during and after installation.
9. Review procedures for repair of metal panels damaged after installation.
10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.3 ACTION SUBMITTALS

A. Product Data: For standing-seam metal roof panels. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. Shop Drawings:

1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.

C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Metal Panels: 12 inches long by actual panel width. Include clips, fasteners, closures, and other metal panel accessories.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For standing-seam metal roof panels, for tests performed by a qualified testing agency.

C. Field quality-control reports.

D. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. UL-Certified, Portable Roll-Forming Equipment: UL-certified, portable roll-forming equipment capable of producing metal panels warranted by manufacturer to be the same as factory-formed products. Maintain UL certification of portable roll-forming equipment for duration of work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal panels during installation.

E. Copper Panels: Wear gloves when handling to prevent fingerprints and soiling of surface.

1.8 FIELD CONDITIONS

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

1.9 COORDINATION

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

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

1.10 WARRANTY

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

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

    a. Structural failures including rupturing, cracking, or puncturing.
    b. Deterioration of metals and other materials beyond normal weathering.

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

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

    a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
    b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
    c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

C. Special Weathertightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Energy Performance:
1. Provide roof panels according to one of the following when tested according to CRRC-1:

a. Three-year, aged solar reflectance of not less than 0.55 and emissivity of not less than 0.75.
b. Three-year, aged Solar Reflectance Index of not less than 64 when calculated in accordance with ASTM E1980.

B. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:

1. Wind Loads: As indicated on Drawings.
2. Other Design Loads: As indicated on Drawings.
3. Deflection Limits: For wind loads, no greater than 1/240 of the span.

C. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E1680 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft..

D. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E1646 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft..

E. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E2140.

F. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: UL 90.

G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

2.2 STANDING-SEAM METAL ROOF PANELS

A. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.

B. Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and a flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and mechanically seaming panels together.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. ATAS International, Inc.
b. Berridge Manufacturing Company.
c. CENTRIA, a Nucor Brand.
d. Dimensional Metals, Inc.

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

a. Nominal Thickness: 0.028 inch.
b. Exterior Finish: Two-coat fluoropolymer.
c. Color: Match Architect's samples.

3. Clips: Continuous One-piece fixed to accommodate thermal movement.

a. 0.028-inch- nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.
b. 0.0250-inch- thick, stainless steel sheet.

4. Joint Type: Single folded.
5. Panel Coverage: 16 inches.
6. Panel Height: 2.0 inches.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils thick, consisting of slip-resistant, polyethylene-film top

surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: Stable after testing at 240 deg F; ASTM D1970.
2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F; ASTM D1970.

3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. ATAS International, Inc.
    b. Carlisle WIP Products; a brand of Carlisle Construction Materials.
    c. Owens Corning.

~~**B. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.**~~

2.4 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C645; cold-formed, metallic-coated steel sheet, ASTM A653/A653M, G90 hot-dip galvanized coating designation or ASTM A792/A792M, Class AZ50 coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch-thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

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

D. Gutters: Formed from same material as roof panels, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch-long sections, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Furnish gutter supports spaced a maximum of 36 inches o.c., fabricated from same metal as gutters. Provide wire ball strainers of compatible metal at outlets. Finish gutters to match metal roof panels.

E. Downspouts: Formed from same material as roof panels. Fabricate in 10-foot-long sections, complete with formed elbows and offsets, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Finish downspouts to match gutters.

F. Roof Curbs: Fabricated from same material as roof panels, 0.048-inch nominal thickness; with bottom of skirt profiled to match roof panel profiles and with welded top box and integral full-length cricket. Fabricate curb subframing of 0.060-inch-nominal thickness, angle-, C-, or Z-shaped steel sheet. Fabricate curb and subframing to withstand indicated loads of size and height indicated. Finish roof curbs to match metal roof panels.

1. Insulate roof curb with 1-inch-thick, rigid insulation.

G. Panel Fasteners: Self-tapping screws designed to withstand design loads.

H. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.5 FABRICATION

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

B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

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

D. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

E. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

    a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured.

2.6 FINISHES

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

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Steel Panels and Accessories:

1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

PART 3 - EXECUTION

3.1 EXAMINATION

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

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

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

    a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

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

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

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.

3.3 INSTALLATION OF UNDERLAYMENT

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated below, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Extend underlayment into gutter trough. Roll laps with roller. Cover underlayment within 14 days.

1. Apply over the entire roof surface.

B. Slip Sheet: Apply slip sheet over underlayment before installing metal roof panels if required by manufacture.

C. Flashings: Install flashings to cover underlayment to comply with requirements specified in Section 076200 "Sheet Metal Flashing and Trim."

3.4 INSTALLATION OF STANDING-SEAM METAL ROOF PANELS

A. Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels.
2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
3. Install screw fasteners in predrilled holes.

4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Install flashing and trim as metal panel work proceeds.
6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:

1. Steel Panels: Use stainless steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
2. Aluminum Panels: Use aluminum or stainless steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized-steel fasteners for surfaces exposed to the interior.
3. Copper Panels: Use copper, stainless steel, or hardware-bronze fasteners.
4. Stainless Steel Panels: Use stainless steel fasteners.

C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.

1. Install clips to supports with self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
4. Watertight Installation:

    a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
    b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
    c. At panel splices, nest panels with minimum 6-inch end lap, sealed with sealant and fastened together by interlocking clamping plates.

F. Clipless Metal Panel Installation: Fasten metal panels to supports with screw fasteners at each lapped joint at location and spacing recommended by manufacturer.

G. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.

H. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

I. Gutters: Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to eave with gutter hangers spaced not more than 36 inches o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

J. Downspouts: Join sections with telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c. in between.
1. Connect downspouts to underground drainage system indicated.

K. Roof Curbs: Install flashing around bases where they meet metal roof panels.

L. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.5 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal 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.

3.6 FIELD QUALITY CONTROL

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

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

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

D. Prepare test and inspection reports.

3.7 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

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

END OF SECTION 07 41 13.16

SECTION 07 54 23 - THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Thermoplastic polyolefin (TPO) roofing system.
2. Accessory roofing system materials.
3. ~~Vapor retarder.~~
4. Roof insulation and accessories.
5. Cover board.

B. Related Requirements:

1. Section 053100 "Steel Decking" for roof deck panels.
2. Section 061000 "Rough Carpentry" for wood nailers, curbs, and blocking; and for wood-based, structural-use roof deck panels.
3. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
4. Section 077100 "Roof Specialties" for premanufactured copings.
5. Section 077200 "Roof Accessories" for manufactured roof curbs, equipment supports, roof hatches, vents, and other manufactured roof accessory units.
6. Section 079200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.2 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D1079 and glossary in NRCA's " Roofing Manual: Membrane Roof Systems" apply to Work of this Section.

1.3 PREINSTALLATION MEETINGS

A. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Project site.

1. Meet with Owner, Architect, Construction Manager, Owner's insurer if applicable, testing and inspecting agency representative, Roofing System Installer, roofing system manufacturer's representative, deck Installer, air barrier Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review deck substrate requirements for conditions and finishes, including flatness and

fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

B. Preinstallation Roofing Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, Roofing System Installer, roofing system manufacturer's representative, deck Installer, air barrier Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:

1. Layout and thickness of insulation.
2. Base and sheet flashings and membrane termination details.
3. Flashing details at penetrations.
4. Tapered insulation layout, thickness, and slopes.
5. Roof plan showing orientation of roof deck and orientation of roofing membrane, fastening spacings, and pattern for corner, perimeter, and field-of-roof locations.
6. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
7. Crickets, saddles, and tapered edge strips, including slopes.
8. Tie-in with adjoining wall system air barrier.

C. Samples for Verification: For the following products:

1. Roofing membrane and flashings, of color required.

D. Wind-Uplift-Resistance Submittal: For roofing system indicating compliance with wind-uplift performance requirements.

1.5 INFORMATIONAL SUBMITTALS

A. Manufacturer Certificates:

1. Performance Requirement Certificate: Signed by roofing membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

    a. Submit evidence of compliance with specified performance requirements.

2. Special Warranty Certificate: Signed by roofing membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.

B. Product Test Reports: For roofing membrane and insulation, tests performed by an independent qualified testing agency indicating compliance with specified requirements.

C. Research Reports: For components of roofing system, from ICC-ES showing compliance with specified performance requirements.

D. Field Test Reports:

1. Concrete internal relative humidity test reports.
2. Fastener-pullout test results and manufacturer's revised requirements for fastener patterns.

E. Field quality-control reports.

F. Qualification Data: For roofing system Installer, manufacturer and testing agency.

G. Sample warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system.

B. Certified statement from existing roofing system manufacturer stating that existing roof warranty has not been affected by the Work performed under this Section.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is UL listed for roofing system identical to that used for this Project.

B. Installer Qualifications: A qualified firm that is approved, authorized, certified, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing system materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer.

1. Protect stored liquid material from direct sunlight.
2. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources.

1. Store in a dry location.
2. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing system materials, and place equipment in a manner to avoid permanent deflection of deck.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed in accordance with manufacturer's written installation instructions and warranty requirements.

1.10 WARRANTY

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

1. Special warranty to include all components of roofing system, such as vapor retarder, roof insulation, fasteners, adhesives, cover board, roofing membrane, base flashing sheet, and other components of roofing system.
2. Warranty Period: 30 years from date of Substantial Completion.

B. Roofing System Installer's Warranty: Submit Roofing System Installer's warranty, on warranty form at end of this Section, signed by Roofing System Installer, covering the Work of this Section, including all components of roofing system, such as vapor retarder, roof insulation, fasteners, adhesives, cover board, roofing membrane, base flashing sheet, and other components of roofing system.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain components for roofing system from roofing membrane manufacturer, or manufacturer approved by roofing membrane manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. General Performance: Installed roofing system and flashings to withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing system and flashings to remain watertight.

1. Accelerated Weathering: Roofing membrane to withstand 2000 hours of exposure when tested in accordance with ASTM G152, ASTM G154, or ASTM G155.
2. Impact Resistance: Roofing membrane to resist impact damage when tested in accordance with ASTM D3746/D3746M, ASTM D4272/D4272M, or the Resistance to Foot Traffic Test in FM Approvals 4470.

B. Material Compatibility: Roofing system materials to be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. Wind-Uplift Resistance: Design roofing system to resist the following wind-uplift pressures when tested in accordance with FM Approvals 4474, UL 580, or UL 1897:

1. As indicated on the drawings

D. SPRI's "Directory of Roof Assemblies" Listing: Roofing membrane, base flashings, and component materials to comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system and are listed in SPRI's "Directory of Roof Assemblies" for roof assembly identical for that specified for this Project.

1. Wind-Uplift Load Capacity: ~~120~~ **90** psf.

E. Energy Performance: Roofing system to have an initial solar reflectance index (SRI) of not less than 0.70 and an emissivity of not less than 0.75 when tested in accordance with CRRC S100.

F. Exterior Fire-Test Exposure: Class A; for application and roof slopes indicated; when tested by a qualified testing agency in accordance with ASTM E108 or UL 790.

1. Identify products with appropriate markings of applicable testing agency.

G. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated.

1. Identify products with appropriate markings of applicable testing agency.

2.3 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING SYSTEM

A. TPO Roofing Membrane Sheet: ASTM D6878/D6878M, internally fabric- or scrim-reinforced, TPO sheet.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Carlisle Syntec Systems
b. Elevate; Holcim Building Envelope
c. GAF
d. Johns Manville; a Berkshire Hathaway company
e. Versico Roofing Systems; Carlisle Construction Materials

2. Thickness: ~~60~~ **80** mil, nominal.
3. Exposed Face Color: White.

2.4 ACCESSORY ROOFING SYSTEM MATERIALS

A. General: Accessory materials as recommended in writing by roofing membrane manufacturer for intended use and compatible with other roofing system components.

1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.

B. Base and Sheet Flashings: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as roofing membrane.

C. Prefabricated Pipe Flashings: As recommended in writing by roofing membrane manufacturer.

D. Bonding Adhesive: Roofing membrane manufacturer's standard.

E. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

F. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.

G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing system components to substrate; tested for required pullout strength, and acceptable to roofing membrane manufacturer.

H. Safety Accessories: Roofing membrane manufacturer's standard yellow seaming tape for designating safety perimeters and rooftop hazards.

I. Miscellaneous Accessories: As recommended in writing by roofing membrane manufacturer.

~~**2.5 VAPOR RETARDER**~~

~~A. Rubberized-Asphalt Sheet Vapor Retarder, Self-Adhering: ASTM D1970/D1970M, polyethylene film laminated to layer of rubberized asphalt adhesive, minimum 40-mil total thickness; maximum permeance rating of 0.1 perm; cold applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapor retarder manufacturer.~~

2.6 ROOF INSULATION AND ACCESSORIES

A. General: Preformed roof insulation boards manufactured or approved by roofing membrane manufacturer, approved for use in listed roof assemblies.

B. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1 felt facer on both major surfaces.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Carlisle Syntec Systems
b. CertainTeed; SAINT-GOBAIN
c. Elevate; Holcim Building Envelope
d. GAF
e. Insulfoam; a Carlisle Company
f. Johns Manville; a Berkshire Hathaway company
g. Polyglass U.S.A., Inc.

2. Compressive Strength: Grade ~~3~~ **2**, ~~25~~ **20** psi.
3. Size: 48 by 96 inches.
4. Thickness:

a. Base Layer: 2 inches.
b. Upper Layer: 2 inches.

C. Tapered Insulation: Provide factory-tapered insulation boards.

1. Material: Match roof insulation.
2. Minimum Thickness: 1/4 inch.
3. Slope:

a. Roof Field: 1/4 inch per foot unless otherwise indicated on Drawings.
b. Saddles and Crickets: 1/2 inch per foot unless otherwise indicated on Drawings.

D. Roof Insulation Accessories, General: As recommended in writing by insulation manufacturer for intended use and compatibility with other roofing system components.

1. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate to another insulation layer as follows:

~~a. Modified asphaltic, asbestos-free, cold-applied adhesive.~~

~~b. Bead-applied, low-rise, one-component or multicomponent urethane adhesive.~~
~~c. Full-spread, spray-applied, low-rise, two-component urethane adhesive.~~

2. Verify adhesives and sealants comply with the following limits for VOC content:

   a. Plastic Foam Adhesives: 50 g/L.
   b. Gypsum Board and Panel Adhesives: 50 g/L.
   c. Multipurpose Construction Adhesives: 70 g/L.
   d. Fiberglass Adhesives: 80 g/L.
   e. Contact Adhesives: 80 g/L.
   f. PVC Welding Compounds: 510 g/L.
   g. Other Adhesives: 250 g/L.
   h. Single-Ply Roof Membrane Sealants: 450 g/L.
   i. Nonmembrane Roof Sealants: 300 g/L.
   j. Sealant Primers for Nonporous Substrates: 250 g/L.
   k. Sealant Primers for Porous Substrates: 775 g/L.

~~3. Insulation Fasteners: Insulation manufacturer's standard factory-coated steel fasteners with metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.~~
~~4. Induction-Welding Plates: Minimum 3-inch diameter with recessed center, 0.034-inch thick, aluminum-zinc-alloy-coated steel plates, factory coated with adhesive formulated for roof membrane, with corresponding corrosion-resistant fasteners.~~

2.7 COVER BOARD

A. General: Cover board as recommended in writing by roofing membrane manufacturer for intended use and compatible with other roofing system components.

B. Glass-Mat Gypsum Cover Board: ASTM C1177/C1177M, water-resistant gypsum board.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. CertainTeed; SAINT-GOBAIN
   b. Georgia-Pacific Gypsum LLC
   c. Gold Bond Building Products, LLC provided by National Gypsum Company
   d. USG Corporation

2. Thickness: 1/2 inch.
3. Surface Finish: Factory primed.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Roofing System Installer present, for compliance with requirements and other conditions affecting performance of the Work.

1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Section 053100 "Steel Decking."
4. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane relative to adjoining deck.
5. Verify any damaged sections of cementitious wood-fiber decks have been repaired or replaced.

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

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation in accordance with roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Prime surface of concrete deck with primer in accordance with roofing system manufacturer's written installation instructions and allow primer to dry.

D. Perform fastener-pullout tests in accordance with roofing system manufacturer's written instructions.

1. Submit test result within 24 hours after performing tests.

a. Include manufacturer's requirements for any revision to previously submitted fastener patterns required to achieve specified wind uplift requirements.

3.3 INSTALLATION OF THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING SYSTEM, GENERAL

A. Install roofing system materials and components in accordance with roofing system manufacturer's written installation instructions, FM Approvals' RoofNav listed roof assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.

B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning Work on adjoining roofing.

C. Install roofing membrane and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition.

D. Coordinate installation and transition of roofing system component serving as an air barrier with wall system air barrier.

E. Substrate-Joint Penetrations: Prevent adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

~~**3.4 INSTALLATION OF VAPOR RETARDER**~~

~~A. Install vapor retarder in a single layer over roof area in accordance with manufacturer's written installation instructions, side and end lapping each sheet a minimum of 2 and 6 inches, respectively.~~

~~1. Extend vertically up parapet walls and projections to a minimum height equal to height of insulation and cover board.~~
~~2. Continuously seal side and end laps with tape.~~

~~B. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.~~

3.5 INSTALLATION OF ROOF INSULATION AND ACCESSORIES

A. Coordinate installation of roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.

B. Comply with roofing system and insulation manufacturer's written installation instructions. Install minimum of two layers of insulation under area of roofing to achieve required thickness.

C. Install each layer of insulation with joints staggered not less than 24 inches in adjacent rows and offset not less than 12 inches from previous layer.

1. Trim insulation neatly to fit around penetrations and projections, and to fit tightly to intersecting sloping roof decks.
2. Make joints between adjacent insulation boards not more than 1/4 inch in width.
3. At internal roof drains, slope insulation to create a square drain sump, with each side equal to the diameter of the drain bowl plus 24 inches.
4. Trim insulation, so that water flow is unrestricted.
5. Fill gaps exceeding 1/4 inch with insulation.
6. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
7. Secure insulation in accordance with FM Approvals' RoofNav for specified Windstorm Resistance Classification.
8. Secure insulation to resist specified uplift pressure at corners, perimeter, and field of roof.
9. Place thermal spacers and plates on insulation in required fastening patterns and secure in

~~accordance with manufacturer's instructions.~~

~~a. Install plates and fasteners tight and flat to substrate with no dimpling, and with fastener extending 1 inch minimum into roof deck; do not overdrive fasteners.~~

~~10. Loosely lay each layer of insulation over substrate.~~

3.6 INSTALLATION OF COVER BOARD

A. Install cover board over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.

1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
2. At internal roof drains, conform to slope of drain sump.

    a. Trim cover board so that water flow is unrestricted.

3. Cut and fit cover board tight to nailers, projections, and penetrations.
4. Adhere cover board to substrate in accordance with FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29.

B. Install slip sheet over cover board and beneath roofing membrane.

C. Place plates on cover board in required fastening patterns and secure in accordance with roofing system manufacturer’s written installation instructions.

1. Install plates and fasteners tight and flat to substrate with no dimpling, and with fastener extending 1 inch minimum into roof deck; do not overdrive fasteners.

3.7 INSTALLATION OF TPO ROOFING MEMBRANE

A. Install roofing membrane over roof area for adhered application method in accordance with roofing system manufacturer's written installation instructions.

B. Unroll roofing membrane and allow it to relax before installing.

C. Start installation in presence of roofing system manufacturer's technical personnel.

D. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

E. Adhered Application: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply to splice area of roofing membrane.

1. In addition to adhering, mechanically fasten roofing membrane securely at terminations, penetrations, and perimeter of roof area.

F. Seams and End Laps: Clean seam areas, overlap membrane, and hot-air-weld side seams and end laps of roofing membrane and sheet flashings to ensure a watertight installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane and sheet flashings.
2. Verify field strength of seams a minimum of twice daily, and repair seam sample areas.
3. Repair tears, voids, and lapped seams in roofing membrane that do not comply with requirements.

G. Spread sealant bed over deck-drain flange at roof drains, and securely seal roofing membrane in place with clamping ring.

3.8 INSTALLATION OF BASE AND SHEET FLASHINGS

A. General: Install and adhere base and sheet flashing and preformed flashing accessories to substrates in accordance with roofing system manufacturer's written installation instructions.

B. Apply bonding adhesive to substrate and underside of flashings at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners.

D. Clean seam areas, overlap, and firmly roll flashings into the adhesive. Hot-air-weld side seams and end laps to ensure a watertight installation.

E. Terminate and seal top of flashings and mechanically anchor to substrate through termination bars.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspect substrate conditions, surface preparation, and installation of roofing membrane, flashings, protection, and drainage components, and to furnish reports to Architect.

B. Perform the following tests:

1. Infrared Thermography Testing: Testing agency surveys entire roof area using infrared color thermography in accordance with ASTM C1153. Perform tests before overlying construction is placed.

a. After infrared scan, locate specific areas of leaks by electrical capacitance/impedance testing or nuclear hydrogen detection testing.
b. After testing, repair leaks, repeat tests, and make further repairs until roofing and flashing installations are watertight.

1) Cost of retesting is Contractor's responsibility.

c. Testing agency to prepare survey report of initial scan indicating locations of entrapped moisture, if any.

C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.

1. Notify Architect and Owner 48 hours in advance of date and time of inspection.

D. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.10 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.11 ROOFING SYSTEM INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing System Installer," has performed roofing and associated Work on the following Project:

1. Owner: .
2. Owner Address: .
3. Building Name/Type: .
4. Building Address: .
5. Area of Work: .
6. Acceptance Date: _____.
7. Warranty Period: Two years from date of Substantial Completion.
8. Date of Substantial Completion: _____.

B. AND WHEREAS Roofing System Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said Work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing System Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period Roofing Installer will, at Roofing System

Installer's own cost and expense, make or cause to be made such repairs to or replacements of said Work as are necessary to correct faulty and defective work and as are necessary to maintain said Work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to Work and other parts of the building, and to building contents, caused by:

    a. lightning;
    b. peak gust wind speed exceeding 72 mph;
    c. fire;
    d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the Work;
    f. vapor condensation on bottom of roofing; and
    g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When Work has been damaged by any of foregoing causes, Warranty will be null and void until such damage has been repaired by Roofing System Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing System Installer is responsible for damage to Work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of Work.
4. During Warranty Period, if Owner allows alteration of Work by anyone other than Roofing System Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty will become null and void on date of said alterations, but only to the extent said alterations affect Work covered by this Warranty. If Owner engages Roofing System Installer to perform said alterations, Warranty will not become null and void unless Roofing System Installer, before starting said Work, will have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate Work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty will become null and void on date of said change, but only to the extent said change affects Work covered by this Warranty.
6. Owner will promptly notify Roofing System Installer of observed, known, or suspected leaks, defects, or deterioration and afford reasonable opportunity for Roofing System Installer to inspect Work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing System Installer on said Work and will not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty will not operate to relieve Roofing System Installer of responsibility for performance of original Work in accordance with requirements of the Contract Documents, regardless of

whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.
2. Name: _____.
3. Title: _____.

END OF SECTION 07 54 23

SECTION 08 71 00 - DOOR HARDWARE

PART 1 -GENERAL

1.1 SUMMARY

A. Section Includes:

1. Hinges.
2. Mortise locks.
3. Lock cylinders.
4. Surface closers.
5. Wall- and floor-mounted stops.
6. Door gasketing.
7. Thresholds.
8. Metal protective trim units.

B. Related Requirements:

1. Section 081113 "Hollow Metal Doors and Frames" for door silencers provided as part of hollow-metal frames.

1.2 COORDINATION

A. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

B. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

C. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Conference participants must include Installer's Architectural Hardware Consultant and Owner's security consultant.

1.4 ACTION SUBMITTALS

A. Product Data:

1. Hinges.
2. Bored locks.
3. Lock cylinders.
4. Operating trim.
5. Wall- and floor-mounted stops.
6. Thresholds.
7. Metal protective trim units.
8. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Product Data Submittals: For each product.

C. Shop Drawings: For electrified door hardware.

1. Include diagrams for power, signal, and control wiring.
2. Include details of interface of electrified door hardware and building safety and security systems.

D. Samples: For each exposed product in each finish specified, in manufacturer's standard size.

1. Tag Samples with full product description to coordinate Samples with door hardware schedule.

E. Door Hardware Schedule: Prepared by or under the supervision of Installer's Architectural Hardware Consultant. Coordinate door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Submittal Sequence: Submit door hardware schedule concurrent with submissions of product data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
2. Format: Use same scheduling sequence and format and use same door numbers as in door hardware schedule in the Contract Documents.
3. Content: Include the following information:

    a. Identification number, location, hand, fire rating, size, and material of each door and frame.
    b. Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
    c. Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
    d. Description of electrified door hardware sequences of operation and interfaces with other building control systems.
    e. Fastenings and other installation information.
    f. Explanation of abbreviations, symbols, and designations contained in door hardware schedule.
    g. Mounting locations for door hardware.
    h. List of related door devices specified in other Sections for each door and frame.

F. Keying Schedule: Prepared by or under the supervision of Installer's Architectural Hardware Consultant, detailing Owner's final keying instructions for locks. Include schematic keying

diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Certificates: For each type of electrified door hardware.

1. Certify that door hardware for use on each type and size of labeled fire-rated doors complies with listed fire-rated door assemblies.

C. Product Test Reports: For compliance with accessibility requirements, for tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.

D. Field quality-control reports.

E. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of door hardware to include in maintenance manuals.

B. Schedules: Final door hardware and keying schedule.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and of an Architectural Hardware Consultant who is available during the course of the Work to consult Contractor, Architect, and Owner about door hardware and keying.

1. Warehousing Facilities: In Project's vicinity.
2. Scheduling Responsibility: Preparation of door hardware and keying schedule.
3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as a Door and Hardware Specification Consultant (DHSC).

1.8 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lockup for door hardware delivered to

Project site.

B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

C. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

D. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

1.9 WARRANTY

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

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

a. Structural failures, including excessive deflection, cracking, or breakage.
b. Faulty operation of doors and door hardware.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

2. Warranty Period: Three years from date of Substantial Completion unless otherwise indicated below:

a. Electromagnetic and Delayed-Egress Locks: Five years from date of Substantial Completion.
b. Exit Devices: Two years from date of Substantial Completion.
c. Manual Closers: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain each type of door hardware from single manufacturer.

1. Provide electrified door hardware from same manufacturer as mechanical door hardware unless otherwise indicated. Manufacturers that perform electrical modifications and that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.

2.2 PERFORMANCE REQUIREMENTS

A. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do

not require use of a key, tool, or special knowledge for operation.

C. Accessibility Requirements: For door hardware on doors in an accessible route, comply with ICC A117.1.

1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
2. Comply with the following maximum opening-force requirements:

   a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
   b. Sliding or Folding Doors: 5 lbf applied parallel to door at latch.
   c. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.

3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.
4. Adjust door closer sweep periods so that, from an open position of 90 degrees, the door will take at least 5 seconds to move to a position of 12 degrees from the latch.
5. Adjust spring hinges so that, from an open position of 70 degrees, the door will take at least 1.5 seconds to move to the closed position.

2.3 HINGES

A. Hinges: ANSI/BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Allegion plc
   b. Hager Companies
   c. McKinney Products Company; ASSA ABLOY

2.4 MECHANICAL LOCKS AND LATCHES

A. Lock Functions: As indicated in door hardware schedule.

B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:

1. Mortise Locks: Minimum 3/4-inch latchbolt throw.

C. Lock Backset: 2-3/4 inches unless otherwise indicated.

D. Lock Trim:

1. Description: As indicated.
2. Levers: Cast.
3. Escutcheons (Roses): Wrought.
4. Dummy Trim: Match lever lock trim and escutcheons.

E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.

F. Mortise Locks: ANSI/BHMA A156.13, Security Grade 1; stamped steel case with steel or brass parts; Series 1000.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Allegion plc
b. BEST Access Solutions, Inc.; dormakaba USA Inc.
c. dormakaba USA Inc.
d. Hager Companies
e. SARGENT Manufacturing Company; ASSA ABLOY

2.5 LOCK CYLINDERS

A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.

1. Manufacturers: Subject to compliance with requirements and owner existing system, provide products by one of the following:

a. Allegion plc
b. BEST Access Solutions, Inc.; dormakaba USA Inc.
c. Hager Companies
d. Medeco Security Locks; an ASSA ABLOY Group company
e. SARGENT Manufacturing Company; ASSA ABLOY

B. High-Security Lock Cylinders: ANSI/BHMA A156.30, Grade 1 permanent cores that are removable; face finished to match lockset.

1. Type M, mechanical.

2.6 KEYING

A. Keying System: Factory registered, complying with guidelines in ANSI/BHMA A156.28, appendix. Provide one extra key blank for each lock. Incorporate decisions made in keying conference.

1. Existing System:

a. Master key or grand master key locks to Owner's existing system.

B. Keys: Brass.

1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:

    a. Notation: Information to be furnished by Owner.

2.7 MECHANICAL STOPS AND HOLDERS

A. Wall- and Floor-Mounted Stops: ANSI/BHMA A156.16.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Allegion plc
    b. Hager Companies
    c. Rockwood Manufacturing Company; ASSA ABLOY Accessories and Door Controls Group, Inc.; ASSA ABLOY

B. Maximum Air Leakage: When tested in accordance with ASTM E283/E283M with tested pressure differential of 0.3 inch wg, as follows:

1. Gasketing on Single Doors: 0.3 cfm/sq. ft. of door opening.
2. Gasketing on Double Doors: 0.50 cfm per ft. of door opening.

2.8 METAL PROTECTIVE TRIM UNITS

A. Metal Protective Trim Units: ANSI/BHMA A156.6; fabricated from 0.050-inch- thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Allegion plc
    b. Hager Companies
    c. Rockwood Manufacturing Company; ASSA ABLOY Accessories and Door Controls Group, Inc.; ASSA ABLOY

2.9 SURFACE CLOSERS

A. Surface Closers: ANSI/BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written instructions for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Allegion plc

b. dormakaba USA Inc.
c. Hager Companies
d. SARGENT Manufacturing Company; ASSA ABLOY

2.10 FABRICATION

A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rating labels and as otherwise approved by Architect.

1. Manufacturer's identification is permitted on rim of lock cylinders only.

B. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and ANSI/BHMA A156.18.

C. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended; however, aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware unless otherwise indicated.

1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
2. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
3. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

2.11 FINISHES

A. Provide finishes complying with ANSI/BHMA A156.18 as indicated in door hardware schedule.

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

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance of the Work.

B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

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

3.2 PREPARATION

A. Steel Doors and Frames: For surface-applied door hardware, drill and tap doors and frames in accordance with ANSI/SDI A250.6.

B. Wood Doors: Comply with door and hardware manufacturers' written instructions.

3.3 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Wood Doors: DHI's "Recommended Locations for Architectural Hardware for Wood Flush Doors."

B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work. Do not install surface-mounted items until finishes have been completed on substrates involved.

1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

C. Hinges: Install types and in quantities indicated in door hardware schedule, but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

D. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule, but not fewer than one intermediate offset

pivot per door and one additional intermediate offset pivot for every 30 inches of door height greater than 90 inches.

E. Lock Cylinders: Install construction cores to secure building and areas during construction period.

1. Replace construction cores with permanent cores as directed by Owner.
2. Furnish permanent cores to Owner for installation.

F. Boxed Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings, orin equipment room. Verify location with Architect.

1. Configuration: Provide least number of power supplies required to adequately serve doors with electrified door hardware.

G. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."

H. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.

I. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

1. Do not notch perimeter gasketing to install other surface-applied hardware.

J. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

K. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.4 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
2. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 70 degrees and so that closing time complies with accessibility requirements of authorities having jurisdiction.
3. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.

B. Occupancy Adjustment: Approximately six months after date of Substantial Completion, Installer's Architectural Hardware Consultant is to examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.5 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

3.6 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

B. Maintenance Service: Beginning at Substantial Completion, maintenance service is to include 12 months' full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door and door hardware operation. Parts and supplies are to be manufacturer's authorized replacement parts and supplies.

3.7 DOOR HARDWARE SCHEDULE

A. Hardware Set 1: Each door to have the following:

1. Hardware Set 1 – Interior; Single, Hollow Metal; Locker Room: Each door to have the following:

3 – Hinges	5BB1HW4.5x4.5	US32D	Ives
1 – Latchset	L9050R06N Entry	US26D	Schlage
1 – Closer	4040XP 3049eda	698	LCN
1 – Protection Plate	8400 – Kick	US32D	Ives
Silencers as required			

Provide Best FSIC's uncombined core and blank keys to be turned over to the owner.

END OF SECTION 08 71 00

SECTION 221319.13 - SANITARY DRAINS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Floor drains.
2. Trench drains.

1.2 DEFINITIONS

A. FRP: Fiberglass-reinforced plastic.

B. HDPE: High-density polyethylene.

C. PE: Polyethylene.

D. PP: Polypropylene.

E. PVC: Polyvinyl chloride.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 DRAIN ASSEMBLIES

A. Sanitary drains shall bear label, stamp, or other markings of specified testing agency.

B. Comply with NSF 14 for plastic sanitary piping specialty components.

2.2 FLOOR DRAINS

A. Cast-Iron Floor Drains:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Jay R. Smith Mfg Co; a division of Morris Group International.
b. Josam Company.
c. MIFAB, Inc.
d. Sioux Chief Manufacturing Company, Inc.
e. WATTS; A Watts Water Technologies Company.
f. Wade; a subsidiary of McWane Inc.
g. Zurn Industries, LLC.

2. Standard: ASME A112.6.3.
3. See 'Plumbing Fixture Schedule' on plans for more details.

2.3 TRENCH DRAINS

A. Trench Drains:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Jay R. Smith Mfg Co; a division of Morris Group International.
b. Josam Company.
c. MIFAB, Inc.
d. Sioux Chief Manufacturing Company, Inc.
e. WATTS; A Watts Water Technologies Company.
f. Wade; a subsidiary of McWane Inc.
g. Zurn Industries, LLC.

2. Standard: ASME A112.6.3 for trench drains.
3. See 'Plumbing Fixture Schedule' on plans for more details.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.

1. Position floor drains for easy access and maintenance.
2. Set floor drains below elevation of surrounding finished floor to allow floor drainage.

3. Install floor-drain flashing collar or flange, so no leakage occurs between drain and adjoining flooring.

a. Maintain integrity of waterproof membranes where penetrated.

4. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.

B. Install trench drains at low points of surface areas to be drained.

1. Set grates of drains flush with finished surface, unless otherwise indicated.

C. Comply with ASME A112.3.1 for installation of stainless-steel channel drainage systems.

1. Install on support devices, so that top will be flush with adjacent surface.

D. Install FRP channel drainage system components on support devices, so that top will be flush with adjacent surface.

E. Install plastic channel drainage system components on support devices, so that top will be flush with adjacent surface.

F. Install open drain fittings with top of hub 2 inches above floor.

3.2 CONNECTIONS

A. Comply with requirements in Section 221316 "Sanitary Waste and Vent Piping" for piping installation requirements. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Comply with requirements in Section 221323 "Sanitary Waste Interceptors" for grease interceptors, grease-removal devices, oil interceptors, sand interceptors, and solid interceptors.

C. Install piping adjacent to equipment to allow service and maintenance.

3.3 PROTECTION

A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION

SECTION 224200 - COMMERCIAL PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Commercial lavatories.
2. Commercial showers.
3. Commercial sinks.
4. Commercial water closets.
5. Commercial wash fountains.
6. Flushometer valves.
7. Toilet seats.

1.2 DEFINITIONS

A. FRP: Fiberglass-reinforced plastic.

B. PMMA: Polymethyl methacrylate; also known as "acrylic."

1.3 ACTION SUBMITTALS

A. Product Data:

1. Include construction details, material descriptions and thicknesses, dimensions of individual components and profiles, and finishes for plumbing fixtures.
2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data:

1. For lavatories and faucets.

a. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

1) Servicing and adjustments of automatic faucets.

2. For shower valves to include in maintenance manuals
3. For sinks and faucets to include in operation and maintenance manuals.

    a. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

        1) Servicing and adjustments of automatic faucets.

4. For flushometer valves to include in operation and maintenance manuals.
5. For wash fountains and components to include in operation and maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials to Owner that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Faucet Washers and O-Rings: Equal to 10 percent of amount of each type and size installed.
2. Faucet Cartridges and O-Rings: Equal to 5 percent of amount of each type and size installed.
3. Shower Valve Washers and O-Rings: Equal to 10 percent of amount of each type and size installed.
4. Shower Valve Cartridges and O-Rings: Equal to 5 percent of amount of each type and size installed.
5. Flushometer-Valve Repair Kits: Equal to 10 percent of amount of each type installed, but no fewer than one of each type.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Lavatory faucets, sink faucets, shower valves, and wash fountain spray heads and faucets intended to convey or dispense water for human consumption are to comply with the U.S. Safe Drinking Water Act (SDWA), with requirements of the Authority Having Jurisdiction (AHJ), and with NSF 61 and NSF 372, or be certified in compliance with NSF 61 and NSF 372 by an ANSI-accredited third-party certification body, in that the weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 COMMERCIAL LAVATORIES

A. Lavatories, Wall Mounted:

1. Lavatories, Wall Mounted - Vitreous China, Rectangular with Back:

a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) American Standard.
2) Kohler Co.
3) Sloan Valve Company.

b. Zurn Industries, LLC.Fixture:

1) Standard: ASME A112.19.2/CSA B45.1.
2) Type: For wall hanging.
3) Faucet-Hole Location: Top.
4) Mounting Material: Chair carrier.

c. See Plumbing Fixture Schedule on plans for more details.

B. Lavatory Faucets, Manually Operated:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. American Standard.
b. Chicago Faucets; Geberit Group.
c. Delta Faucet Company.
d. Elkay.
e. Just Manufacturing.
f. Kohler Co.
g. Moen Incorporated.
h. Speakman Company.
i. T&S Brass and Bronze Works, Inc.
j. Zurn Industries, LLC.

2. Standard: ASME A112.18.1/CSA B125.1.
3. See Plumbing Fixture Schedule on plans for more details.

C. Lavatory Supply Fittings:

1. NSF Standard: Comply with NSF 61 and NSF 372 for supply-fitting materials that will be in contact with potable water.
2. Standard: ASME A112.18.1/CSA B125.1.

3. Supply Piping: Chrome-plated-brass pipe or chrome-plated copper tube matching water-supply piping size. Include chrome-plated-brass or stainless steel wall flange.
4. Supply Stops: Chrome-plated-brass, one-quarter-turn, ball-type or compression valve with inlet connection matching supply piping.
5. Operation: Loose key.
6. Risers:

    a. NPS 1/2.
    b. Chrome-plated, rigid-copper-pipe and brass straight or offset tailpieces riser.

D. Lavatory Waste Fittings:

1. Standard: ASME A112.18.2/CSA B125.2.
2. Drain: Grid type with NPS 1-1/4 offset and straight tailpiece.
3. Trap:

    a. Size: NPS 1-1/2 by NPS 1-1/4.
    b. Material:

        1) Chrome-plated, two-piece, cast-brass trap and swivel elbow with 0.032-inch- thick brass tube to wall; and chrome-plated, brass or steel wall flange.

2.3 COMMERCIAL SHOWERS

A. Shower Valve Assemblies:

1. Shower Valve Assemblies - Single-Handle, Thermostatic Mixing Valve with Head:

    a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

        1) Lawler Manufacturing Company, Inc.
        2) POWERS; A WATTS Brand.

    b. Source Limitations: Obtain shower heads and shower valves from single source from single manufacturer.
    c. Description: Single-handle, accessible, thermostatic mixing valve with hot- and cold-water indicators; and hose with handheld shower head on sliding rod shower head.
    d. See Plumbing Fixture Schedule on plans for more details.

B. Showers, Group:

1. Showers, Group - Column:

a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) Acorn Engineering Company; a Division of Morris Group International.
2) Bradley Corporation.
3) Willoughby Industries, Inc.

b. Source Limitations: Obtain showers from single source from single manufacturer.
c. Description: Stainless steel, column shower fixture with individual nozzles.
d. Standards:

1) ASME A112.18.1/CSA B125.1.
2) ASSE 1016/ASME A112.1016/CSA B125.16.

e. See Plumbing Fixture Schedule on plans for more details.

C. Grout:

1. Standard: ASTM C1107/C1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
2. Characteristics: Nonshrink; recommended for interior and exterior applications.
3. Design Mix: 5000 psi, 28-day compressive strength.
4. Packaging: Premixed and factory packaged.

2.4 COMMERCIAL SINKS

A. Service Sinks, Floor Mounted:

1. Service Sinks, Floor Mounted - Molded Stone:

a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) Fiat Products.
2) Florestone Products Co., Inc.

b. Source Limitations: Obtain sinks from single source from single manufacturer.
c. Fixture:

1) Standard: ASME A112.18.2/CSA B125.2.

d. See Plumbing Fixture Schedule on plans for more details.

B. Sink Supply Fittings:

1. NSF Standard: Comply with NSF 61 and NSF 372 for supply-fitting materials that will be in contact with potable water.
2. Standard: ASME A112.18.1/CSA B125.1.
3. Supply Piping: Chrome-plated brass pipe or chrome-plated copper tube matching water-supply piping size. Include chrome-plated brass or stainless steel wall flange.
4. Supply Stops: Chrome-plated brass, one-quarter-turn, ball-type or compression valve with inlet connection matching supply piping.
5. Operation: Loose key.
6. Risers:

a. NPS 1/2.
b. Chrome-plated, rigid-copper pipe.

C. Sink Waste Fittings:

1. Standard: ASME A112.18.2/CSA B125.2.
2. Drain: Grid type with NPS 1-1/2 offset and straight tailpiece.
3. Trap:

a. Size: NPS 1-1/2.
b. Material:

1) Chrome-plated, two-piece, cast-brass trap and swivel elbow with 17-gauge brass tube to wall; and chrome-plated brass or steel wall flange.

D. Grout:

1. Standard: ASTM C1107/C1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
2. Characteristics: Nonshrink; recommended for interior and exterior applications.
3. Design Mix: 5000 psi, 28-day compressive strength.
4. Packaging: Premixed and factory packaged.

2.5 COMMERCIAL WATER CLOSETS

A. Water Closets, Floor Mounted:

1. Water Closets, Floor Mounted - Bottom Outlet, Top Spud:

a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) American Standard.
2) Kohler Co.
3) Sloan Valve Company.
4) TOTO USA, INC.
5) Zurn Industries, LLC.

b. Source Limitations: Obtain water closets from single source from single manufacturer.
c. Standard: ASME A112.19.2/CSA B45.1.
d. Bowl:

1) Material: Vitreous china.
2) Type: Siphon jet.
3) Style: Flushometer valve.

e. See Plumbing Fixture Schedule on plans for more details.

2.6 COMMERCIAL WASH FOUNTAINS

A. Wash Fountains, Semicircular Receptor:

1. Wash Fountains, Semicircular Receptor - Solid Surface, Floor or Wall Mounted:

a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) Acorn Engineering Company; a Division of Morris Group International.
2) Aqua Design Manufacturing.
3) Bradley Corporation.
4) Sloan Valve Company.
5) Willoughby Industries, Inc.

b. Source Limitations: Obtain wash fountains from single source from single manufacturer.
c. Standards:

1) IAPMO IGC 156.
2) ASME A112.18.1/CSA B125.1.
3) CSA B45.5/IAPMO Z124.

d. See Plumbing Fixture Schedule on plans for more details.

2.7 FLUSHOMETER VALVES

A. Flushometer Valves, Manually Operated:

1. Flushometer Valves, Manually Operated - Diaphragm, Lever Handle:

    a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

        1) American Standard.
        2) Sloan Valve Company.
        3) Zurn Industries, LLC.

    b. Source Limitations: Obtain flushometer valve from single source from single manufacturer.
    c. Standard: ASSE 1037/ASME 112.1037/CSA B125.37.
    d. Minimum Pressure Rating: 125 psig.
    e. Features: Include integral check stop and backflow-prevention device.
    f. Material: Brass body with corrosion-resistant components.
    g. See Plumbing Fixture Schedule on plans for more details.

2.8 TOILET SEATS

A. Toilet Seats:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. American Standard.
    b. Bemis Manufacturing Company.
    c. Church Seats; Bemis Manufacturing Company.
    d. Kohler Co.
    e. TOTO USA, INC.
    f. Zurn Industries, LLC.

2. Source Limitations: Obtain toilet seat from single source from single manufacturer.
3. Standard: IAPMO/ANSI Z124.5.
4. Material: Plastic.
5. Type: Commercial (Heavy duty).
6. See Plumbing Fixture Schedule on plans for more details.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in of water-supply piping and sanitary drainage and vent piping systems to verify actual locations of piping connections before plumbing fixture installation.

B. Examine walls and floors for suitable conditions where plumbing fixtures will be installed.

C. Examine counters for suitable conditions where lavatories and sinks will be installed.

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

3.2 INSTALLATION OF COMMERCIAL PLUMBING FIXTURES

A. Lavatory Installation:

1. Install lavatories level and plumb in accordance with roughing-in drawings.
2. Install supports, affixed to building substrate, for wall-mounted lavatories.
3. Install accessible, wall-mounted lavatories at mounting height in accordance with ICC A117.1.
4. Install water-supply piping with stop on each supply to each lavatory faucet. Install stops in locations that are accessible for ease of operation.
5. Install trap and waste piping on each drain outlet of each lavatory to be connected to sanitary drainage system.
6. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings. Comply with escutcheon requirements specified in Section 220500 "Common Work Results for Plumbing."
7. Seal joints between lavatories, counters, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."
8. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible lavatories. Comply with requirements in Section 220719 "Plumbing Piping Insulation."

B. Shower Installation:

1. Assemble shower components in accordance with manufacturers' written instructions.
2. Install showers level and plumb in accordance with roughing-in drawings.
3. Install ball valves in water-supply piping to the shower if supply stops are specified with the shower valve. Comply with ball valve requirements specified in Section 220523 "General Duty Valves for Plumbing Piping." Install valves in locations that are accessible for ease of operation.
4. Install shower flow-control fittings with specified maximum flow rates in shower arms.
5. Set shower basins in leveling bed of cement grout.
6. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings. Comply with escutcheon requirements specified in Section 220500 "Common Work Results for Plumbing."

7. Showers, except Cast-Polymer Showers: Seal joints between showers, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."
8. Cast-Polymer Showers: Adhere panels to drywall using shower manufacturer's recommended adhesive. Seal joints, between panels and between panels and adjacent drywall, using shower manufacturer's recommended caulking specific for each application. Match sealant to fixture color.

C. Sink Installation:

1. Install sinks level and plumb in accordance with roughing-in drawings.
2. Install supports, affixed to building substrate, for wall-mounted sinks.
3. Install accessible, wall-mounted sinks at mounting height in accordance with ICC A117.1.
4. Set floor-mounted sinks in leveling bed of cement grout.
5. Install water-supply piping with stop on each supply to each sink faucet.
    a. Exception: Use ball valves if supply stops are not specified with sink. Comply with valve requirements specified in Section 220523 "General Duty Valves for Plumbing Piping."
    b. Install stops/valves in locations that are accessible for ease of operation.
6. Install trap and waste piping on each drain outlet of each sink to be connected to sanitary drainage system.
7. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings. Comply with escutcheon requirements specified in Section 220500 "Common Work Results for Plumbing."
8. Seal joints between sinks, counters, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."
9. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible sinks. Comply with requirements in Section 220719 "Plumbing Piping Insulation."

D. Water Closet Installation:

1. Install water closets level and plumb in accordance with roughing-in drawings.
2. Install floor-mounted water closets on bowl-to-drain connecting fitting attachments to piping or building substrate.
3. Install accessible, wall-mounted water closets at mounting height in accordance with ICC A117.1.
4. Install supports, affixed to building substrate, for floor-mounted, back-outlet water closets.
5. Use carrier supports with waste-fitting assembly and seal.

6. Install floor-mounted, back-outlet water closets, attached to building floor substrate, onto waste-fitting seals; and attach to support.
7. Install wall-mounted, back-outlet water-closet supports with waste-fitting assembly and waste-fitting seals, and affix to building substrate.
8. Measure support height installation from finished floor, not structural floor.
9. Install flushometer-valve, water-supply fitting on each supply to each water closet.
10. Attach supply piping to supports or substrate within pipe spaces behind fixtures.
11. Install lever-handle flushometer valves for accessible water closets with handle mounted on open side of water closet.
12. Install actuators in locations easily reachable for people with disabilities.
13. Install new batteries in battery-powered, electronic-sensor mechanisms.
14. Install toilet seats on water closets.
15. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Install deep-pattern escutcheons if required to conceal protruding fittings. Comply with escutcheon requirements specified in Section 220500 "Common Work Results for Plumbing."
16. Seal joints between water closets, walls, and floors using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to water-closet color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."

E. Wash Fountain Installation:

1. Install wash fountains level and plumb in accordance with roughing-in drawings.
2. Set freestanding wash fountains on floor.
3. Install off-floor carrier supports, affixed to building substrate, for wall-mounted wash fountains.
4. Install accessible, wall-mounted wash fountains at mounting height in accordance with ICC A117.1.
5. Install water-supply piping with shutoff valve on each supply to each wash fountain faucet. Use ball valves if supply stops are not specified with wash fountain. Comply with valve requirements specified in Section 220523 "General Duty Valves for Plumbing Piping." Install stops/valves in locations that are accessible for ease of operation.
6. Install trap and waste piping on each drain outlet of each wash fountain to be connected to sanitary drainage system.
7. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings. Comply with escutcheon requirements specified in Section 220500 "Common Work Results for Plumbing."
8. Seal joints between wash fountains, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."
9. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible sinks. Comply with requirements in Section 220719 "Plumbing Piping Insulation."

3.3 INSTALLATION OF PIPING CONNECTIONS

A. Connect plumbing fixtures with water supplies and soil, waste, and vent piping. Use size fittings required to match plumbing fixtures.

B. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."

C. Comply with soil, waste, and vent piping requirements specified in Section 221316 "Sanitary Waste and Vent Piping."

D. Install protective-shielding pipe covers and enclosures on exposed supplies and waste piping of accessible plumbing fixtures. Comply with requirements in Section 220719 "Plumbing Piping Insulation."

E. Where installing piping adjacent to water closets and urinals, allow space for service and maintenance.

3.4 INSTALLATION OF ELECTRICAL CONNECTIONS

A. Connect wiring in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

B. Ground equipment in accordance with Section 260526 "Grounding and Bonding for Electrical Systems."

C. Install electrical devices furnished by manufacturer, but not factory mounted in accordance with NFPA 70 and NECA 1.

3.5 INSTALLATION OF CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring in accordance with Section 260523 "Control-Voltage Electrical Power Cables."

3.6 ADJUSTING

A. Operate and adjust plumbing fixtures and controls. Replace damaged and malfunctioning plumbing fixtures, fittings, and controls.

B. Adjust water pressure at faucets to produce proper flow.

C. Adjust water pressure at shower valves to produce proper flow.

D. Adjust water pressure at flushometer valves to produce proper flow.

E. Install new batteries in battery-powered, electronic-sensor mechanisms.

3.7 CLEANING AND PROTECTION

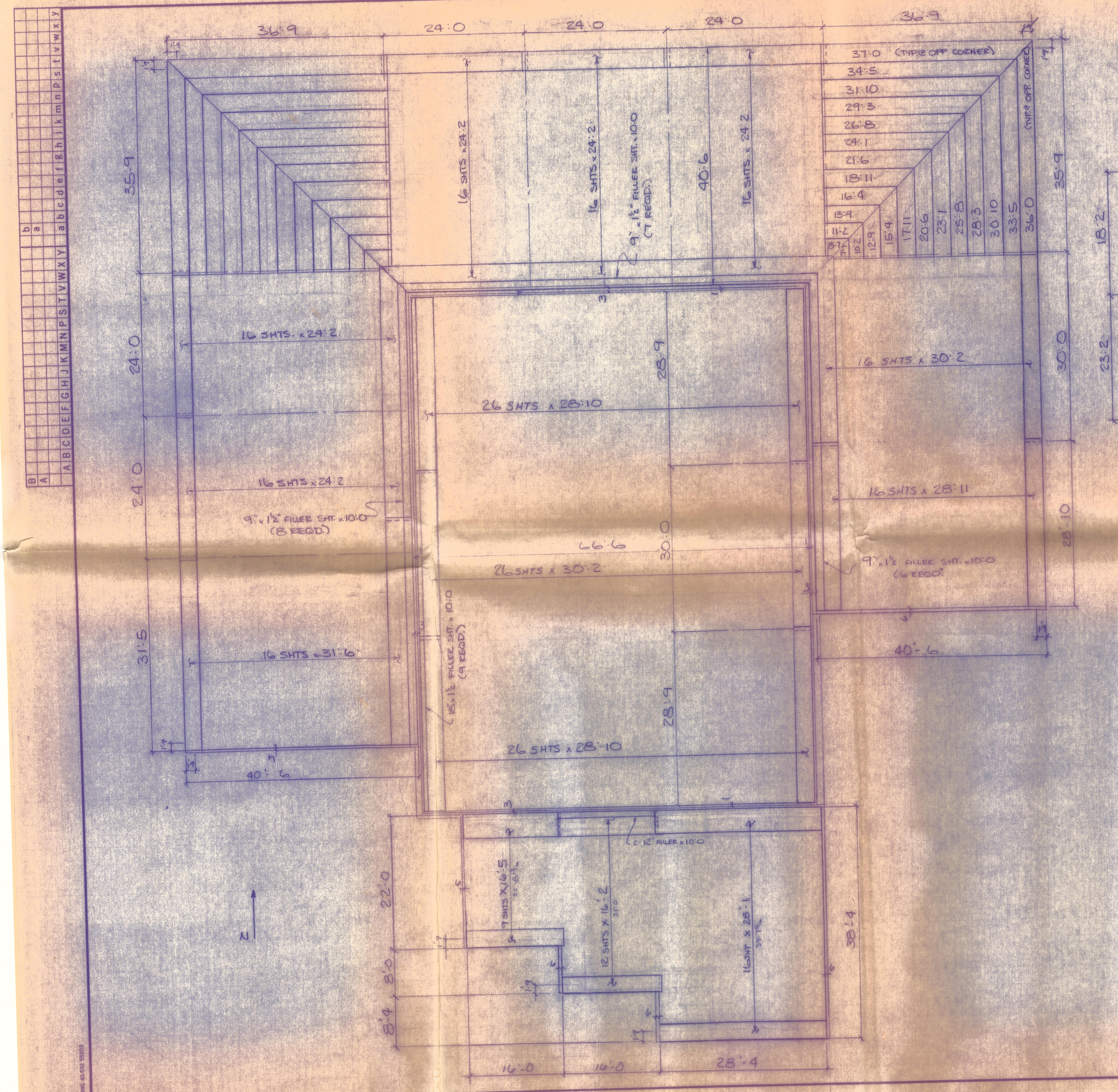
A. After completing installation of plumbing fixtures, inspect and repair damages finishes. Replace any fixtures unable to be repaired to the satisfaction of the Owner.

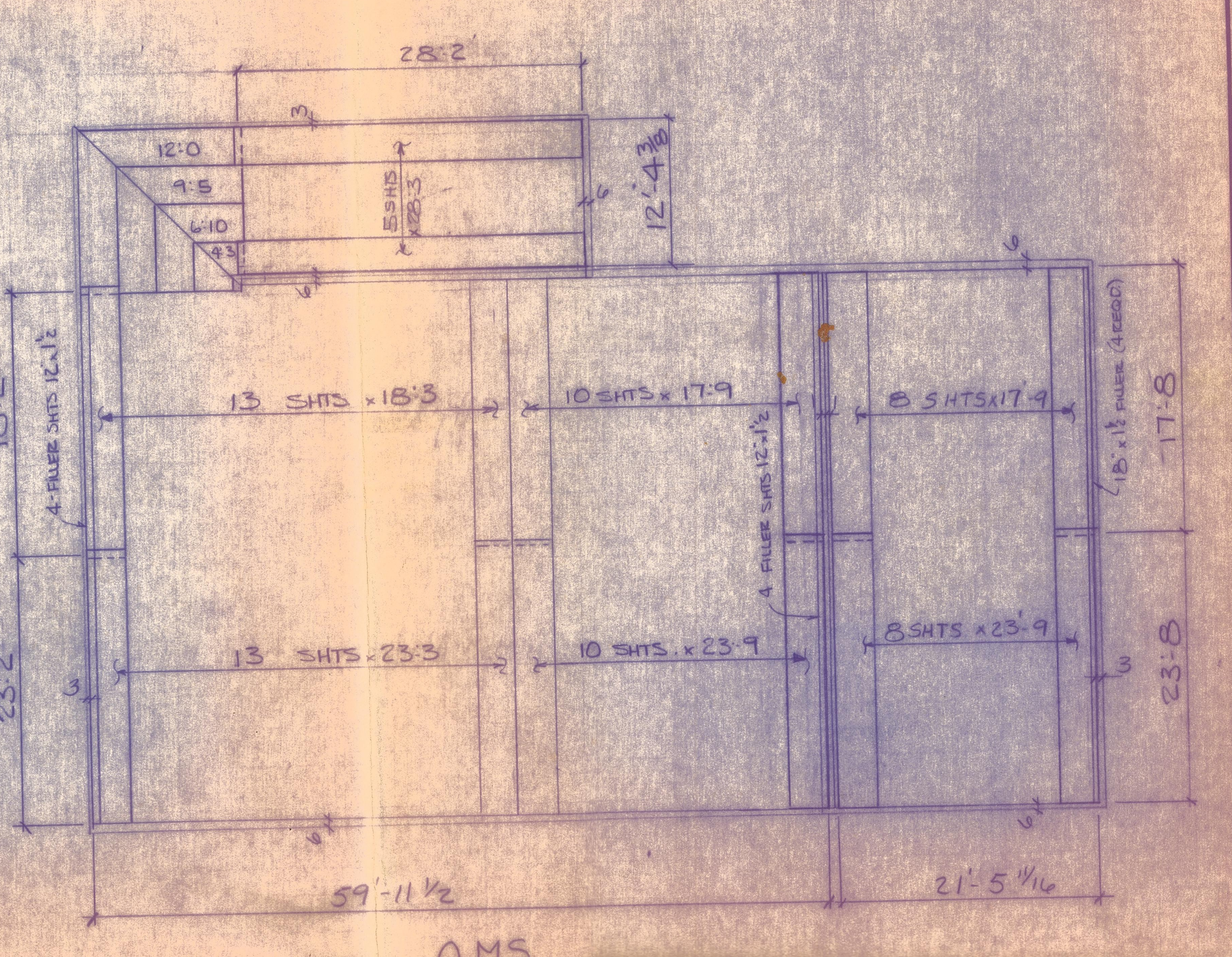
B. Clean plumbing fixtures and associated faucets, valves, flushometer valves, and fittings with manufacturers' recommended cleaning methods and materials.

C. Provide protective covering for installed plumbing fixtures and associated faucets, valves, flushometer valves, and fittings.

D. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION





O.M.S.

NOTES:

INSTALLATION: CONFORM TO "STEEL DECK INSTITUTE DIAPHRAM DESIGN MANUAL." PLACE DECK UNITS AND SECURE TO ADJACENT FRAMING BY FUSION WELDING AT EACH RIB, AT EACH SUPPORT, UNLESS OTHERWISE INDICATED. WELDS SHALL BE 3/4" ROUND PUDDLE WELDS. SECURE SIDE LAPS WITH 4 WELDED SIDE LAP FASTENERS PER JOIST SPACE

USE: 1½" 20 GA. TYPE B
ROOF DECK - ~~PAINTED~~ GALVANIZED

AISC Code of Standard Practice - Correction of Errors

Normal erection operations include the correction of minor misfits by moderate amounts of reaming, chipping or cutting, and the drawing ...

FOR APPROVAL ONLY
NOT FOR FIELD USE

X

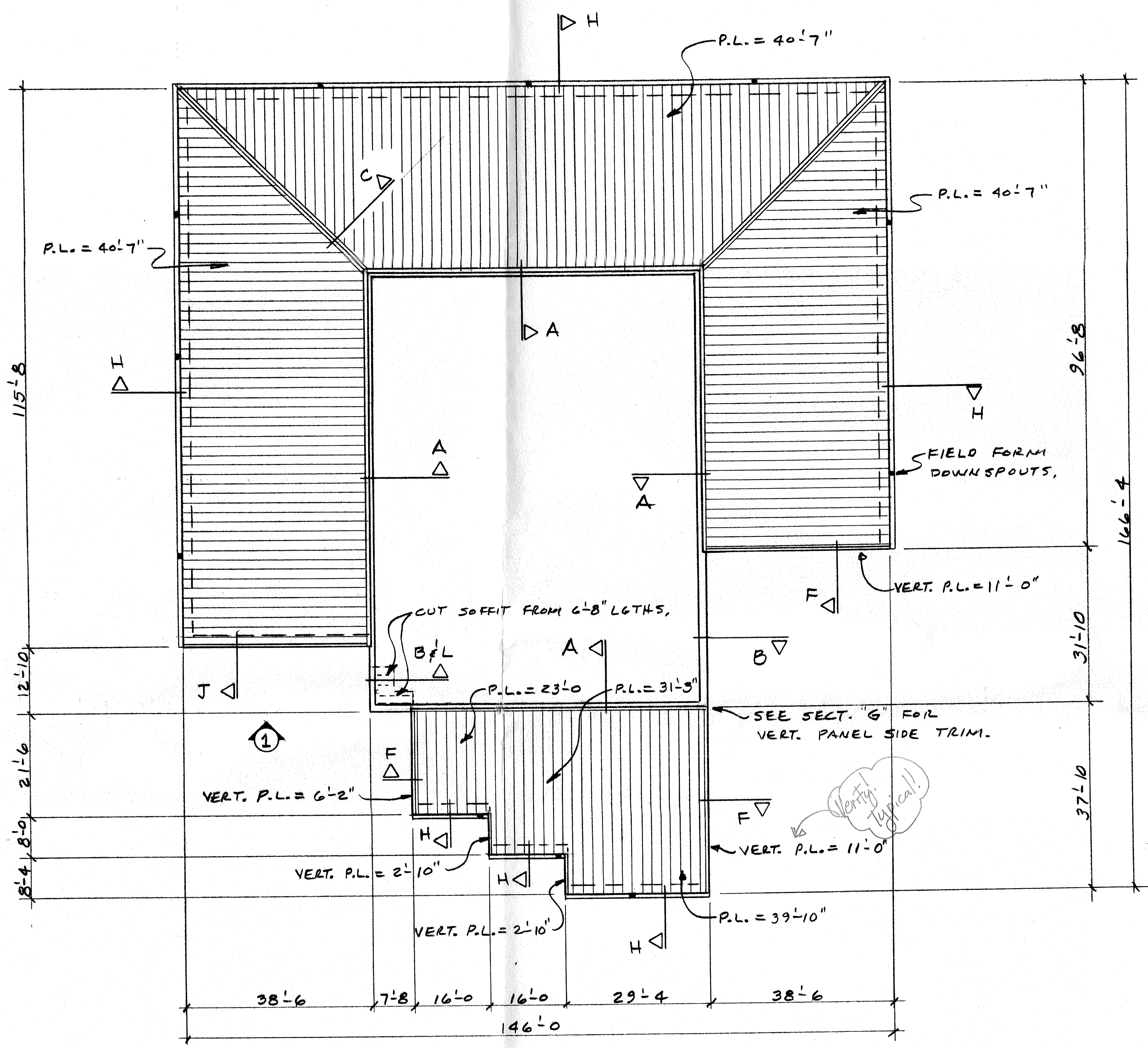
12/22/86 Rudy

REVISIONS				RELEASED FOR FABRICATION
1		3		
2		4		DATE

CHILLICOTHE IRON & STEEL, INC.
450 RYAN LANE P. O. BOX 688 PHONE (816) 646-2250
CHILLICOTHE, MISSOURI 64601

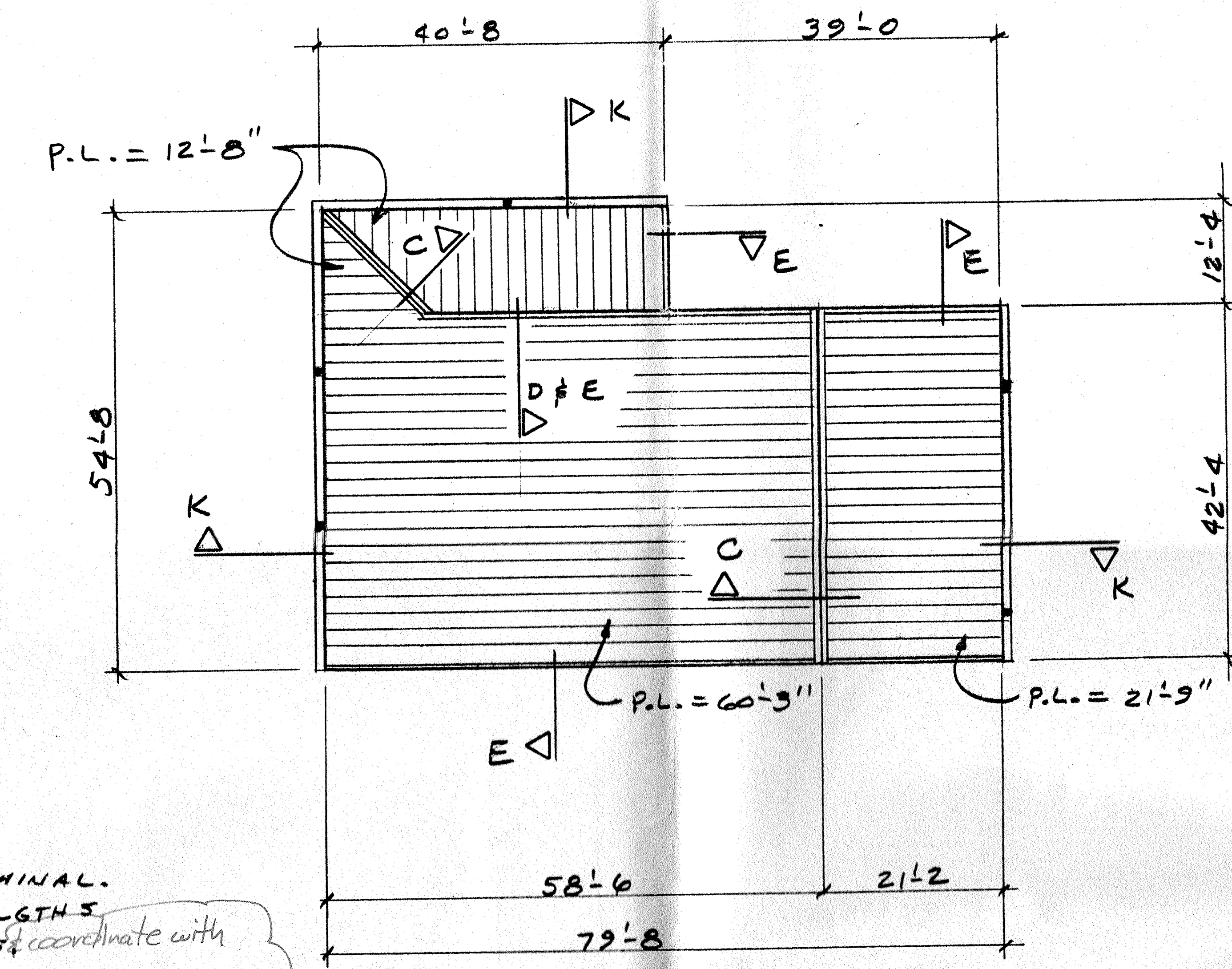
SHEET TITLE: DECK PLAN
JOB: NEW ARMORY #11-837-5-0008 (B)
LOCATION: HARRISONVILLE, MO.
ARCHITECT: GASTINGER REES WALKER ARCHITECTS
ENGINEER:
CONTRACTOR: IRVINBILT COMPANY
PAINT:

HOLES UNLESS NOTED OTHERWISE	BOLT SPEC.	WELDING ELECTRODES	JOB NO. 86102
DRAWN CMS DATE 11/13/86	CHECKED MW DATE 12/13/86		SHEET NO. D1



ARMORY ROOF PLAN

P.L. = PANEL LENGTH



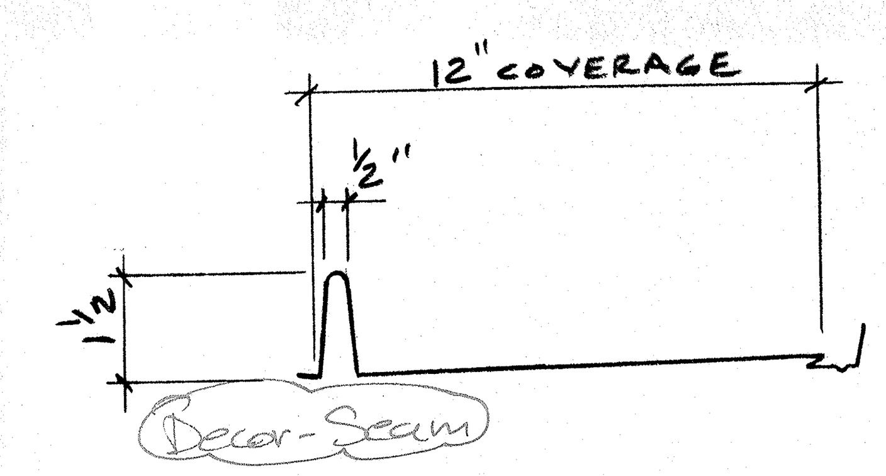
O.M.S. ROOF PLAN

P.L. = PANEL LENGTH

NOTE: DIMENSIONS ARE NOMINAL. Roofing contractor will FIELD VERIFY all PANEL LGTHS & all BLDG. DIMENSIONS & coordinate with general contractor.
Coordinate and verify all roof penetrations (prefab curbs & vents) with sheet metal contractor and general contractor.

Reviewed ( )
Reviewed with Corrections (X)
If checked above, fabrication MAY be undertaken. Review with corrections does not authorize change to Contract and Contract Sum unless stated in separate letter of Change Order.
If checked below, fabrication MAY NOT be undertaken. Resubmit corrected copies for final review. Correction shall be limited to items marked.
Revise and Resubmit ( )
Resubmit not Reviewed ( )
Review only applies to the design concept of the project and the information given in the Contract Documents. The Contractor is responsible for ...
GASTINGER REES WALKER ARCHITECTS
Date: 4/7/87 By: LCZ

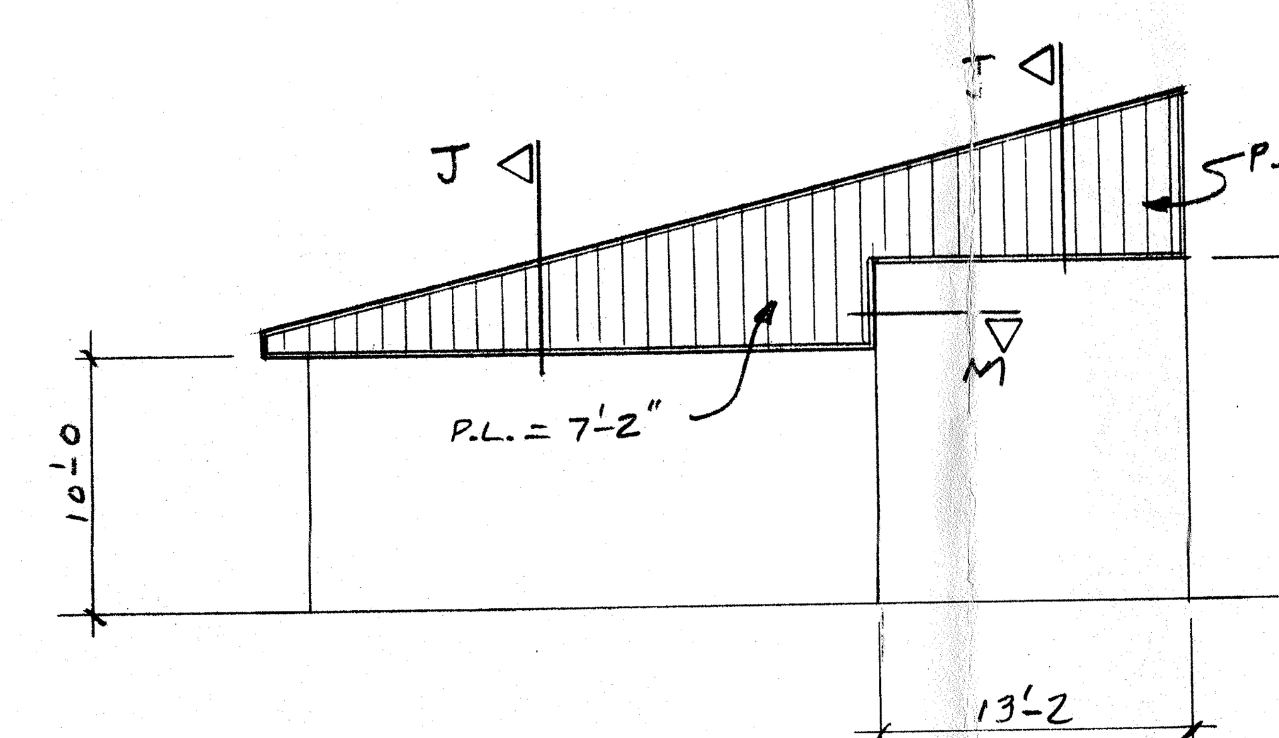
LAYOUT DRAWINGS PREPARED FROM ARCHITECTURAL PLANS DATED 15 AUG. '85 AS PREPARED BY:
GASTINGER REES WALKER, ARCH.
KANSAS CITY, MO.



DS-512 PANEL PROFILE

MAT'L: 24 GA. STL.
COLOR: SKYLIGHT GREY
Provide a mock-up as required per 07400-1.02C

Flashing to match metal roofing in color
NOTE: FIELD FORM FLASHING AROUND ALL ROOF PENETRATIONS.
G.C. Note - provide slip sheet per 07400-2.1C



ELEVATION 1

REFER TO METALS, COATINGS, FINISH PROCESSES, COLORS & WARRANTY, PAGES 13-14 UNDER SWEET'S 7.2/ALU.

GENERAL NOTES

1. No manufacturing will begin until shop drawings are approved by customer and returned to Alumax.
2. ~~Approved shop drawings place the responsibility for quantity, dimensions, color, profiles and other variables with the customer and shall be final and binding on the customer. Additional material ordered after fabrication according to shop drawings, and all shipments made~~ to correct any problems shall be charged to the customer's account.
3. Before releasing material for fabrication, it is recommended that panel lengths, quantities and profiles and dimensions of flashings be verified through field measurements. Alumax shall not be liable for any back charges for errors and/or omissions after approved shop drawings are released for fabrication by the customer.
4. Before beginning installation, inspect/examine the surfaces to receive the panels.
5. Do not begin installation of metal panels if the substrate (trusses, joists, subgrits/furring strips, plywood deck, steel deck, insulation, etc.) is uneven, not uniform or symmetrical, out of plumb or in otherwise unsatisfactory condition, since such conditions can cause oil canning of panels.
6. Due to inconsistencies such as those noted above, the industry has accepted a certain amount of waviness or oil-canning evident in the flat area of rib/seam panels. This is more evident on longer length panels, particularly when sunlight hits them at certain times of the day. This shall not be construed as a product defect and shall not be cause for product refusal.
7. Report unsatisfactory conditions to the general contractor.
8. Beginning installation of panels shall mean acceptance of existing conditions with the substrate.
9. Erection of metal panels must be started so the sheets may be held true, plumb and straight. The seams/battens shall be equidistant and shall align from corners, hips, valleys, etc.
10. During installation of panel, do not use undue pressure to interlock panel. Do not force/push panels together. Ensure that a camber or outward bowing is not forced into the flat area of the panel at the panel ends when installing fasteners or clips. Always drive fasteners perpendicular to the building surface.
11. Alumax is not responsible for the adequacy of attachment of its framing members to other surface conditions; all fasteners for such attachments shall be the responsibility of others and Alumax shall be held harmless on such connections.
12. Ensure that acid residue from cleanup of stucco in the adjacent panel areas is not washed down directly over the panels. This could mar the finish of the coating.
13. Avoid damage or scratching to the exterior surface caused by walking, use of improper tools, improper storage, etc.

Checked by Irvinbilt Co.
BY ___
DATE 4/2/87

SHT. 1 OF 3

SHOP DRAWING APPROVAL			
	ARCHITECT'S APPROVAL	CONTRACTOR'S APPROVAL	CUSTOMER'S APPROVAL
Approved			
Approved as corrected			
Revise and resubmit			
Rejected — see comment			

Architect's approval signifies compliance with Contract Documents, Specifications, Local Building Code requirements and final approval for overall design concept of the Project. Any changes or questions regarding specification compliance must be resolved prior to shop drawing approval.

Architect ___ Date ___

Contractor's approval affirms that Alumax has correctly interpreted the overall contract requirements of the Project and the exact locations of the metal panel and accessories.

Contractor ___ Date ___

Customer's approval is for confirming and correlating all quantities and dimensions, colors and panel profiles, and flashing shapes and dimensions. It is recommended that the above be verified through field measurements.

Customer ___ Date ___

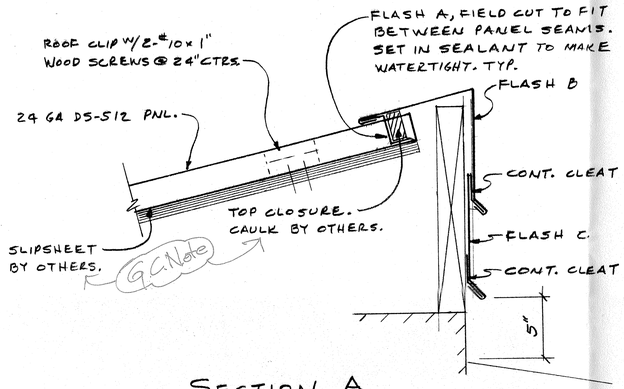
GENERAL CONTRACTOR'S NOTE
ALL DIMENSIONS SHOWN MUST BE VERIFIED BY GENERAL CONTRACTOR, WHO HAS THE SOLE RESPONSIBILITY FOR VERIFYING AND APPROVING JOB REQUIREMENTS. ANY REVISION COULD RESULT IN A CORRESPONDING PRICE CHANGE.

REV. 3-25-87

ALUMAX
BUILDING SPECIALTIES DIVISION
P.O. Box 163 • 227 Town East Blvd. • Mesquite, Texas 75149 • (214) 285-8811

Dealer	POTTS, INC.		
Address	RTE 2 BOX 194		
City	SEDALIA	State	MO
Drawn By	D. ARNOLD / tcb	Date	12-16-86
Scale	~	Job #	860432

NATIONAL GUARD ARMORY
HARRISONVILLE, MO



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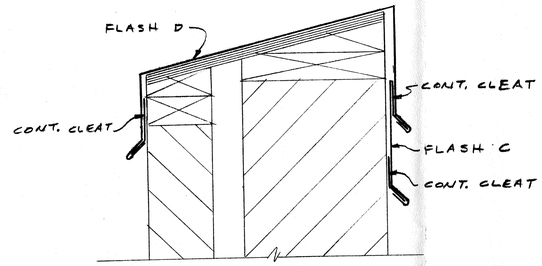

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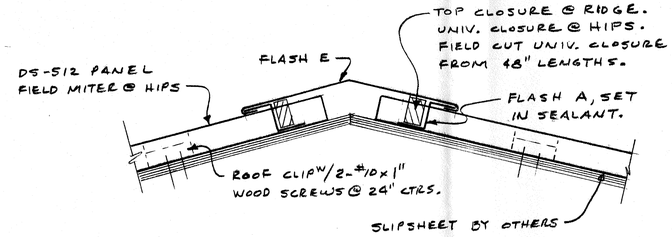

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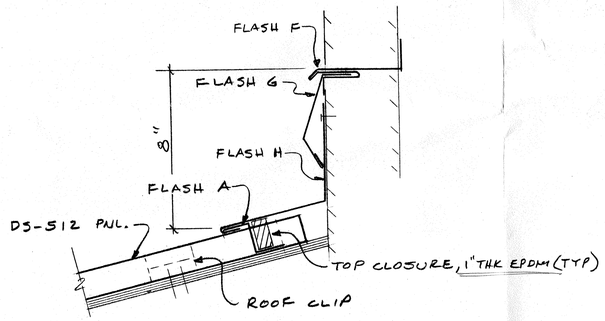

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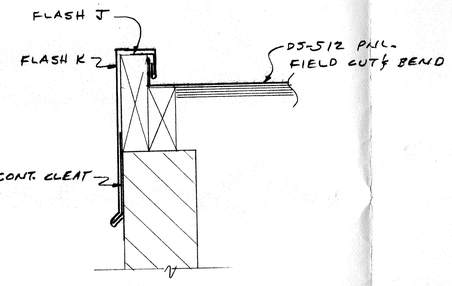

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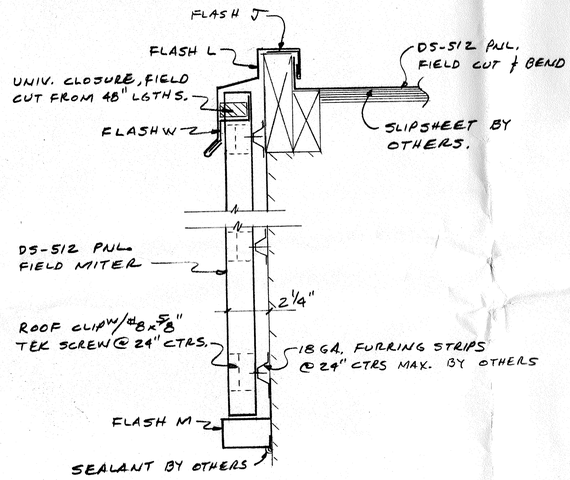

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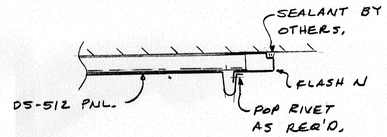

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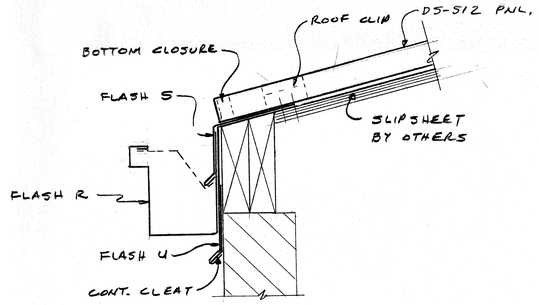

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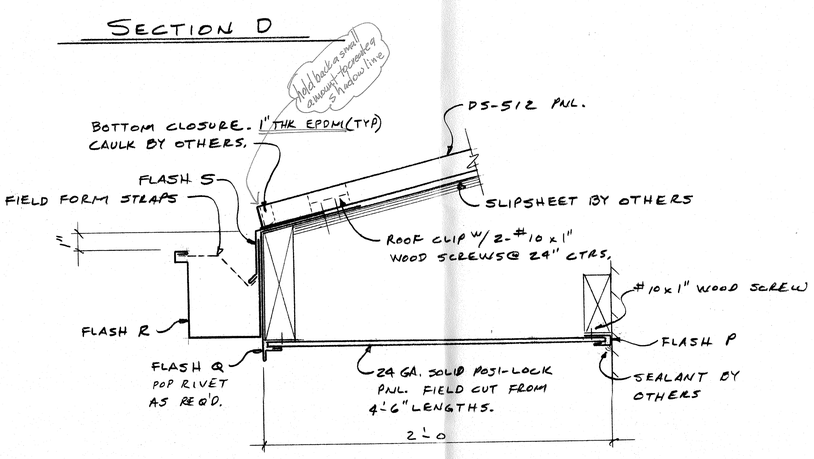

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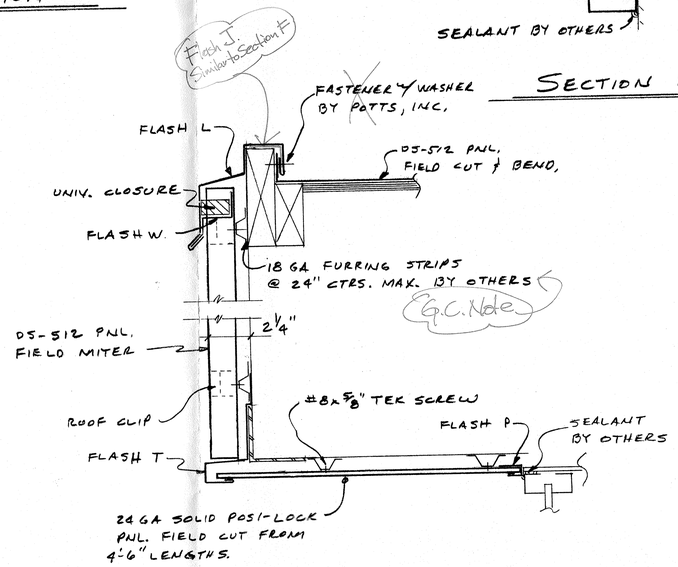


SECTION J

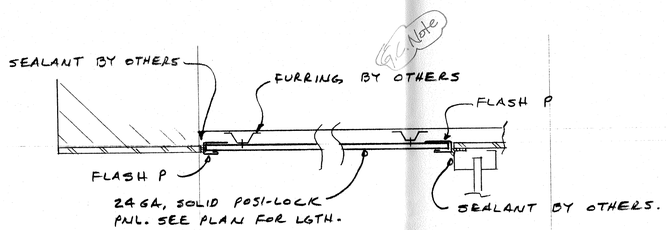
SHT. 2 OF 3

GENERAL CONTRACTOR'S NOTE
ALL DIMENSIONS SHOWN MUST BE VERIFIED BY GENERAL CONTRACTOR, WHO HAS THE SOLE RESPONSIBILITY FOR VERIFYING AND APPROVING JOB REQUIREMENTS. ANY REVISION COULD RESULT IN A CORRESPONDING PRICE CHANGE.

ALUMAX
BUILDING SPECIALTIES DIVISION
P.O. Box 163 • 277 Town East Blvd. • Mesquite, Texas 75149 • (214) 285-8811

REV. 3-25-87
REV. 2-17-87

Dealer	POTTS, INC.		NATIONAL GUARD
Address	RTE 2 Box 194		ARMORY
City	SEDALIA	State MO	HARRISONVILLE, MO.
Drawn By	D. ARNOLD	Date 12-16-86	
Scale		Job # 860932	



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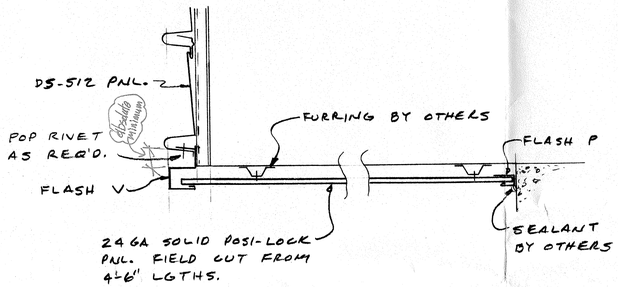

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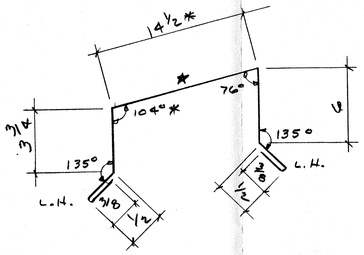

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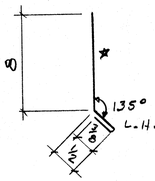

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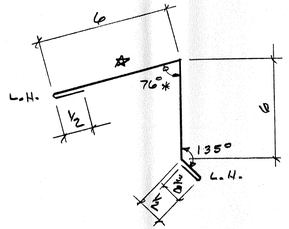

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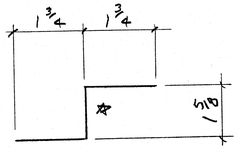

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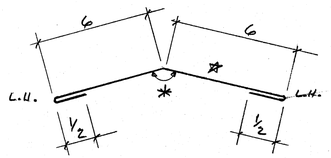

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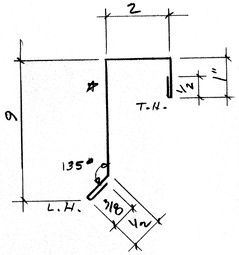

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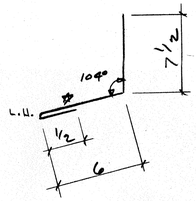

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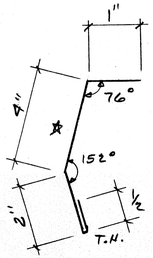

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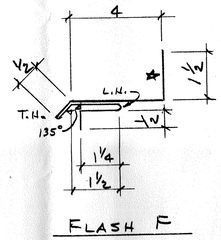

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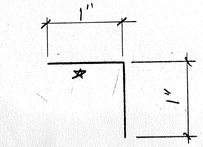

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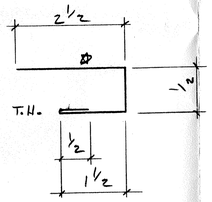

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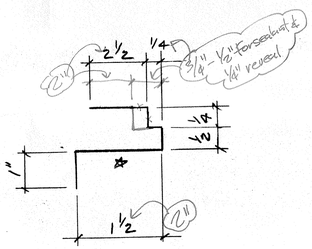

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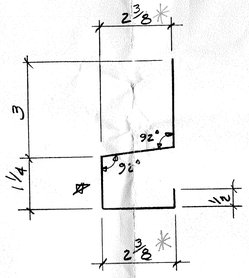

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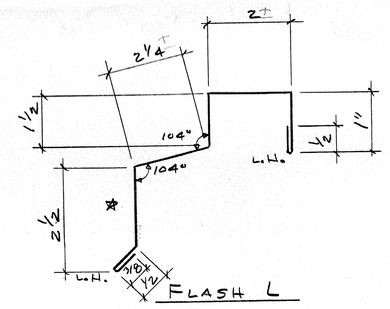

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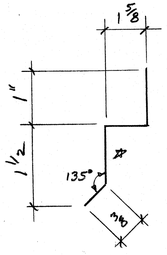

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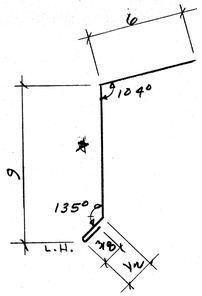
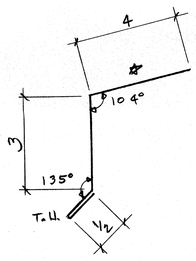


FLASH U



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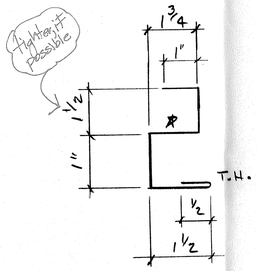

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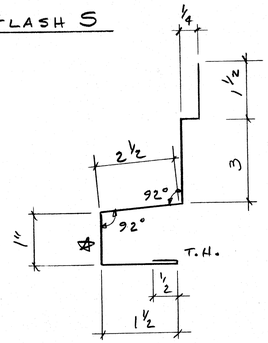

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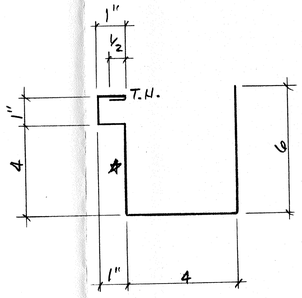

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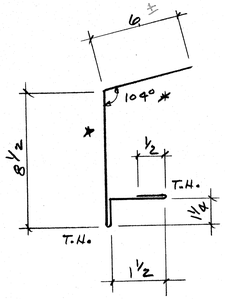


FLASH Q

FLASHING NOTES

1. FIELD FORM FLASHING USING 24 GA FLAT SHEETS. (30" x 10'-0").
2. T.H. = TIGHT HEM, L.H. = LOOSE HEM.
3. ALL ANGLES 90° UNLESS NOTED.
4. # INDICATES COLOR SIDE. COLOR: SKYLIGHT GREY
5. * INDICATES ANGLES & DIMENSIONS TO BE FIELD MEASURED.

SHT. 3 OF 3

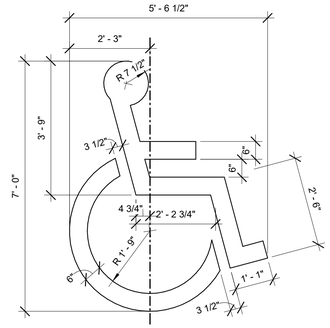
GENERAL CONTRACTOR'S NOTE
ALL DIMENSIONS SHOWN MUST BE VERIFIED BY GENERAL CONTRACTOR, WHO HAS THE SOLE RESPONSIBILITY FOR VERIFYING AND APPROVING JOB REQUIREMENTS. ANY REVISION COULD RESULT IN A CORRESPONDING PRICE CHANGE.

REV. 3-25-87
REV. 2-19-87

ALUMAX
BUILDING SPECIALTIES DIVISION
P.O. Box 163 • 227 Town East Blvd. • Mesquite, Texas 75149 • (214) 285-8811

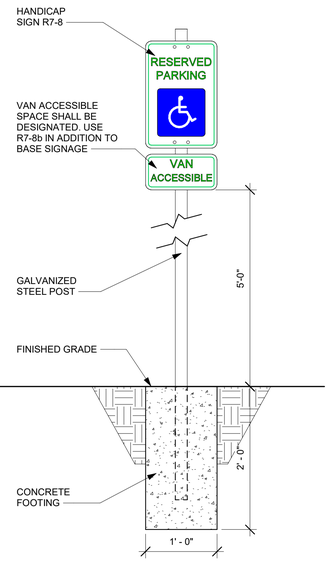
Dealer: POTTS, INC
Address: RTE 2, BOX 194
City: SEDALIA State: MO
Drawn By: D. ARNOLD Date: 12-16-86
Scale: Job #: 860432

NATIONAL GUARD ARMORY
HARRISONVILLE, MO

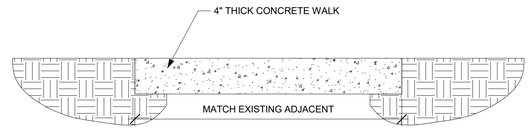


NOTE: THE DIMENSIONS SHOWN ARE PROPORTIONAL. THE SIZE OF ACCESSIBLE PARKING SYMBOL CAN VARY WITH THE OVERALL HEIGHT, NOT LESS THAN 4'-0"

ACCESSIBLE PARKING SYMBOL 4
1/2" = 1'-0"



ACCESSIBLE PARKING SIGN 5
1" = 1'-0"



NOTES:
1. PROVIDE SAWCUT CONTROL JOINTS AT UNIFORM SPACING EQUAL TO SIDEWALK WIDTH

CONCRETE WALK SECTION 2
1 1/2" = 1'-0"

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI
JASON SCOTT BARKER
NUMBER A-2005001198
REGISTERED ARCHITECT

July 9, 2025
Jason Scott Barker - MO #A2005001198
Certificate of Authority - MO #000767

PROFESSIONAL SEAL

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816.361.1177

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DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF MISSOURI NATIONAL GUARD

HARRISONVILLE READNESS CENTER REPAIRS TO INTERIOR & EXTERIOR

HARRISONVILLE, MISSOURI

PROJECT # T2334-01
SITE # 6271
FACILITY #8136271003

No.	Date	Description
1	9/3/25	Addendum 1

ISSUE DATE: 07.09.2025
CAD DWG FILE:

DRAWN BY: KP
CHECKED BY: JB
DESIGNED BY: KP

SHEET TITLE:

SITE DETAILS

SHEET NUMBER:

AS-102

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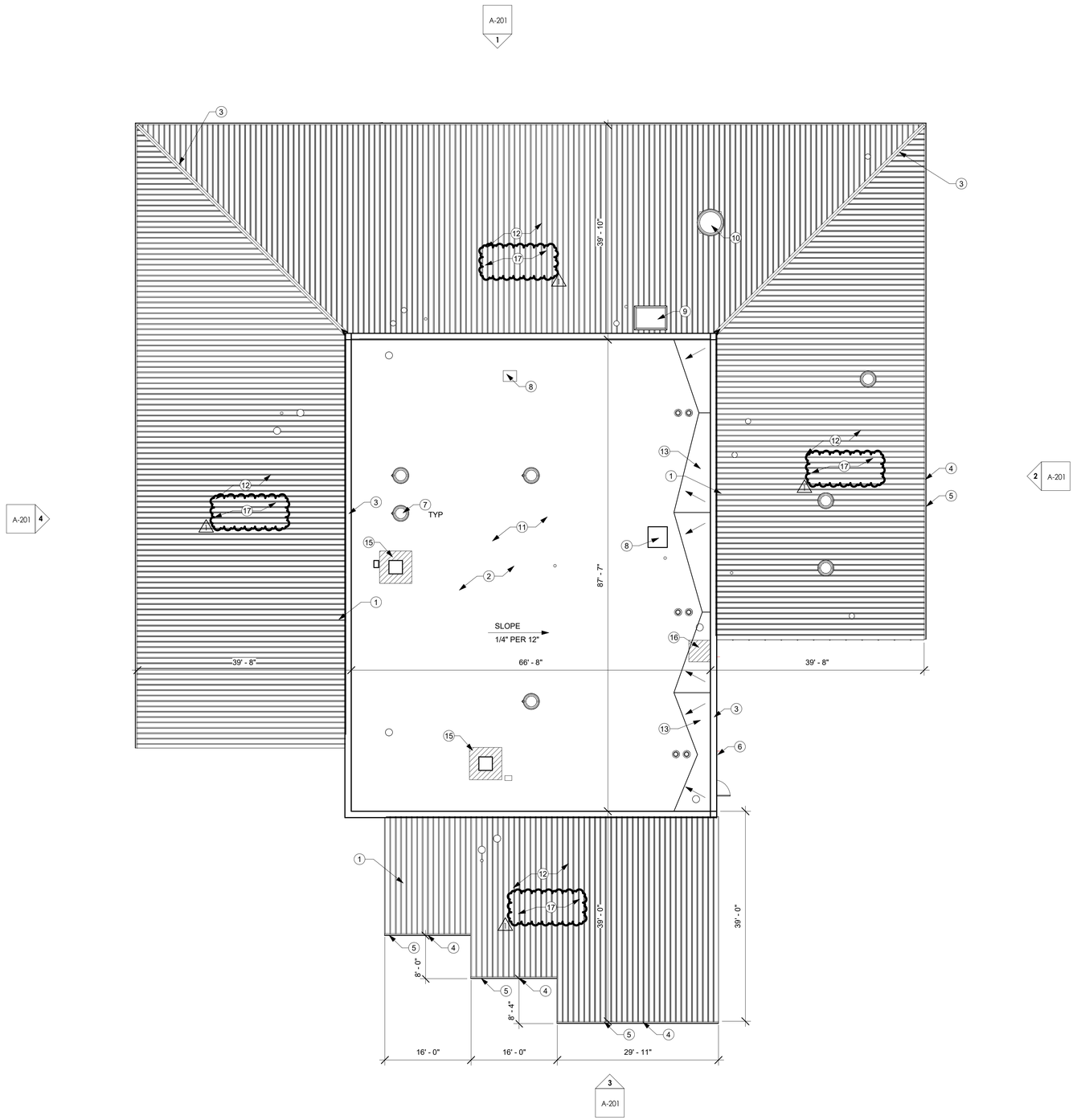

ROOF PLAN NOTES

1	NEW STANDING SEAM ROOF
2	NEW TPO ROOF, COVER BOARD & 4" RIGID INSULATION
3	NEW TRIM AND FASHING
4	NEW FASCIA AND SOFFIT
5	NEW GUTTERS AND DOWNSPOUT
6	NEW THRU WALL METAL SCUPPER & FLASHING
7	EXISTING EQUIPEMENT TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE, TYP
8	PATCH HOLE IN METAL DECK. INSTALL INSULATION MATCHING EXISTING ADJACENT
9	PATCH HOLE IN METAL DECK AT REMOVED LOUVER
10	PATCH HOLE IN METAL DECK AT REMOVED EXHAUST FAN
11	EXISTING VENT AND STACKS TO REMAIN, UNLESS NOTED OTHERWISE
12	BUDGET TO REMOVE AND REPLACE 5% METAL DECK BELOW STANDING SEAM ROOFS
13	INSTALL CRICKET OVERLAY MIN 1/2" IN 12" SLOPE
14	INSTALL CRICKET AT PENERTRATIONS FOR POSTIVE DRAINAGE, TYP
15	WALKWAY PADS AT AT EQUIPMENT, TYP
16	4'-0" WALKWAY PAD CENTERED AT LADDER
17	BUDGET TO REMOVE AND REPLACE 7% ROOF SHEATHING BELOW STANDING SEAM ROOFS

ROOF PLAN 1
3/32" = 1'-0"

KEY PLAN

NORTH

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

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SHEET TITLE:

ROOF PLAN

SHEET NUMBER:

A-102

10 OF 30 SHEETS
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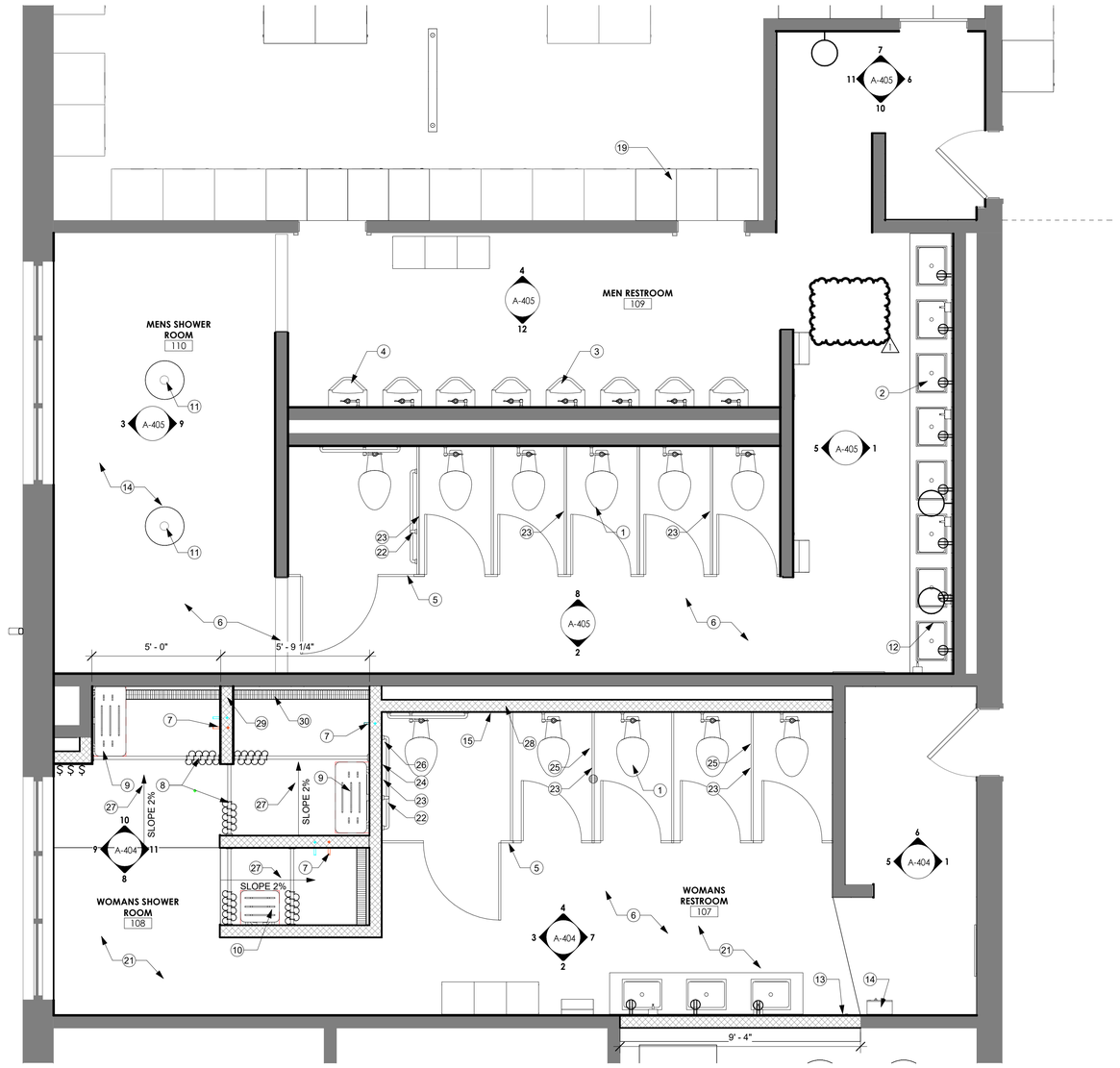

ENLARGED FLOOR PLAN RESTROOM 1
REFERENCED FROM 1 / A-100 3/8" = 1'-0"

FLOOR PLAN NOTES

1	FLOOR MOUNTED ADA TOILET
2	WALL MOUNTED SINK
3	URNIAL REMOVE AND REINSTALL URINAL, TYP
4	REMOVE AND REINSTALL URNIAL AT ADA HEIGHT
5	PLASTIC TOILET PARTITION FLOOR MOUNTED
6	RESINOUS FLOORING AND BASE
7	SHOWER FIXTURE
8	CURVED SHOWER ROD AND CURTAIN
9	ADA FOLDING SHOWER BENCH 33" x 16"
10	ADA FOLDING SHOWER BENCH 18" x 16"
11	GANG SHOWER
12	ADA SINK
13	EXISTING FOLDING PAPER TOWEL DISPENSERS TO BE REMOVED AND REINSTALLED AT NEW LOCATION
14	EXISTING SANITARY NAPKIN DISPENSER TO BE REMOVED AND REINSTALLED AT NEW LOCATION
15	NEW 16" X 16" ACCESS PANEL IN EXISTING MASONRY WALL
17	REMOVE AND REPLACE EXISTING SEALNT AND BACKERROD AT STOREFRONT UNIT
18	REMOVE AND REPLACE EXISTING SEALNT AND BACKERROD AT WINDOW
19	EXISTING 24" X 24" LOCKERS TO BE RELOCATED
20	EXISTING 18" X 24" LOCKERS TO BE MOVED TO MENS LOCKER ROOM, REMAINING TO BE TURNED OVER TO OWNER
21	NEW CONCRETE FLOOR SLAB
22	NEW ADA GRAB BARS: 42", 36" AND VERTICAL 18"
23	PARTITION MOUNTED DUAL TOILET TISSUE DISPENSER
24	SURFACE MOUNTED TOILET TISSUE DISPENSER
25	PARTITION MOUNTED DUAL SANITARY NAPKIN DISPOSAL
26	SURFACE MOUNTED SANITARY NAPKIN DISPOSAL
27	NEW CONCRETE FLOOR SLAB SLOPE TO TRENCH DRAINS AT MAX 2%
28	NEW MASONRY WALL IN SAME LOCATION AS EXISTING WALL
29	OMMIT FIRST MASONRY UNIT SO WALL SPANS OVER TRENCH DRAIN
30	OUTSIDE EDGE OF TRENCH DRAIN TO BE WITHIN 6" OF BACK WALL

KEY PLAN

NORTH

AREA OF WORK, RESTROOM

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI
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SHEET TITLE:

ENLARGED PLANS

SHEET NUMBER:

A-401

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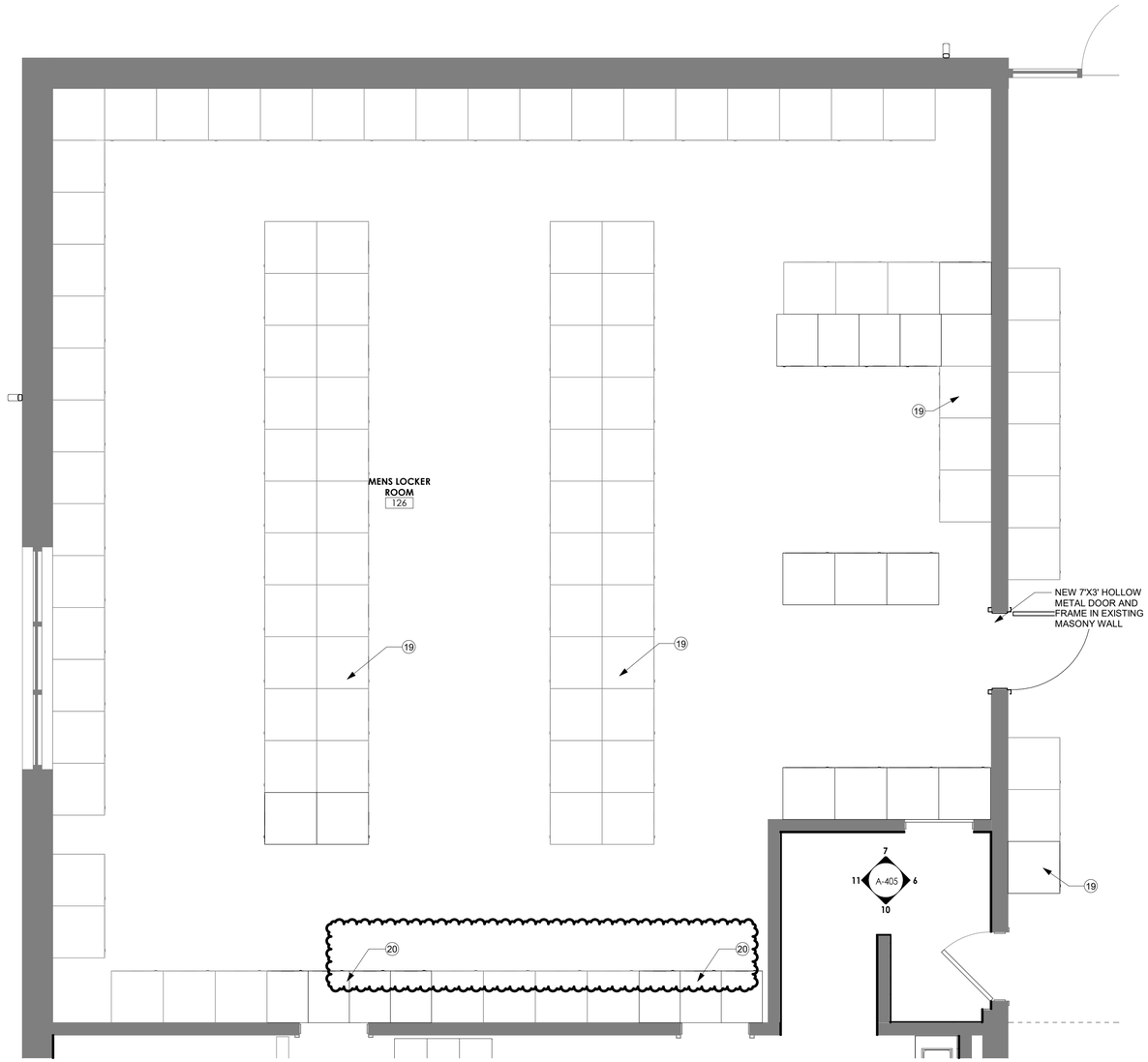

ENLARGED FLOOR PLAN LOCKERROOM 1
REFERENCED FROM 1 / ADP-201 3/8" = 1'-0"

FLOOR PLAN NOTES

1	FLOOR MOUNTED ADA TOILET
2	WALL MOUNTED SINK
3	URNIAL REMOVE AND REINSTALL URINAL, TYP
4	REMOVE AND REINSTALL URNIAL AT ADA HEIGHT
5	PLASTIC TOILET PARTITION FLOOR MOUNTED
6	RESINOUS FLOORING AND BASE
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27	NEW CONCRETE FLOOR SLAB SLOPE TO TRENCH DRAINS AT MAX 2%
28	NEW MASONRY WALL IN SAME LOCATION AS EXISTING WALL
29	OMMIT FIRST MASONRY UNIT SO WALL SPANS OVER TRENCH DRAIN
30	OUTSIDE EDGE OF TRENCH DRAIN TO BE WITHIN 6" OF BACK WALL

KEY PLAN

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI
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SITE # 6271
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1	9/3/25	Addendum 1

ISSUE DATE: 07.09.2025
CAD DWG FILE:

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ENLARGED PLANS

SHEET NUMBER:

A-402

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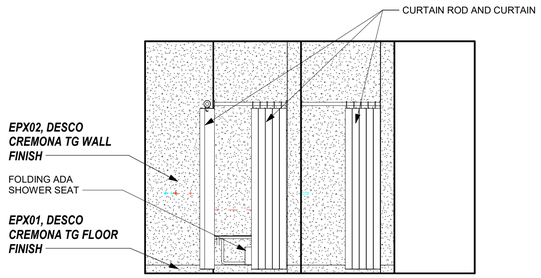
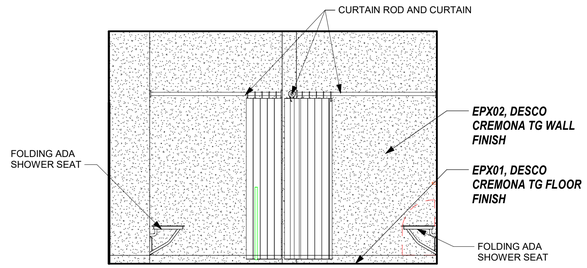
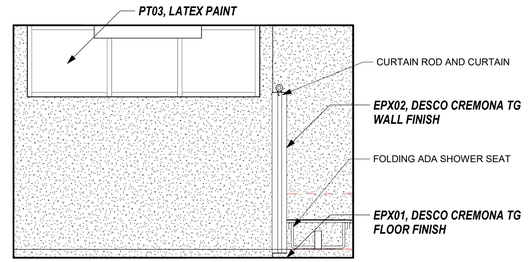


ELEVATION - WOMANS SHOWER EAST 11
REFERENCED FROM 1 / A-401 3/8" = 1'-0"



ELEVATION - WOMENS SHOWER NORTH 10
REFERENCED FROM 1 / A-401 3/8" = 1'-0"



ELEVATION - WOMENS SHOWER WEST 9
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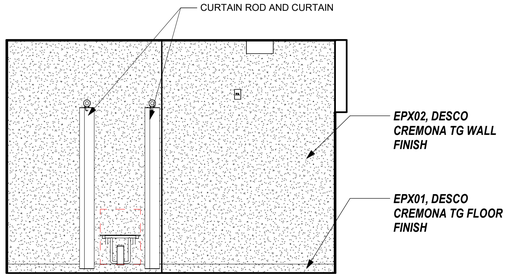

ELEVATION - WOMANS SHOWER SOUTH 8
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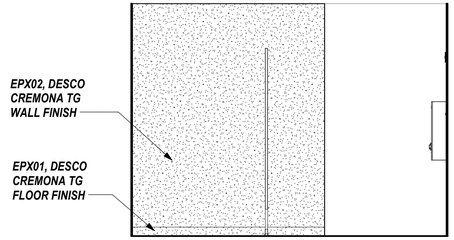

ELEVATION - WOMEN RESTROOM EAST 2 7
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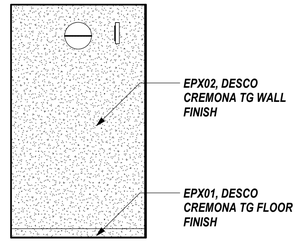
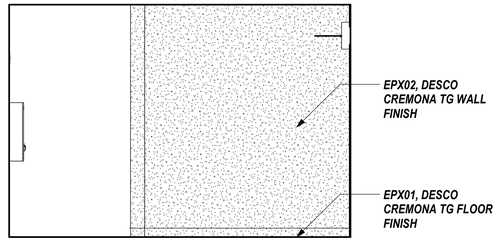


ELEVATION - WOMEN RESTROOM NORTH ENTRY 6
REFERENCED FROM 1 / A-401 3/8" = 1'-0"



ELEVATION - WOMEN RESTROOM WEST ENTRY 5
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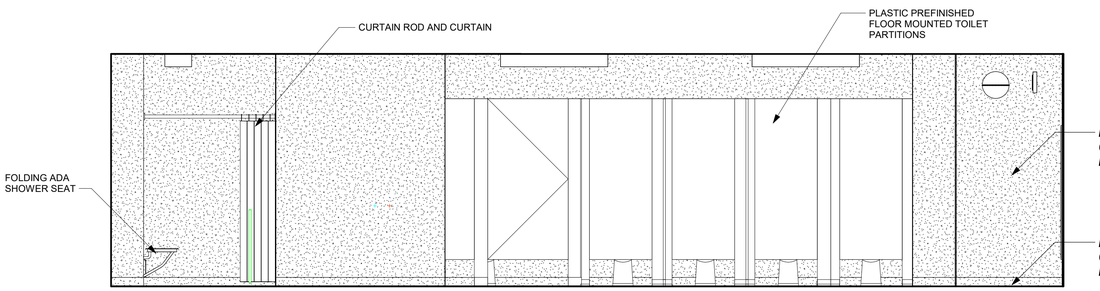

ELEVATION - WOMEN RESTROOM NORTH 4
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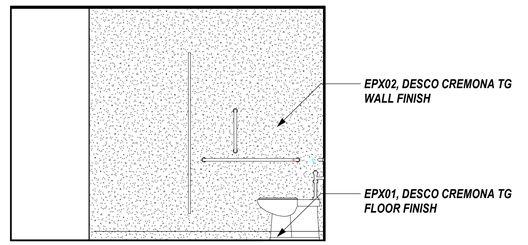

ELEVATION - WOMEN RESTROOM WEST 3
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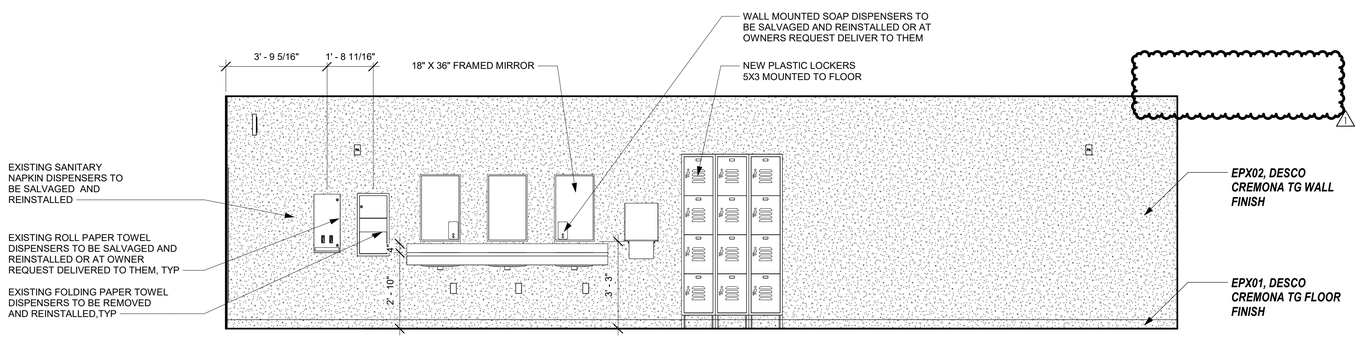

ELEVATION - WOMEN RESTROOM SOUTH 2
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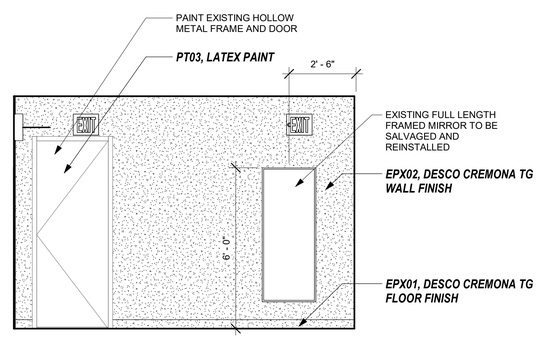

ELEVATION - WOMEN RESTROOM EAST 1
REFERENCED FROM 1 / A-401 3/8" = 1'-0"

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PROJECT # T2334-01
SITE # 6271
FACILITY #8136271003

No.	Date	Description
1	9/3/25	Addendum 1

ISSUE DATE: 07.09.2025
CAD DWG FILE:

DRAWN BY: KP
CHECKED BY: JB
DESIGNED BY: KP

SHEET TITLE:
INTERIOR ELEVATIONS WOMANS RESTROOM

SHEET NUMBER:
A-404

15 OF 30 SHEETS
8/22/2025 4:04:00 PM

8/22/2025 4:04:00 PM

ROOM FINISH SCHEDULE

Number	ROOM NAME	Floor Finish	Base Finish	Wall Finishes				Ceiling Finish	Notes
				North	East	South	West		
110	MENS SHOWER ROOM	EPXY-1	EPXY-1	EPXY-2/PNT-1	EPXY-2/PNT-1	EPXY-2/PNT-1	EPXY-2/PNT-1	PNT-1	
113	MECH	ETR	ETR						
115	STORAGE	ETR	ETR						
114	STORAGE	ETR	ETR						
117	VAULT	ETR	ETR						
119	STORAGE	ETR	ETR						
120	KITCHEN	ETR	ETR						
121	SCHLLERY	ETR	ETR						
104	ASSEMBLY HALL	ETR	ETR						14
122	CLASSROOM	ETR	ETR						1
123	OFFICE	ETR	ETR						6 of 25
125	OFFICE	ETR	ETR						8 of 25
100	FOYER	ETR	ETR						
105	LIBRARY	ETR	ETR						4 of 25
106	MECH	ETR	ETR						
103	OFFICE	ETR	ETR						2 of 25
102	ADMINISTRATION	ETR	ETR						1 of 25
109	MEN RESTROOM	EPXY-1	EPXY-1	EPXY-2/PNT-1	EPXY-2/PNT-1	EPXY-2/PNT-1	EPXY-2/PNT-1	PNT-1	
107	WOMANS RESTROOM	EPXY-1	EPXY-1	EPXY-2/PNT-1	EPXY-2/PNT-1	EPXY-2/PNT-1	EPXY-2/PNT-1	PNT-1	
108	WOMANS SHOWER ROOM	EPXY-1	EPXY-1	EPXY-2/PNT-1	EPXY-2/PNT-1	EPXY-2/PNT-1	EPXY-2/PNT-1	PNT-1	
118	OFFICE	ETR	ETR						5 of 25
124	OFFICE	ETR	ETR						7 of 25
112	CORRIDOR	ETR	ETR						
111	CORRIDOR	ETR	ETR						
116	STORAGE	ETR	ETR						
104	OFFICE	ETR	ETR						3 of 25
126	MENS LOCKER ROOM	ETR	ETR						
127	WOMENS LOCKER ROOM	ETR	ETR						

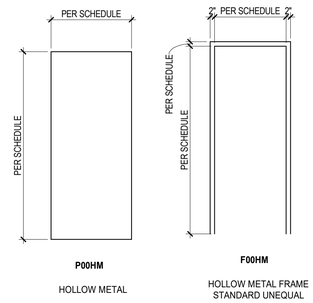
Finish Legend

Symbol	Manufacturer	Series/Pattern	Number	Color	Remarks
Epoxy					
EPXY-1	Desco	Cremoa		60:20:20 White:Navy:Black	RR Floors
EPXY-2	Desco	Cremoa		80:10:10 White:Navy:Blackk	RR Walls
Paint					
PNT-1	Sherwin Williams	Epoxy Paint	SW 7063	Nebulous White	Above Epoxy
PNT-2	Sherwin Williams		SW 7063	Nebulous White	Non Wet Areas
Quartz					
QTZ-1	Cambria			Weybourne	RR Sink Coutner
Rubber Base					
RB-1					Match Existing

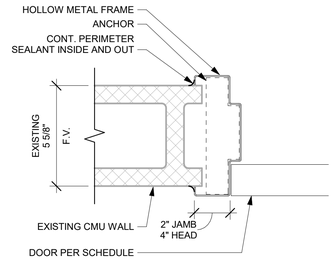
DOOR SCHEDULE

MARK	PANEL SIZE	PANEL TYPE	PANEL FINISH	FRAME TYPE	FRAME SIZE	FRAME TYPE	FRAME FINISH	HARDWARE SET	NOTES
126A	3'-0" X 7'-0"	P00HM	PAINT	F00M	8 3/4" W/ 4" HEAD	HM GALV	PAINT	1	

GENERAL NOTES:
1. ALL DIMENSIONS LISTED IN DOOR SCHEDULE ARE EXISTING AND ARE TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS.



DOOR & FRAME LEGEND



HOLLOW METAL FRAME @ EXISTING CMU

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

STATE OF MISSOURI
JASON SCOTT BARKER
NUMBER A-2005001198
REGISTERED ARCHITECT

July 9, 2025
Jason Scott Barker - MO #A2005001198
Certificate of Authority - MO #000767

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MECHANICAL, ELECTRICAL, PLUMBING, FIRE ALARM, FIRE SPRINKLER, & INFORMATION TECHNOLOGY
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF MISSOURI NATIONAL GUARD

HARRISONVILLE READNESS CENTER
REPAIRS TO INTERIOR & EXTERIOR

HARRISONVILLE, MISSOURI

PROJECT # T2334-01
SITE # 6271
FACILITY #8136271003

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ISSUE DATE: 07.09.2025
CAD DWG FILE:

DRAWN BY: KP
CHECKED BY: JB
DESIGNED BY: KP

SHEET TITLE:

SCHEDULES

SHEET NUMBER:

A-600

18 OF 30 SHEETS
9/2/2025 1:26:42 PM

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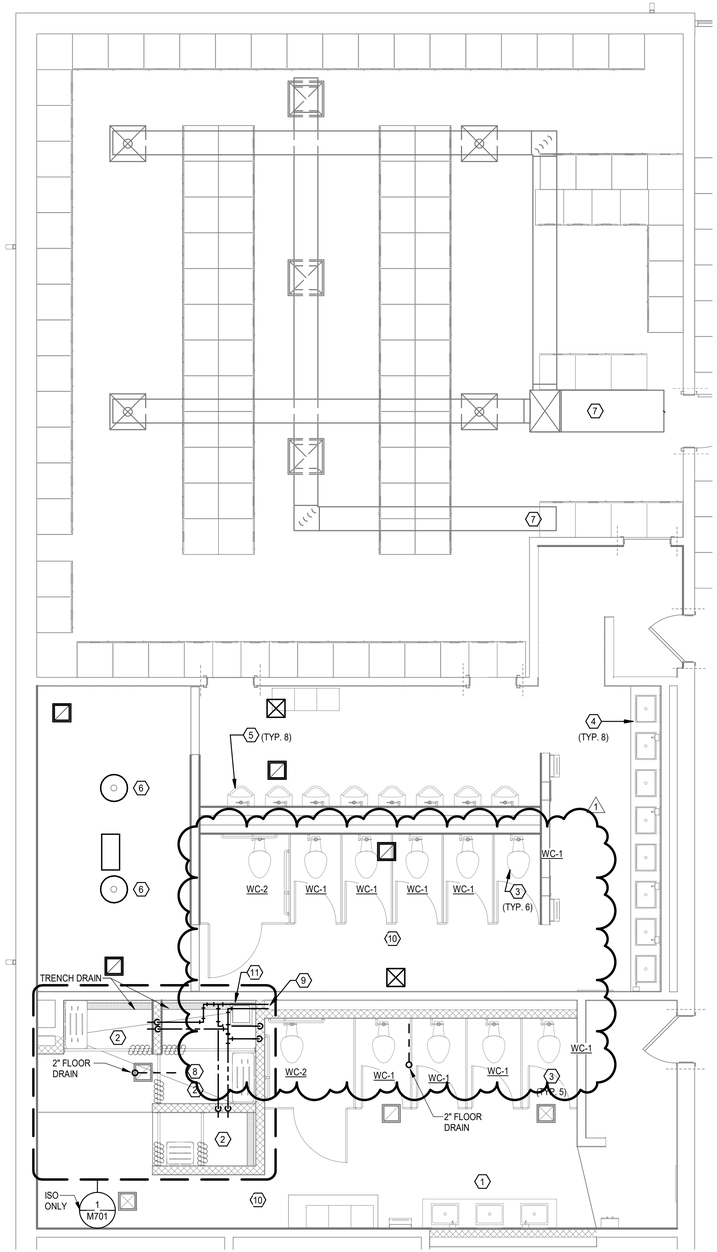


NORTH

1 ENLARGED MECHANICAL PLAN

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

MECHANICAL KEYNOTES

1. RESTROOM/LOCKER UPGRADES:
   PROVIDE NEW 3-STATION WASH BASINS. BRADLEY "LVAD3"

   NATURAL QUARTZ WASH BASIN WITH 3 LAVATORY CONNECTIONS SPACED AT 30" ON CENTERS. INTERGRAL DRAIN TROUGH.

   PROVIDE WITH TOUCHLESS FAUCETS (0.5 GPM) AND TOUCHLESS SOAP DISPENSERS, SUPPORT BRACKETS, COMPONENT ACCESS PANELS.
2. RESTROOM/LOCKER UPGRADES:
   PROVIDE NEW SHOWER SYSTEMS.

   ZURN Z664 TRENCH DRAIN WITH AMERICAN STANDARD TU662.211 SHOWER TRIM.

   THERMOSTATIC MIXING VALVE WITH SHAPE MEMORY ALLOY, INTEGRATED SERVICE STOPS, 1/2" NPT CONNECTIONS, AND CORROSION RESISTANCE. UNIT SHALL BE COMPLIANT WITH ASME A112.18.1.

   PROVIDE WITH SOLID BRASS TEMPERATURE CONTROL TRIM WITH ANTI-SCALD SAFETY STOP, LEVER HANDLE, AND POLISHED CHROME FINISH. TRIM SHALL BE ASME A112.18.1 AND ADA COMPLIANT. PROVIDE WITH SINGLE SPRAY SHOWERHEAD WITH HOSE AND 36" SLIDE BAR. PROVIDE ADA GRAB BARS FOR ADA SHOWERS. REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS OF ALL COMPONENTS.

   SHOWER VALVES TO BE MOUNTED IN WALL.
3. RESTROOM/LOCKER UPGRADES:
   PROVIDE NEW WATER CLOSETS - REFER TO PLUMBING FIXTURE SCHEDULE.
4. RESTROOM/LOCKER UPGRADES:
   REPLACE LAVATORIES - KOHLER "KINGSTON" K-2005

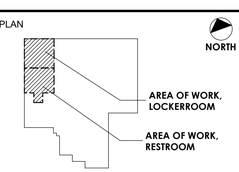
   WHITE, VITREOUS CHINA, FRONT OVERFLOW, D-SHAPED BOWL, FAUCET LEDGE AND SELF-DRAINING DECK AREA WITH CONTOURED BACK AND SIDE SPLASH SHIELDS. FAUCET HOLES SHALL BE 4" ON CENTER. NOMINAL DIMENSION OF 21-1/4"x18-1/8" BOWL DIMENSION OF 16"x10".

   PROVIDE WITH FLOOR MOUNTED FIXTURE CARRIER AS REQUIRED. CHROME-PLATED COPPER SUPPLIES WITH LOOSE TEE KEY STOPS. PROVIDE 1-1/2" CHROME-PLATED CAST-BRASS TRAP WITH CLEANOUT AND WALL ESCUTCHEONS.

   KOHLER CORALAIS K-15593 FAUCET, ADA-COMPLIANT, CHROME-PLATED METAL CONSTRUCTION, ONE-PIECE LEVER HANDLE FAUCET, 0.5 GPM VANDAL RESISTANT AERATOR, HIGH-TEMP LIMIT STOP, AND CHROME PLATED BRASS GRID STRAINER.
5. EXISTING URINALS TO REMAIN. CONTRACTOR TO ENSURE NO DAMAGE IS DONE TO URINALS DURING CONSTRUCTION.
6. RESTROOM/LOCKER UPGRADES:
   REPLACE GROUP SHOWERS - BRADLEY COL-6C

   SIX STATION COLUMN SHOWER WITH 304 STAINLESS STEEL OR POLISHED CHROME-PLATED BRASS EXPOSED MATERIALS. INDIVIDUAL TEMPERATURE ADJUSTMENT AT EACH STATION WITH PRESSURE BALANCING VALVE. 1.5 GPM STANDARD SHOWER HEAD. SUPPLIES FROM ABOVE.
7. RESTROOM/LOCKER UPGRADE:
   REBALANCE LOCKERROOM EXHAUST AND HEATING SYSTEM.
8. CONNECT 2 WASTE FROM FLOOR DRAIN TO THE NEAREST MAIN.
9. CONNECT 3/4" HW AND CW TO THE NEAREST EXISTING MAIN AND PROVIDE ISOLATION VALVES.
10. RECONNECT NEW EXHAUST FAN TO EXISTING DUCTWORK AND NEW GRILLES.
11. 12" ACCESS PANEL FOR VALVE ACCESS.

KEY PLAN



STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI
ZACHARY KORENAK
NUMBER PE-2011015768
PROFESSIONAL ENGINEER
09. -25

PROFESSIONAL SEAL

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DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF
Owner

HARRISONVILLE READINESS CENTER

1503 SOUTH JEFFERSON PARKWAY
HARRISONVILLE, MO
64701

PROJECT # 023-05260
SITE #
FACILITY #

No.	Date	Description
1	09/03/2025	ADDENDUM 1

ISSUE DATE: 07/09/2025
CAD DWG FILE:

DRAWN BY: KP
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SHEET TITLE:
ENLARGED MECHANICAL PLAN

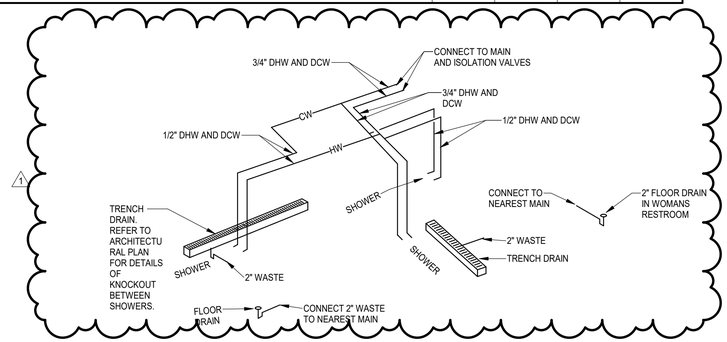
SHEET NUMBER:
M401

OF 30 SHEETS
8/26/2025 10:57:46 AM

8/26/2025 10:57:46 AM

PLUMBING FIXTURE SCHEDULE

MARK	TYPE	MANUFACTURER	MODEL	DESCRIPTION	ACCESSORIES	CONNECTIONS			
						WASTE	VENT	CW	HW
WC-1	WATER CLOSET FLOOR MOUNTED FLUSH VALVE	KOHLER	"HIGHCLIFF" K-96057	ELONGATED, VITREOUS CHINA BOWL, FLOOR MOUNTED, 1-1/2" TOP SPUD, FLOOR OUTLET, 1.28 GPF.	INCLUDE BOLT CAPS MATCHING FIXTURE, KOHLER "LUSTRA" K-4670-C, ELONGATED SEAT, OPEN FRONT, NO LID (WHITE). FLUSH VALVE: SLOAN MODEL NO. 3780046, 1.28 GPF, CHROME PLATED, HIGH BACK PRESSURE VACUUM BREAKER FLUSH CONNECTION, ONE-PIECE BOTTOM HEX COUPLING NUT, CONTROL STOP WITH INTERNAL SIPHON GUARD PROTECTION, VANDAL RESISTANT STOP CAP, ADJUSTABLE TAILPIECE. LOCATE FLUSH LEVER ON OPEN SIDE OF FIXTURE, REFER TO PLANS PRIOR TO ORDERING.	4"	2"	1-1/4"	–
WC-2	WATER CLOSET FLOOR MOUNTED FLUSH VALVE ADA	KOHLER	"HIGHCLIFF" K-96057	ELONGATED, VITREOUS CHINA BOWL, FLOOR MOUNTED, 1-1/2" TOP SPUD, FLOOR OUTLET, 1.28 GPF; ADA-COMPLIANT.	INCLUDE BOLT CAPS MATCHING FIXTURE, KOHLER "LUSTRA" K-4670-C, ELONGATED SEAT, OPEN FRONT, NO LID (WHITE). FLUSH VALVE: SLOAN MODEL NO. 3780048 FLUSH VALVE, 1.28 GPF, CHROME PLATED, HIGH BACK PRESSURE VACUUM BREAKER FLUSH CONNECTION, ONE-PIECE BOTTOM HEX COUPLING NUT, CONTROL STOP WITH INTERNAL SIPHON GUARD PROTECTION, VANDAL RESISTANT STOP CAP, ADJUSTABLE TAILPIECE, ADA COMPLIANT. LOCATE FLUSH LEVER ON OPEN SIDE OF FIXTURE, REFER TO PLANS PRIOR TO ORDERING.	4"	2"	1-1/4"	–
L-1	LAVATORY WALL HUNG	KOHLER	"KINGSTON" K-2005	WHITE, VITREOUS CHINA, UNDERMOUNT, FRONT OVERFLOW, D-SHAPED BOWL, FAUCET LEDGE AND SELF-DRAINING DECK AREA WITH CONTOURED BACK AND SIDE SPLASH SHIELDS. FAUCET HOLES SHALL BE 4" ON CENTER.	PROVIDE WITH FLOOR-MOUNTED FIXTURE CARRIER, CHROME-PLATED COPPER SUPPLIES WITH LOOSE TEE KEY STOPS. PROVIDE 1-1/2" CHROME-PLATED CAST-BRASS TRAP WITH CLEANOUT AND WALL ESCUTCHEONS. KOHLER "CORALAIS" K-15598 FAUCET, ADA-COMPLIANT, CHROME-PLATED METAL CONSTRUCTION, ONE-PIECE AUTOMATIC FAUCET, 1.5 GPM VANDAL RESISTANT AERATOR, HIGH-TEMP LIMIT STOP, AND CHROME PLATED BRASS GRID STRAINER.	2" UP TO 1-1/2" TRAP ARM	1-1/4"	1/2"	1/2"
EWC-1	ELECTRIC WATER COOLER	ELKAY	EZSTL8WS	WALL MOUNT WATER COOLER. 8 GPH AT 90°F AMBIENT, 370 WATTS, 5.0 FLA, SELF-CLOSING EASY-TOUCH CONTROLS ON THE FRONT, LEFT AND RIGHT OF UNIT, AND FLEXI-GUARD SAFETY BUBBLER.	PROVIDE CHROME-PLATED COPPER SUPPLY STOPS, CHROME-PLATED CAST-BRASS TRAP WITH CLEANOUT (0.045" THICK TUBULAR BRASS WASTE TO WALL) AND WALL ESCUTCHEONS.	1-1/2"	1-1/4"	1/2"	–
MS-1	MOP SINK	FIAT	MSB 2424	24"x24"x10" MOLDED STONE BASIN WITH 3" DRAIN OUTLET WITH STRAINER.	PROVIDE CHROME-PLATED COPPER SUPPLY STOPS, CHROME-PLATED CAST-BRASS TRAP WITH CLEANOUT (0.045" THICK TUBULAR BRASS WASTE TO WALL) AND WALL ESCUTCHEONS.	3"	2"	1/2"	1/2"
HB-1	EXPOSED HOSE BIBB	WOODFORD	24	EXPOSED, ANTI-SIPHON WALL HOSE BIBB WITH CHROME FINISH, HOSE THREADED SPOUT, VACUUM BREAKER, AND REMOVABLE KEY OPERATOR.	PROVIDE CHROME-PLATED COPPER SUPPLY STOPS, CHROME-PLATED CAST-BRASS TRAP WITH CLEANOUT (0.045" THICK TUBULAR BRASS WASTE TO WALL) AND WALL ESCUTCHEONS.	–	–	3/4"	–
TD-1	TRENCH DRAIN	ZURN	Z664	CAST IRON MODULAR TRENCH DRAIN. 6" WIDE STAINLESS STEEL GRATE ON OPENING. SINGLE CONNECTION PER TRENCH.	REFER TO ARCHITECTURAL PLANS FOR DRAIN DIMENSIONS AND STRUCTRUAL COORDINATION OF SANITARY CONNECTION.	2"	1-1/2" (2" BELOW SLAB)	–	–
FD-1	SQUARE FLOOR DRAIN	ZURN	Z415S	CAST IRON TWO PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WEEP HOLES, REVERSIBLE CLAMPING COLLAR, NICKEL BRONZE ADJUSTABLE STRAINER.	DIMENSIONS OF TOP STRAINER: 2" AND 3" OUTLETS WITH A 5"x5" STRAINER, 2", 3" AND 4" OUTLET WITH 6"x6 OR 7"x7" STRAINER, 3" AND 4" OUTLET WITH 8"x8" STRAINER, 6" OUTLET WITH A 10"x10" STRAINER. PROVIDE TY SEALS FOR FLOOR DRAINS MOUNTED IN FLOORS ABOVE GRADE. VERIFY PIPE SIZES ON PLANS.	–	1/2" (2" BELOW SLAB)	–	–
FS-1	SQUARE FLOOR SINK	ZURN	Z1901	12x12x8 DEEP CAST IRON BODY AND SQUARE SLOTTED MEDIUM DUTY GRATE, WITH WHITE ACID RESISTING PORCELAIN ENAMEL INTERIOR AND TOP, COMPLETE WITH WHITE ABS ANTI-SPLASH INTERIOR BOTTOM DOME STRAINER.	PROVIDE WITH 1/2 GRATE AND SECURITY SCREWS. VERIFY PIPE SIZES ON PLANS.	–	2"	–	–
FCO	FLOOR CLEANOUT	ZURN	Z1400	CAST IRON BODY, WITH GAS AND WATER-TIGHT ABS TAPERED THREAD PLUG AND ROUND POLISHED BRONZE SCORIATED SECURED TOP, ADJUSTABLE TO FINISH FLOOR.	CLEANOUT SHALL BE THE SAME SIZE AS PIPING UP TO 4". 4" AND LARGER PIPING SHALL BE A 4" CLEANOUT.	–	–	–	–
WCO	WALL CLEANOUT	ZURN	Z1446	CLEANOUT TEE, DURA COATED CAST IRON BODY, GAS AND WATERTIGHT, ABS TAPERED THREAD PLUG AND ROUND, SMOOTH STAINLESS STEEL WALL ACCESS COVER WITH SECURING SCREW.	CLEANOUT SHALL BE THE SAME SIZE AS PIPING UP TO 4". 4" AND LARGER PIPING SHALL BE A 4" CLEANOUT.	–	–	–	–
BF-1	BOTTLE FILLER			1.1 GPM LAMINAR FLOW BOTTLE FILLER, ELECTRIC SENSOR FOR TOUCHLESS ACTIVATION, MOUNTED AT ADA HEIGHT		–	–	1/2"	–



1 M701 SHOWER ISO
NOT TO SCALE

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR

ZACHARY KORENAK
NUMBER PE-2011015768
PROFESSIONAL ENGINEER
STATE OF MISSOURI
09-25

PROFESSIONAL SEAL

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DESIGN AND CONSTRUCTION

DEPARTMENT OF
Owner

HARRISONVILLE READINESS CENTER

1503 SOUTH JEFFERSON PARKWAY
HARRISONVILLE, MO 64701

PROJECT # 023-05260
SITE #
FACILITY #

No.	Date	Description
1	09/03/2025	ADDENDUM 1

ISSUE DATE: 07/09/2025
CAD DWG FILE:

DRAWN BY: KP
CHECKED BY: JB
DESIGNED BY: KP

SHEET TITLE:

MECHANICAL SCHEDULES

SHEET NUMBER:

M701

OF 30 SHEETS
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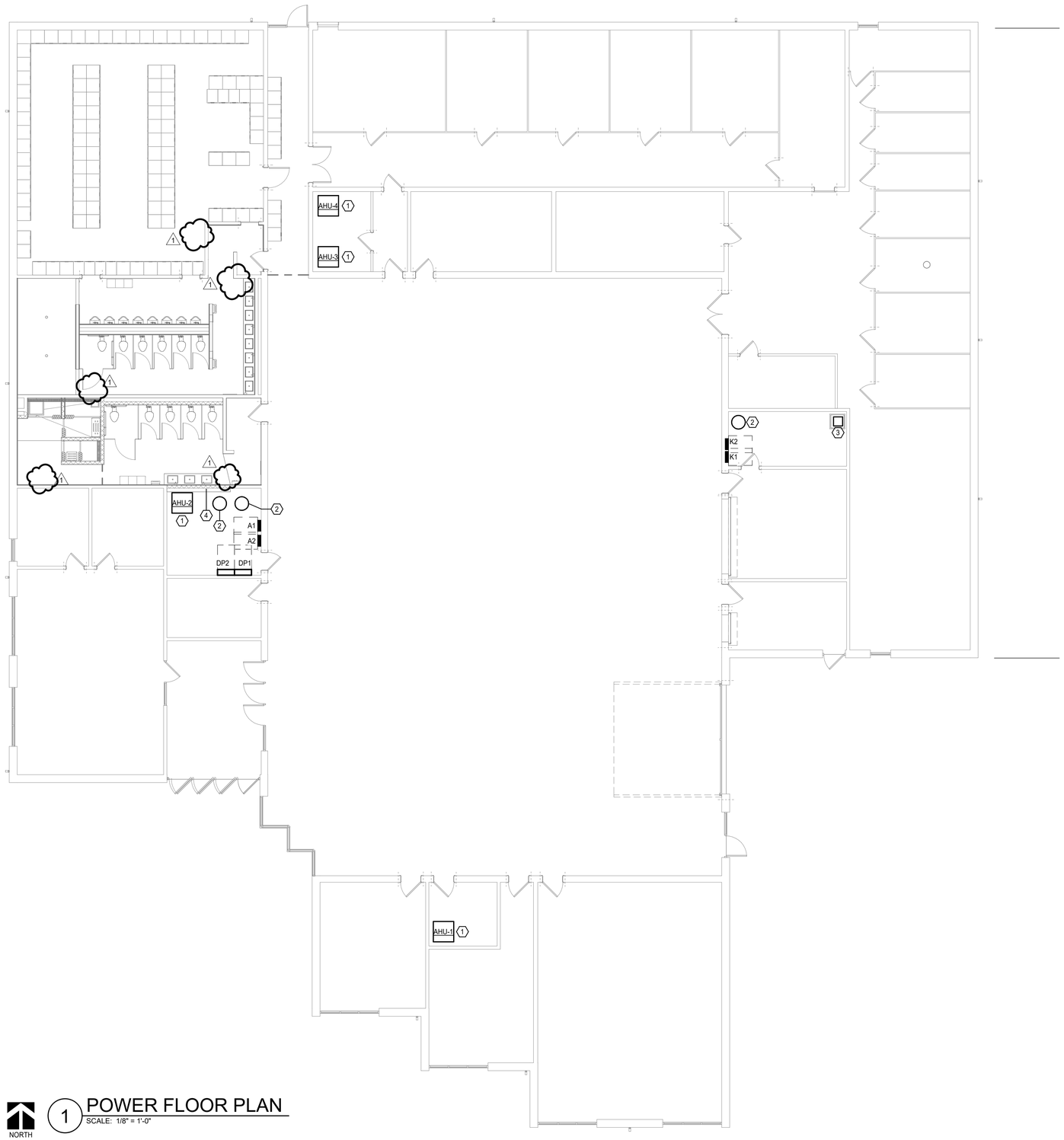

1 POWER FLOOR PLAN
SCALE: 1/8" = 1'-0"

NORTH

ELECTRICAL KEYNOTES

1 HVAC UPGRADE: EXTEND EXISTING WIRE AND CONDIT TO NEW HVAC EQUIPMENT.

2 WATER HEATER UPGRADE: REPLACE EXISTING WATER HEATER. REUSE EXISTING WATER HEATER CIRCUIT AND BREAKER FOR NEW WATER HEATER.

3 KITCHEN VENTILATION: NEW EXHASUT FAN. PROVIDE NEW 20A 120V BREAKER AT NEAREST 120/240V PANEL. PROVIDE NEW WIRES AND CONDUIT TO NEW EQUIPMENT. PROVIDE (2)#12 &(1)#12GND IN 1/2" CONDUIT.

4 REMOVE ALL DEVICE/EQUIPMENT ON THIS WALL . REINSTALL DEVICES/EQUIPMENT ONCE PLUMBING WORK IS COMPLETE.

KEY PLAN

NORTH

STATE OF MISSOURI
MIKE KEHOE, GOVERNOR

STATE OF MISSOURI
ZACHARY KORENAK
NUMBER PE-2011015768
PROFESSIONAL ENGINEER
09. -25

PROFESSIONAL SEAL

ARCHITECTURAL
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DRAWN BY: KP
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DESIGNED BY: KP

SHEET TITLE:

POWER FLOOR PLAN

SHEET NUMBER:

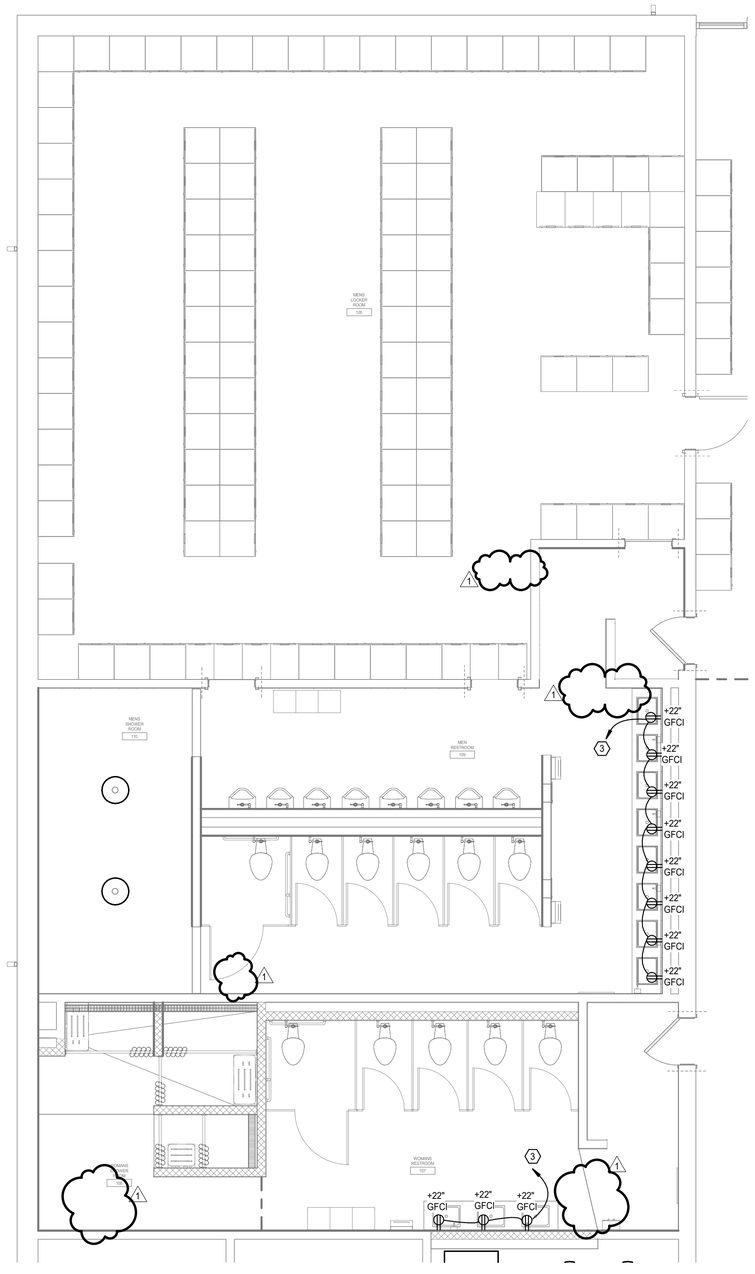
E102

OF 30 SHEETS
8/26/2025 8:29:08 AM

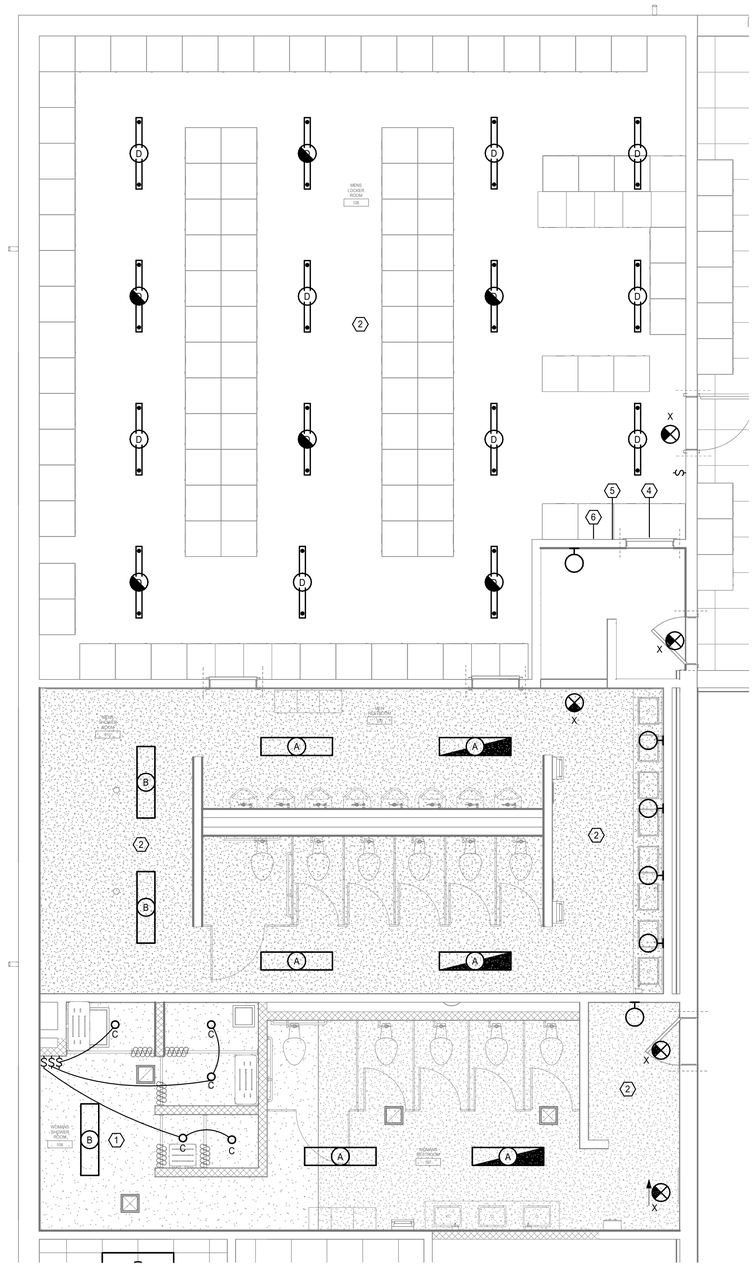
8/26/2025 8:29:08 AM

ELECTRICAL KEYNOTES

1. RESTROOM UPGRADES: PROVIDE NEW LIGHTING IN WOMEN'S SHOWER AREA. CONNECT LIGHTING TO EXISTING CIRCUIT SERVING WOMEN'S RESTROOM. VERIFY NEW LOAD WILL NOT OVERLOAD EXISTING CIRCUIT.
2. RESTROOM UPGRADES: REPLACE EXSTING LIGHTING IN THIS AREA WITH NEW LED FIXTURE. MAINTAIN EXISTING CIRCUITS AND CONTROLS.
3. CONNECT NEW OUTLETS TO SPARE 20A 120V BREAKER IN EXISTING 120/240V PANEL. PROVIDE NEW BREAKER AS NEEDED. SURFACE MOUNTES BOXES AND CONDUIT.
4. EXISTING EXIT SIGN TO BE RELOCATED. EXTEND CONDUIT TO NEW LOCATION
5. EXISTING LIGHT SWITCH TO BE ABANDONED. PROVIDE A BLANK PLATE.
6. EXISTING EXHASUT FAN SWITCH , BOX AND CONDUIT TO BE DEMOLISHED.

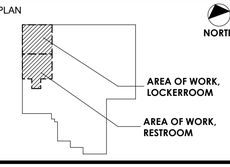


2 ENLARGED RESTROOM POWER PLAN
SCALE: 1/4" = 1'-0"



1 ENLARGED RESTROOM LIGHTING PLAN
SCALE: 1/4" = 1'-0"

KEY PLAN



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MIKE KEHOE, GOVERNOR

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DRAWN BY: KP
CHECKED BY: JB
DESIGNED BY: KP

SHEET TITLE:
ENLARGED ELECTRICAL PLANS

SHEET NUMBER:
E401

OF 30 SHEETS
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