ADDENDUM NO. 1

Dated: January 21, 2026

FOR:

CITY OF MART
WASTEWATER TREATMENT PLANT
IMPROVEMENTS

TEXAS WATER DEVELOPMENT BOARD
CWSRF Project No. 73903

BIDS DUE:

2:00PM
February 26, 2026

MRB PROJECT No. 1397.21002.000

PREPARED BY:

MRB Group
TBPE Firm No: F-10615
303 W. Calhoun Ave., Temple, TX 76501
(254) 771-2054

CITY OF MART
MRB Project No. 1397.21002.000

ADDENDUM No. 1

January 21, 2026

This Addendum forms a part of the Bidding and Contract Documents and modifies the original Bidding and Contract Documents dated August 2025 as noted below. Acknowledge receipt of this addendum in the space provided on the Bid Form. Failure to do so may subject the bidder to disqualification.

ATTENTION – The BID DATE is NOT CHANGED by this addendum. The BID DATE remains February 26, 2026 at 2:00 pm.

CHANGES TO SPECIFICATIONS

Section	Instruction	Description of Action Required
00 80 60	REPLACE	Replace with attached updated Wage Rates
04 20 00	REPLACE	Replace with attached specification.
07 21 14	REPLACE	Replace with attached specification.
09 91 00	REPLACE	Replace with attached specification.

CHANGES TO DRAWINGS

Drawing Number	Instruction	Description of Action Required
G-004	REVISE	Foundation and Soil Preparation Note 3: The net allowable soil bearing pressure for the design of foundations was assumed to be 1,800 PSF
G-004	REVISE	Foundation and Soil Preparation Note 6.1: Remove the topsoil, tree roots, vegetation and wet, soft or loose soils, surficial clay soil and uncontrolled fill to a min. of 7'-0" below proposed bottom of slab, extended 5'-0" outside of the building lines. Scarify and moisture condition 6" of subgrade prior to select fill placement.
C-104	ADD	Site Grading Note 2: Excess soils may also be placed on adjacent City property on the south side of Old Oil Mill Road. If demolition alternates are accepted, excess soils shall be used first for site grading, then backfill of demolished structures, then off-site fill.
C-105	ADD	Extend potable water line to connect with non-potable water line entering the chlorine room. Install shut off valves on both potable and non-potable water lines. Water to chlorine room shall be provided by either potable or non-potable water.
C-301	REPLACE	Replace C-301 with attached drawing.
C-302	REPLACE	Replace C-302 with attached drawing.
C-303	REPLACE	Replace C-303 with attached drawing.
M-201	REPLACE	Replace M-201 with attached drawing.
M-402	REPLACE	Replace M-402 with attached drawing.
S-301	REPLACE	Replace S-301 with attached drawing.
S-402	REPLACE	Replace S-402 with attached drawing.

Drawing Number	Instruction	Description of Action Required
S-403	REPLACE	Replace S-403 with attached drawing.
G-100	ADD	Add attached drawing to the documents.
G-101	ADD	Add attached drawing to the documents.
A-001	ADD	Add attached drawing to the documents.
A-101	REPLACE	Replace A-101 with attached drawing.
A-102	REPLACE	Replace A-102 with attached drawing.
A-201	REPLACE	Replace A-201 with attached drawing.
A-301	REPLACE	Replace A-301 with attached drawing.
A-401	REMOVE	Remove A-401 from the drawings.
A-402	REPLACE	Replace A-402 with attached drawing.
A-601	REPLACE	Replace A-601 with attached drawing.
AM-101	REPLACE	Replace AM-101 with attached drawing.
AM-102	REPLACE	Replace AM-102 with attached drawing.
AP-101	REPLACE	Replace AP-101 with attached drawing.
AP-102	REPLACE	Replace AP-102 with attached drawing.
AP-103	REPLACE	Replace AP-103 with attached drawing.
AS-101	REPLACE	Replace AS-101 with attached drawing.
AS-102	REPLACE	Replace AS-102 with attached drawing.
AS-103	ADD	Add attached drawing to the documents.

INFORMATION FOR BIDDERS (Q&A)

Question	None.
Answer	N/A

END OF ADDENDUM No. 1

"General Decision Number: TX20260023 01/02/2026

Superseded General Decision Number: TX20250023

State: Texas

Construction Types: Heavy (Sewer/Water Treating Plant and Sewer/Incid. to Hwy.)

Counties: Bell, Bosque, Coryell, Falls, Freestone, Hamilton, Hill, Lampasas, Leon, Limestone, McLennan, Milam, Mills, Navarro, Robertson and Williamson Counties in Texas.

WATER & SEWAGE TREATMENT PLANTS AND LIFT PUMP STATIONS

Modification Number	Publication Date
0	01/02/2026

SUTX1990-003 02/09/1990

	Rates	Fringes
CARPENTER	$ 9.00	
CEMENT MASON/CONCRETE FINISHER	$ 8.00	
ELECTRICIAN	$ 13.45	.80+8 1/2%
Form Builder	$ 7.25	
Form Setter	$ 7.25	
LABORER	$ 7.25	
Pipelayer	$ 7.50	
Power equipment operators:		
Bulldozers	$ 7.25	
Cranes, Clamshells, Backhoes, Derricks, Dragline, Shovels	$ 7.25	
Front End Loaders	$ 10.00	
Scrapers	$ 7.25	
Steel Setter	$ 9.50	
Steel Worker	$ 7.25	
Truck drivers:		
Tandem Axles	$ 7.25	
Transit Mix	$ 7.25	
Utility Laborer	$ 7.25	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in

processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION

SECTION 04 20 00 – UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Concrete masonry units.
   2. Accessories

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 REFERENCE STANDARDS

A. The Masonry Society
   1. TMS 402 - Building Code Requirements for Masonry Structures.
   2. TMS 602 - Specification for Masonry Structures.

B. American Concrete Institute:
   1. ACI 315R – Guide to Presenting Reinforcing Steel Design Details.

C. ASTM International:
   1. ASTM A36 - Standard Specification for Carbon Structural Steel.
   2. ASTM A153- Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
   3. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
   4. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 psi Tensile Strength.
   5. ASTM A580 - Standard Specification for Stainless Steel Wire.
   6. ASTM A615 - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement.
   7. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   8. ASTM A951 - Standard Specification for Steel Wire for Masonry Joint Reinforcement.
   9. ASTM A1064 - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
   10. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction.
   11. ASTM B695 - Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel.

12. ASTM C27 - Standard Classification of Fireclay and High-Alumina Refractory Brick.
13. ASTM C34 - Standard Specification for Structural Clay Load-Bearing Wall Tile.
14. ASTM C55 - Standard Specification for Concrete Building Brick.
15. ASTM C56 - Standard Specification for Structural Clay Nonloadbearing Tile.
16. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale).
17. ASTM C67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
18. ASTM C73 - Standard Specification for Calcium Silicate Brick (Sand-Lime Brick).
19. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units.
20. ASTM C91 - Specification for Masonry Cement
21. ASTM C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. Cube Specimens)
22. ASTM C126 - Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units.
23. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units.
24. ASTM C140 - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
25. ASTM C212 - Standard Specification for Structural Clay Facing Tile.
26. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).
27. ASTM C270 - Standard Specification for Mortar for Unit Masonry.
28. ASTM C315 - Standard Specification for Clay Flue Liners and Chimney Pots.
29. ASTM C476 - Standard Specification for Grout for Masonry.
30. ASTM C530 - Standard Specification for Structural Clay Nonloadbearing Screen Tile.
31. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
32. ASTM C652 - Standard Specification for Hollow Brick (Hollow Masonry Units Made From Clay or Shale).
33. ASTM C744 - Standard Specification for Prefaced Concrete and Calcium Silicate Masonry Units.
34. ASTM C1261 - Standard Specification for Firebox Brick for Residential Fireplaces.
35. ASTM C1283 - Standard Practice for Installing Clay Flue Lining.
36. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms.
37. ASTM C1405 - Standard Specification for Glazed Brick (Single Fired, Brick Units).
38. ASTM C1506 - Standard Test Method for Water Retention of Hydraulic Cement-Based Mortars and Plasters
39. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
40. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
41. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.

1.4 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide unit masonry that develops the indicated net area compressive strengths (f'm) at 28 days or earlier:
   1. For concrete unit masonry: As follows:
      a. f'm = 2,000 psi minimum.

B. Determine net area compressive strengths (f'_m) of masonry
   1. By applying the unit strength method per TMS 602, paragraph 1.4.
   2. By testing masonry prisms (prism strength method) per ASTM C1314.

1.5 SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:
   1. Reinforcing Steel: Detail fabrication, bending, size, spacing, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315R showing bar schedules, stirrup spacing, and diagrams of bent bars and arrangement of masonry reinforcement.
   2. Masonry Units: Show sizes, coursing, and locations of special shapes.

C. Samples for Verification:
   1. Unit masonry and mortar samples in small-scale form showing full extent of colors and textures available for each different exposed brick and block masonry unit required.
   2. Architect/Engineer reserves the right to request full-size masonry units as samples to assist in making selections. Do not submit full-size samples unless and until requested to do so in writing by the Architect/Engineer.

D. Material Certificates: For each type and size of product signed by manufacturer and Contractor certifying that each material complies with requirements.
   1. For masonry units, include material test reports substantiating compliance with requirements.
   2. Each different cement product required for mortar and grout including name of manufacturer, brand, type and weight slips at time of delivery.
   3. Each material and grade indicated for reinforcing bars.
   4. Each type and size of joint reinforcement.
   5. Each type and size of anchors, ties and metal accessories.

E. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
   1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109 for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
   2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

F. Cold- or hot-weather construction procedures evidencing compliance with requirements specified in referenced unit masonry standards.

G. Block insulation inserts: Provide written certification and documentation there is no reduction in grouted core assembly structural shear and flexural strength when block inserts remain in grouted cores.

1.6 QUALITY ASSURANCE

A. Inspecting Laboratory Qualifications: To qualify for employment in performing tests and inspection specified in this Section, an independent testing laboratory must demonstrate to Architect/Engineer's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM C 1093, that it has the experience and capability to conduct satisfactorily the testing indicated without delaying the progress of the work.

B. Preconstruction Testing: The Contractor will employ and pay a qualified independent testing laboratory to perform preconstruction concrete masonry unit tests testing indicated as well as other inspecting and testing services required by referenced unit masonry standard or indicated herein for source and field quality control:
   1. Concrete Masonry Unit Tests: For each different concrete masonry unit indicated, units will be tested for strength, absorption, and moisture content per ASTM C140.
      a. Mortar Test: For each mix required per ASTM C780.
      b. Grout Test: For each mix required per ASTM C1019.
      c. Prism Test: For each type of construction required per ASTM C1314.
   2. Retesting of materials that fail to meet specified requirements shall be done at Contractor's expense.

C. Fire Performance Characteristics: Where indicated, provide materials and construction identical to those of assemblies whose fire resistance has been determined per ASTM E 119 by a testing and inspecting organization, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.

D. Single-Source Responsibility for Masonry Units: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.

E. Single-Source Responsibility for Mortar Materials: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually-related surfaces. Sample Panels: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.

F. Build sample panels for each type, color, and texture of unit masonry construction in sizes approximately 48 inches long by 48 inches high by full thickness. Where masonry is to match existing, erect panels adjacent and parallel to existing surface.
   1. All submittals should be approved before the sample panel is constructed.
   2. The sample panel is not to be used for color selection of the masonry units themselves, unit masonry color selection should be made from the submittals.

3. Materials used in the sample panel should be selected and supplied by the manufacturer using masonry units manufactured for this specific project, so within reason- the full range of colors, textures and aggregate variegation for this project shall be demonstrated in the panel.
4. Do not build a sample panel on the jobsite from one or two pallets of material after they have been delivered. This practice may show the range of those pallets, but does not demonstrate the full range of color, texture and aggregate variegation that will be seen on the project.
5. The representative of the owner may choose to use more than one type of mortar joint color in the sample panel to help make final choices as to the finished appearance.
6. After a cleaning procedure has been approved, it should be demonstrated on the sample panel.
7. The sample panel shall be constructed by the mason contractor selected for the project before the masonry work begins and should not be removed or destroyed until all work has been accepted.
8. The sample panel will be used to evaluate if the appearance and construction of the finished masonry work meets the requirements of the contract documents. Approval of sample panel does not constitute approval of deviations from the Contract Documents contained in sample panels, unless such deviations are specifically approved by the Architect/Engineer in writing.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.8 FIELD CONDITIONS

A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
   1. Extend cover a minimum of 24 inches down both sides of walls and hold cover securely in place.

2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602.
1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.
1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

2.2 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
   1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

B. Repairs or replacements, including infill areas, to existing CMU: Provide shapes with size and exposed surfaces matching color, profile, and texture of exposed faces of existing adjacent units unless otherwise indicated.

C. Integral Water Repellent: Provide units made with integral water repellent for exposed units and other locations where indicated. Integral water repellent shall be a polymeric admixture that provides water repellence and efflorescence control, without reducing flexural bond strength. Subject to compliance with requirements, products that may be incorporated into work include:
   1. “Rainbloc,” ACM Chemistries.
   2. “DRY-BLOCK,” Grace Construction Products
   3. Or approved equal.

D. CMUs: ASTM C 90.

   1. Unit Compressive Strength: Provide 2 core units with minimum average net-area compressive strength of 2000 psi.
   2. Density Classification: Normal weight unless otherwise indicated.
   3. Pattern and Texture: As indicated on the project drawings.
   4. .

E. Insulated Single Wythe CMU Walls:
   1. Exterior units shall have ungrouted cells filled with Tailored Foam Core-Fill 500 with a maximum Thermal Conductivity of 0.44 Btu-in/h-f²ºF.

F. Standard CMU Walls (Non-Insulated):
   1. For below grade/exposed work, and interior walls unless otherwise indicated, provide standard Concrete Masonry Units manufactured to specified dimensions of 3/8 inch less than nominal widths by nominal heights by nominal lengths indicated on drawings.
   2. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

2.3 CONCRETE LINTELS

A. Concrete Lintels: ASTM C 1623, matching CMUs in color, texture, and density classification; and with reinforcing bars indicated.

2.4 MORTAR AND GROUT MATERIALS

A. General: ASTM C270, ASTM C476.

B. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

C. Hydrated Lime: ASTM C 207, Type S.

D. Portland Cement-Lime Mix: Packaged blend of Portland cement and hydrated lime containing no other ingredients.

E. Masonry Cement: ASTM C 91.

F. Mortar Cement: ASTM C1329.

G. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979. Use only pigments with a record of satisfactory performance in masonry mortar.
   1. Colored Mortar Pigments: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
      a. "Centurion Pigments," Centurion.
      b. "True Tone Mortar Colors," Davis Colors, A Subsidiary of Rockwood Industries, Inc.
      c. "SGS Mortar Colors," Solomon Grind-Chem Services, Inc.
      d. Or approved equal.

H. Aggregate for Mortar: ASTM C 144.

   1. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
   2. White-Mortar Aggregates: Natural white sand or crushed white stone.
   3. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

I. Aggregate for Grout: ASTM C 404.

J. Epoxy Pointing Mortar: ASTM C 395, epoxy-resin-based material formulated for use as pointing mortar for glazed or pre-faced masonry units (and approved for such use by manufacturer of units); in color indicated or, if not otherwise indicated, as selected by Architect from manufacturer's colors.

K. Cold-Weather Admixture: Non-chloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

L. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.

M. Water: Potable.

2.5 REINFORCEMENT

A. Uncoated-Steel Reinforcing Bars: ASTM A615, Grade 60, unless otherwise indicated; all reinforcing bars to be welded shall conform to ASTM A706, Grade 60, unless otherwise indicated.

B. Masonry-Joint Reinforcement, General: ASTM A 951.
   1. Interior Walls: Mill- galvanized carbon steel, 0.1 oz per sq ft,
   2. Exterior Walls: Hot-dip galvanized carbon steel, 1.5 oz per sq ft.
   3. Wire Size for Side Rods: 0.148-inch (9 gage) diameter, min., U.N.O.
   4. Wire Size for Cross Rods: 0.148-inch (9 gage) diameter, min., U.N.O.
   5. Wire Size for Veneer Ties: 0.187-inch (3/16") diameter, min. U.N.O.
   6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
   7. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

C. Masonry-Joint Reinforcement for Single-Wythe Masonry:
   1. Provide reinforcing as noted in drawing set.

D. Masonry-Joint Reinforcement for Veneers Anchored with Seismic Masonry-Veneer Anchors: Single 0.187-inch-diameter, hot-dip galvanized carbon steel continuous wire.

2.6 TIES AND ANCHORS

A. General: Ties and anchors shall extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.

B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:
   1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A1064, with ASTM A 153, Class B-2 coating.
   2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008, Commercial Steel, with ASTM A 153, Class B coating.
   3. Steel Plates, Shapes, and Bars: ASTM A 36.

C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches wide.
   1. Wire: Fabricate from 3/16-inch- diameter, hot-dip galvanized steel wire.

D. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
   1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch-diameter, hot-dip galvanized-steel wire.
   2. Tie Section: Triangular-shaped wire tie made from 0.187-inch diameter, hot-dip galvanized-steel wire.

E. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Anchor slots – 24 gauge, galvanized, 1” x 1” x 5/8”, foam filled protection.
2. Dovetail anchors – 14 gauge, hot-dip galvanized, 1” x 4-1/2” length, shear lugs to engage pencil rod reinforcement.
3. Pencil rod – 9 gauge, hot-dip galvanized, deformed surface.

F. Partition Top Anchors: 0.105-inch-thick metal plate with a 3/8-inch-diameter metal rod 6 inches long welded to plate and with closed-end plastic tube fitted over rod that allows rod to move in and out of tube. Fabricate from steel, hot-dip galvanized after fabrication.

G. Rigid Anchors: Fabricate from steel bars 1-1/2 inches wide by 1/4 inch thick by 24 inches long, with ends turned up 2 inches.
1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A 153.

H. Adjustable Masonry-Veneer Anchors:
1. General: Provide anchors that allow vertical adjustment but resist a 100-lbf load in both tension and compression perpendicular to plane of wall without deforming or developing play in excess of 1/16 inch.
2. Fabricate sheet metal anchor sections and other sheet metal parts from 0.075-inch-thick steel sheet, galvanized after fabrication.
3. Fabricate wire ties from 0.187-inch- diameter, hot-dip galvanized-steel wire unless otherwise indicated.
4. Screw-Attached, Masonry-Veneer Anchors: Wire tie and a rib-stiffened, sheet metal anchor section.
5. Screw-Attached, Masonry-Veneer Anchors: Wire tie and a gasketed sheet metal anchor section, with pronged legs of length to match thickness of insulation or sheathing and raised rib-stiffened strap to provide a slot for inserting wire tie.
6. Seismic Masonry-Veneer Anchors: Connector section and rib-stiffened, sheet metal anchor section with screw holes top and bottom and having slotted holes for inserting connector section. Connector section consists of a rib-stiffened, sheet metal bent plate, sheet metal clip, or wire tie with rigid PVC extrusion designed to engage continuous wire.
7. Coated, Steel Drill Screws for Steel Studs: ASTM C 954 except with hex washer head and neoprene or EPDM washer, No. 10 diameter, and with coating with salt-spray resistance to red rust of more than 800 hours according to ASTM B 117.

I. Screw-Attached, Masonry-Veneer Anchors: Units consisting of a wire tie and a metal anchor section for buildings with continuous rigid insulation.
1. Products: Subject to compliance with requirements, provide one of the following:
   a. Heckmann Building Products Inc.; Pos-I-Tie w/ Triangle Wire Tie (Use seismic tie where applicable).
   b. Hohmann & Barnard, Inc.; X-Seal Anchor.
   c. Wire-Bond; 1004, Type IIIX or RJ-711.
2. Anchor Section: Rib-stiffened, sheet metal plate with screw holes top and bottom, having slotted holes for inserting wire tie.
3. Fabricate sheet metal anchor sections and other sheet metal parts from 0.075-inch-thick, steel sheet, galvanized after fabrication.
4. Wire Ties: Triangular-, rectangular-, or T-shaped wire ties fabricated from 0.25-inch-diameter, hot dip galvanized steel wire.

2.7 EMBEDDED FLASHING MATERIALS

A. Metal Flashing: Provide metal flashing complying with Section 07 62 00 "Sheet Metal Flashing and Trim" and as follows:
   1. Place at the tops of foundations, above shelf angles, and at all interruptions in the vertical plane of a CMU drainage wall.
   2. Fabricate metal drip edges from stainless steel. Extend at least 3 inches into wall and 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.
   3. Fabricate continuous flashings in sections 8 ft long, minimum, but not exceeding 12 ft. Provide splice plates at joints of formed, smooth metal flashing.

B. Flexible Flashing: Use the following unless otherwise indicated:
   1. Copper-Laminated Flashing: 5-oz./sq. ft. copper sheet bonded between two layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.
      a. Copper Fabric; AFCO Products, Inc.
      b. Type FCC-Fabric Covered Copper; Phoenix Building Products.
      c. Copper Fabric Flashing; Sandell Manufacturing Co., Inc.
      d. Or approved equal.

   2. Where indicated, Butyl Rubber Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spun-bonded polyolefin to produce an overall thickness of not less than 0.040 inch.

C. Base Flashing for Single Wythe Insulated CMU:
   1. High-density polypropylene pre-sloped flashing pan with perimeter flanges, integrated weep spout and connector bridge, 90% open-weave polyester mesh insect guards and drainage mats, with integrated inner and outer flanges spaced to allow for 1.0” of mortar bond between the upper and lower course of block.
      a. Blok-Flash by Mortar Net
      b. Or approved equal.

D. Solder and Sealants for Sheet Metal Flashings: As specified in Section 076200 "Sheet Metal Flashing and Trim."

E. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.8 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene, urethane, or PVC.

B. Preformed Control-Joint Gaskets: Made from PVC, complying with ASTM D 2287, Type PVC-65406 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

C. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

D. Weep/Cavity Vent Products: Use the following unless otherwise indicated:
   1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch less than depth of outer wythe, in color selected from manufacturer's standard.
      a. Place weeps above flashing at lintels, shelf angles, and base of wall cavity.
      b. Space vents at 32” o.c.
      c. Products
         1) “Mortar Maze Weep Vent,” Advanced Building Products Inc.
         2) “Cell Vents,” Dayton Superior Corporation, Dur-O-Wall Division.
         3) “No. 85 Cell Vent,” Heckmann Building Products Inc.
         4) “Quadro-Vent,” Hohmann and Barnard, Inc.
         5) Or approved equal.

E. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
   1. Configuration: Provide one of the following:
      a. Strips, full depth of cavity and 10 inches high, with dovetail shaped notches 7 inches deep that prevent clogging with mortar droppings.
         1) Mortar Net: Mortar Net Solutions Inc.
         2) Mortar Break DT: Advanced Building Products Inc.
         3) ProNet: MasonPro Inc.
         4) “Polytite MortarStop,” Dayton Superior Corporation, Dur-O-Wal Division
         5) Or approved equal.
      b. Strips, depth of cavity and not less than 10 inches high, with dimpled surface designed to catch mortar droppings and prevent weep holes from clogging with mortar.
         1) Mortar Trap: Hohmann & Barnard Inc.
         2) Mortar Web: Hohmann & Barnard Inc.
         3) Mortar Maze: Advanced Building Products Inc.
         4) Or Approved Equal

F. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.142-inch steel wire, hot-dip galvanized after fabrication. Provide units with either two loops or four loops as needed for number of bars indicated.
   1. Products
      a. “D/A 810,” “D/A 812,” or “D/A 817,” Dayton Superior Corporation, Dur-O-Wal Division
      b. “No. 376 Rebar Positioner,” Heckmann Building Products Inc.
      c. “#RB” or “#RB-Twin Rebar Positioner,” Hohmann & Barnard, Inc.
      d. “O-Ring” or “Double O-Ring Rebar Positioner,” Wire-Bond
      e. Or approved equal

2.9 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.10 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
   1. Do not use calcium chloride in mortar or grout.
   2. Use Portland cement-lime or masonry cement mortar unless otherwise indicated.
   3. For exterior masonry, use Portland cement-lime or masonry cement mortar.
   4. For reinforced masonry, use Portland cement-lime or masonry cement mortar.
   5. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270 Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
   1. For masonry below grade or in contact with earth, use Type M or S.
   2. For reinforced masonry, use Type S.
   3. For mortar parge coats, use Type S or Type N.
   4. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; and for other applications where another type is not indicated, use Type S.
   5. For interior non-load-bearing partitions, Type N.

D. Pigmented Mortar: Select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.
   1. Pigments shall not exceed 10 percent of Portland cement by weight.
   2. Pigments shall not exceed 5 percent of masonry cement or mortar cement by weight.

E. Colored-Aggregate Mortar: Produce required mortar color by using colored aggregates and natural color or white cement as necessary to produce required mortar color.

F. Grout for Unit Masonry: Comply with ASTM C 476.
   1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602 for dimensions of grout spaces and pour height.
   2. Proportion grout in accordance with ASTM C 476 for specified 28-day compressive strength indicated, but not less than 2000 psi.

3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143.

G. Epoxy Pointing Mortar: Mix epoxy pointing mortar to comply with mortar manufacturer's written instructions.
   1. Application: Use epoxy pointing mortar for exposed mortar joints with the following units:
      a. Pre-faced CMUs.
      b. Glazed structural clay facing tile.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

C. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry, unless otherwise indicated.

D. Provide flat square-edged CMU for door and window jambs. Do not install the sash end of the CMU when it will be exposed.

E. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested according to ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:
   1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.
   2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.
   3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:
   1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet, or 1/2-inch maximum.

2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.

C. Joints:
1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.

3.3 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

C. Stopping and Resuming Work: Stop work by racking back units in each course from those in the course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

D. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

E. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.

G. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.4 LINTELS

A. Install lintels where indicated and at all door, window, or other openings wider than 1.5 times the nominal masonry unit length, unless otherwise indicated.

B. Provide a minimum bearing of 8 inches at each jamb, unless otherwise indicated.

3.5 MORTAR BEDDING AND JOINTING

A. Lay hollow brick and CMUs as follows:
   1. Bed face shells in mortar and make head joints of depth equal to bed joints.
   2. Bed webs in mortar in all courses of piers, columns, and pilasters.
   3. Bed webs in mortar in grouted masonry, including starting course on footings.
   4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.

B. Lay solid masonry units and hollow brick with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Rake out mortar joints at pre-faced CMUs to a uniform depth of 1/4 inch and point with epoxy mortar to comply with epoxy-mortar manufacturer's written instructions.

D. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

E. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.6 MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.

   1. Space reinforcement as indicated in construction documents.
   2. Space reinforcement, as indicated in construction documents, in foundation walls and parapet walls.
   3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings.

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

C. Provide continuity at wall intersections by using prefabricated T-shaped units.

D. Provide continuity at corners by using prefabricated L-shaped units.

3.7 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete, to comply with the following:

1. Provide an open space not less than 1 inch wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

3.8 FLASHING, WEEP HOLES, AND CAVITY VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install cavity vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.

B. Install flashing as follows unless otherwise indicated:

1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 8 inches, and through inner wythe to within 1/2 inch of the interior face of wall in exposed masonry. Where interior face of wall is to receive furring or framing, carry flashing completely through inner wythe and turn flashing up approximately 2 inches on interior face.
3. At lintels and shelf angles, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.
4. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall, and adhere flexible flashing to top of metal drip edge.
5. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall, and adhere flexible flashing to top of metal flashing termination.

C. Install weep holes in exterior wythes and veneers in head joints of first course of masonry immediately above embedded flashing.

1. Use specified weep/cavity vent products to form weep holes.
2. Space weep holes 24 inches o.c. unless otherwise indicated.
3. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.

D. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.

E. Install cavity vents in head joints in exterior wythes at spacing indicated. Use specified weep/cavity vent products to form cavity vents.

1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

3.9 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in TMS 602.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 60 inches.

3.10 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

B. Inspections: Special inspections according to Statement of Special Inspections.

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
3. Place grout only after inspectors have verified proportions of site-prepared grout.

C. Testing Prior to Construction: One set of tests.

D. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.

E. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C 67 for compressive strength.

F. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.

G. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.

H. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for mortar air content and compressive strength.

I. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

3.11 PARGING

A. Parge exterior faces of below-grade masonry walls where indicated, in two uniform coats to a total thickness of 3/4 inch. Dampen wall before applying first coat, and scarify first coat to ensure full bond to subsequent coat.

B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot. Form a wash at top of parging and a cove at bottom.

C. Damp-cure parging for at least 24 hours and protect parging until cured.

3.12 REPAIRING, POINTING, AND CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.
3. Protect adjacent surfaces from contact with cleaner.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
6. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

3.13 MASONRY WASTE DISPOSAL

A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
   1. Crush masonry waste to less than 4 inches in each dimension.
   2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste.
   3. Do not dispose of masonry waste as fill within 18 inches of finished grade.

C. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.

D. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 04 20 00

SECTION 07 21 14 – BUILDING INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Polyurethane closed-cell foam insulation applied to underside of structure.

B. Related Requirements
   1. Section 074113 – Metal Roof

1.2 SUBMITTALS

A. Procedures for submittals.
   1. Product Data: Indicate product characteristics, performance criteria, and limitations.
   2. Assurance/Control Submittals:
      a. Certificates: Manufacturer's certificate that Products meet or exceed specified requirements.

1.3 QUALITY ASSURANCE

A. Regulatory Requirements: Conform to insulation flame spread and smoke developed requirements of local authority having jurisdiction.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be delivered in manufacturer’s original containers clearly labelled with manufacturer’s name, product identification, safety information, net weight of contents and expiration date.
B. Material shall be stored in a safe manner and where the temperatures are in the limits specified by the material manufacturer.
C. Empty containers shall be removed from site daily.
D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction

1.5 ENVIRONMENTAL REQUIREMENTS

A. Resource Management:
   1. Recycled Content: Furnish materials with maximum available recycled content.
   2. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles (800km) of Project Site.

B. Environmental Impact: Comply with applicable regulations regarding toxic and hazardous materials, South Coast Air Quality Management District and as specified.
   1. Formaldehyde: Products containing urea-formaldehyde will not be permitted.
   2. Chlorofluorcarbons (CFC’s): Products and equipment requiring or using CFC’s during the manufacturing process will not be permitted.

PART 2 PRODUCTS

2.1 SPRAY FOAM INSULATION

A. Manufacturers:
1. Huntsman Building Solutions; (855) 742-7227.
2. Johns Manville; (303) 978-2000.
3. Product options and substitutions. Substitutions: Permitted.

B. Materials: Spray Applied Rigid Polyurethane Foam Insulation System: Closed-Cell
1. ASTM C518, NFPA 285, Type III, Class A. R-value of 38.0 minimum (ceiling).

C. Accessory Products
1. Water Based Intumescing coatings:
a. Product: DC315, Manufactured by International Fireproof Technology, Inc. , or similar.
b. Product: Fireshell F10E, Manufactured by ICP Building Solutions Group, or similar.
c. Product: No-Burn Plus ThB, Manufactured by No-Burn, Inc. , or similar.
2. Primers:
a. Product: Adbond manufactured by Adfast or Thermo-Prime by HUNTSMAN BUILDING SOLUTIONS, or similar.
i. Application: Follow manufacturer’s application recommendations.
ii. Recommended for oily surface

PART 3 EXECUTION

3.1 EXAMINATION

A. Execution Requirements: Verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
1. Closed-Cell Spray Insulation:
a. Verify adjacent materials are dry and ready to receive installation.
b. Verify mechanical and electrical services within walls have been installed and tested.
c. Do not begin installation until substrates have been properly prepared.
d. If substrate preparation is the responsibility of another installer, notify General Contractor, Architect, or other point of contact of unsatisfactory preparation before proceeding.
e. Commencement of work outlined in this section shall be deemed as acceptance of existing work and conditions.

C. Report in writing to Contracting Officer prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the United States Postal Service.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.
B. Apply only when surfaces and environmental conditions are within limits prescribed
C. by the material manufacturer.
D. Prepare surfaces using the methods recommended by the manufacturer for
E. achieving the best result for the substrate under the project conditions.
F. It is recommended to install primer on oily surfaces and galvanized steel

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.
B. Apply as recommended by manufacturer to thickness as indicated on drawings.
C. Equipment used to apply the foam insulation shall have fixed ratio positive displacement pumps approved by foam manufacturer.
D. Install eave ventilation troughs between roof framing members to provide cross-ventilation between insulated attic spaces and vented eaves.
E. Apply insulation to a uniform monolithic density without voids according to manufacturer instructions.
F. Applied Thermal Resistance: R-value of R-38.
G. Surfacing:
   a. Tamp wet insulation surface to improve adhesion and to achieve smooth surface.
   b. Make flush with face of studs.

END OF SECTION 07 21 14

SECTION 09 91 00 - PAINTING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Surface preparation and field application of paints and finishes.
   2. Interior paint systems.
   3. Schedule of items to be painted.
   4. Painting and finishing schedule.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Procedures for submittals.
   1. Product Data: Submit product data for each type of paint specified.
      a. Technical data sheets indicating manufacturer's catalog number, paint type description, and VOC content.
      b. Painting schedule listing surfaces to be painted with cross-reference to the specific painting and finishing system and application. Identify each paint material by manufacturer's catalog number and general classification.
   2. Samples: Submit color brush-out sample for each paint color and sheen specified.
      a. Three (3) samples on 8 1/2 inch x 11 inch card stock for color and sheen verification.
      b. Identify each sample by paint manufacturer, paint type, color, and sheen.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing Work of this Section with minimum five years documented experience.

B. Regulatory Requirements:
   1. Surface Burning Characteristics in Accordance with ASTM E84 for Class I or A finish:
      a. Flame Spread (Non-Combustible Surfaces): Less than 25.
      b. Smoke Density (Non-Combustible Surfaces): Less than 450.
   2. Provide paint and coating materials that conform to Federal, State, and Local restrictions for Volatile Organic Compounds (VOC) content.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver paint materials in sealed original labeled containers, bearing manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and/or reducing.

B. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's published instructions.

C. Prevent fire hazards and spontaneous combustion.

1.6 PROJECT CONDITIONS OR SITE CONDITIONS

A. Jobsite Requirements:

1. Apply paint finishes only when moisture content of surfaces is within manufacturer's acceptable ranges for type of finish being applied.
2. Surface temperatures or surrounding air temperature to be above 40 degrees F before applying alkyd finishes; above 45 degrees F for interior latex, and above 50 degrees F for exterior latex work. Minimum for varnish and transparent finishes is 65 degrees F.
3. Provide continuous ventilation and heating facilities to maintain temperatures above 45 degrees F for 24 hours prior to, during and 48 hours after application of finishes.
4. Do not apply paint in areas where dust is being generated.
5. Provide lighting level in areas being painted of 80 foot candles measured mid-height at substrate surface.

1.7 Environmental Impact:

A. Comply with applicable regulations regarding toxic and hazardous materials.

1.8 MAINTENANCE

A. Extra Materials:

1. Provide one gallon of each color, type and sheen to Owner.
2. Label each container with color, type, texture, room locations, in addition to the manufacturer's label.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with Project requirements, manufacturer's offering specified items that may be incorporated in the Work include the following:

1. Sherwin-Williams Company, Cleveland OH; (800) 321-8194.
2. Benjamin Moore and Company, Montvale NJ; (201) 573-9600.
3. Duron Paints and Wallcoverings, Beltsville MD; (800) 723-8766.
4. ICI Paint Stores, Cleveland OH; (800) 984-5444.
5. Pittsburgh Paints, Pittsburgh PA; (800) 441-9695.

B. Substitutions: Permitted.

2.2 MATERIALS

A. Paints:

1. Manufacturer’s “Best Grade” for each type specified.
2. Ready-mixed; pigments fully ground maintaining a soft paste consistency, capable of readily and uniformly dispersing to a complete homogeneous mixture.

3. Providing good flowing and brushing properties and be capable of drying or curing free of streaks or sags.
4. VOC's: Comply with applicable regulations.

B. Primers and Undercoaters: Manufactured by same manufacturer as finish coat materials.

C. Paint Accessory Materials: Linseed oil, shellac, turpentine and other materials not specifically indicated herein but required to achieve the finishes specified of high quality and approved manufacturer.

2.3 INTERIOR PAINT SYSTEMS - All applications may not be used in this project.

A. Sherwin Williams is shown as a standard:

1. Gypsum Board: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: Prep Rite 200 Latex Wall Primer B28W200; MDF 1.1 mils.
   b. Each Finish Coat: ProMar 200 Latex Eg-Shel B20W201; MDF 1.6 mils.
2. Spray Foam Insulation: Eggshell, Water Base, Acrylic Latex.
   a. Primer: Prep Rite 200 Latex Wall Primer B28W200; MDF 1.1 mils.
   b. Each Finish Coat: ProMar 200 Latex Eg-Shel B20W201; MDF 1.6 mils.
3. Metal: Satin, Water Base, Acrylic Latex.
   a. Each Finish Coat: DTM Acrylic S-6, B66W200; MDF 3.0 mils.
4. Concrete: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: ProMar Interior/Exterior Block Filler, B25W25; MDF 10.0 mils.
   b. Each Finish Coat: Metalatex S-6, B42W100; MDF 3.0 mils.
5. Ferrous Metal: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: DTM Acrylic Primer/Finish, B66W1; MDF 2.5 mils.
   b. Each Finish Coat: DTM Acrylic S-6, B66W200; MDF 3.0 mils.
7. Concrete Unit Masonry: Semi-Gloss, Acrylic Latex Block Filler; Acrylic/Urethane Enamel.
   a. Primer: Loxon Concrete and Masonry Primer/Sealer.
   b. Each Finish Coat: Corothane II Low VOC Polyurethane or Poly-Lon 1900 Polyester Polyurethane.

2.4 EXTERIOR PAINT SYSTEMS – All applications may not be used in this project.

A. Sherwin Williams is shown as a standard:

1. Ferrous Metal: Flat or Semi-Gloss, Water Base, Alkyd Primer; Acrylic Enamel.
   a. Primer: Kem Kromik Universal Rust Resistant Primer; MDF 3.0 mils.
   b. Each Finish Coat: DTM Acrylic B66 Series; MDF 3.0 mils.
2. Galvanized Metal: Flat or Semi-Gloss, Water Base, Alkyd Primer; Acrylic Enamel.
   a. Primer: DTM Primer/Finish B66W1; MDF 3.0 mils.
   b. Each Finish Coat: DTM Acrylic B66 Series; MDF 3.0 mils.
3. Concrete Unit Masonry: Flat, Acrylic Latex Block Filler; Acrylic/Urethane Enamel.
   a. Primer: Loxon Concrete and Masonry Primer/Sealer.

b. Each Finish Coat: Corothane II Low VOC Polyurethane or Poly-Lon 1900 Polyester Polyurethane.

4. Equivalent Products offered by other manufacturers specified herein will be permitted.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates, and conditions are as required, and ready to receive Work.

B. Report in writing to Architect any prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 PREPARATION

A. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, and conditions otherwise detrimental to formation of a durable paint film.

B. Perform preparation and cleaning procedures in accordance with paint manufacturer's published instructions for each particular substrate condition.

1. Provide barrier coats over incompatible primers or remove and re-prime as required.
2. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be painted or provide surface applied protection prior to surface preparation and painting operations. Reinstall all removed items after completion of paint work.
3. Clean surfaces to be painted before applying paint of surface treatment. Remove oil and grease prior to mechanical cleaning.

C. Ferrous Metals: Clean ferrous surfaces, that are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.

1. Touch-up shop-applied prime coats, where damaged or bare. Clean and touch-up with same type shop primer.

D. Cementitious Materials: Prepare cementitious surfaces to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.

1. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests.
   a. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct condition before application of paint.
2. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed instructions.

3. Clean floor surfaces scheduled to be painted with a commercial solution of muriatic acid, or other etching cleaner. Flush floor with clean water to neutralize acid, and allow to dry before painting.

E. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

3.3 APPLICATION

A. Apply paint products in accordance with manufacturer's published instructions using application procedures approved for the particular application and substrate to the specified Minimum Dry Film Thickness (MDF). Apply each coat to uniform finish.

B. Do not apply finishes on surfaces that are not dry.

C. Number of coats and film thickness required is same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer.

D. Apply additional coats when undercoats, stains, or other conditions show through final coat until paint film is of uniform finish, color, and appearance. Surfaces, including edges, corners, crevices, welds, and exposed fasteners to receive minimum dry film thickness equivalent to that of flat surfaces.

E. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate. Provide minimum dry film thickness (MDF) of the entire coating system as indicated in Painting and Finishing Schedule at end of this Section.

F. Prime Coats: Before application of finish coats, apply a prime coat of material as recommended by manufacturer to material scheduled to be painted or finished that has not been shop primed. Re-coat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing.

G. Hollow Metal Doors: Paint each door edge.

H. Completed Work: Match approved field samples for color and sheen.

3.4 MECHANICAL AND ELECTRICAL EQUIPMENT

A. Replace identification markings on mechanical or electrical equipment when painted over or spattered.

B. Paint exposed conduit and electrical equipment occurring in finished areas where it will be exposed to the public. Color and texture to match adjacent surfaces.

C. Pre-paint Gas piping prior to installation. (Touch-up paint after installation.)
1. Color:
a. Match adjacent surfaces.

3.5 FIELD QUALITY CONTROL

A. Inspect painting and coating application for scheduled material, color, sheen, specified thickness (MDF), and coverage.

3.6 CLEANING

A. As work proceeds and upon completion, promptly remove paint where spilled, splashed, or spattered.

B. During progress of work keep premises free from any unnecessary accumulation of tools, equipment, surplus materials, and debris.

C. Collect waste, cloths, and material that may constitute a fire hazard, place in closed metal containers and remove daily from site.

D. Upon completion of work leave premises neat and clean.

3.7 PROTECTION

A. Protect other surfaces from paint and damage. Repair damage as a result of inadequate or unsuitable protection.

3.8 SCHEDULE OF ITEMS TO BE PAINTED

A. Painted finishes shall be provided for, but not limited to, the following items. All items listed may not be present. Paint sheen and colors shall match existing surfaces.
   1. Interior: All interior surfaces as scheduled on Drawings including, but not limited to:
      a. Hollow metal doors and frames.
      b. Gypsum wallboard.
      c. Exposed piping and conduit and hangers.
      d. Exposed CMU and concrete planks
      e. Exposed spray foam insulation

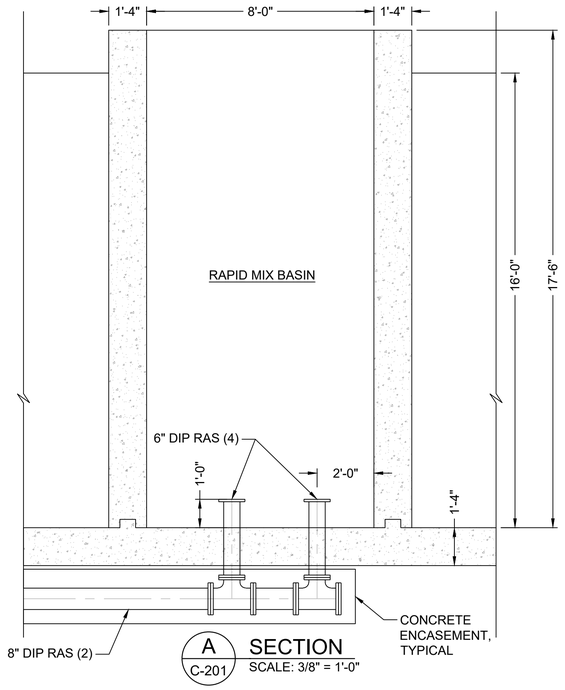
B. DO NOT PAINT THE FOLLOWING ITEMS:
   1. Aluminum, brass, bronze, stainless steel, and chrome plated steel.
   2. Pre-finished items, such as mechanical, and electrical equipment.
   3. UL, FM, and other code-required labels.
   4. Equipment identification, performance rating, and name plates.
   5. Finish hardware.
   6. Factory finished metal wall panels, metal wall panel trim, metal roof panels and metal coping.

3.9 PAINTING AND FINISHING SCHEDULE

A. Interior Paint Systems:
   1. Interior Gypsum Wallboard:
      a. 1 coat Latex Wall Primer.
      b. 1 coat Alkyd Semi-Gloss Enamel
   2. Interior Metal:
      a. 2 coats Alkyd Satin
   3. CMU and Cast-In-Place Concrete:
      a. One coat of Latex Masonry Block Filler.
      b. Two tinted coats of Acrylic Latex Semi-Gloss Enamel.

4. Ferrous Metals
   a. Touch up Prime Coat.
   b. Two tinted coats of Alkyd Enamel Semi-Gloss.

END OF SECTION 09 91 00



A C-201 SECTION
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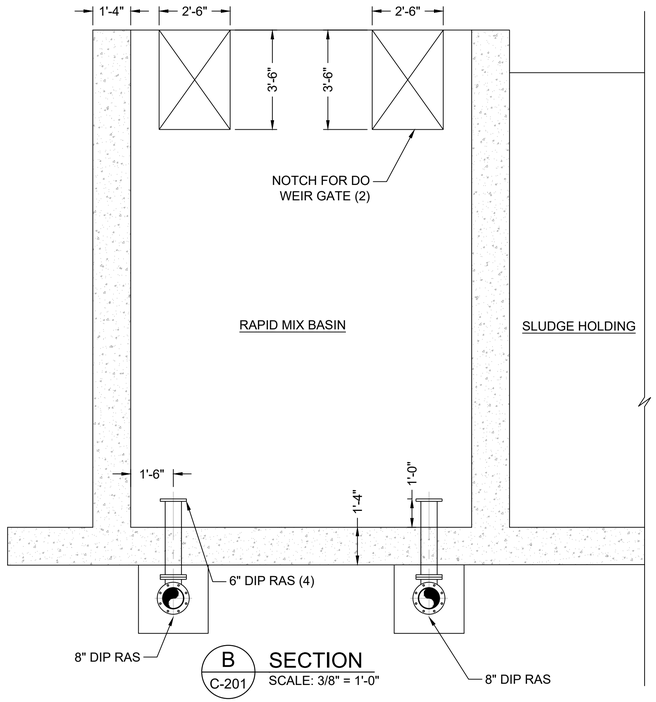
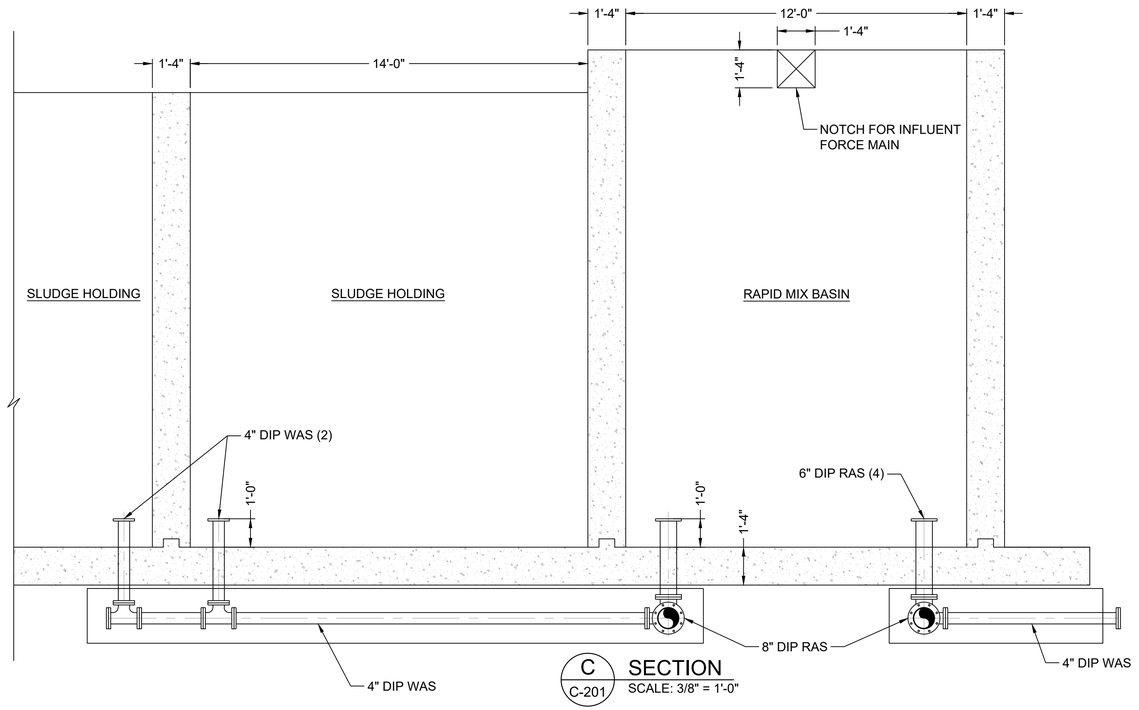


B C-201 SECTION
SCALE: 3/8" = 1'-0"

0 4 8 FEET
(11 X 17)



C C-201 SECTION
SCALE: 3/8" = 1'-0"

NOTE:
ALL UNDER SLAB PIPING SHALL BE CONCRETE ENCASED.

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	TST	1-21-2026

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

RAPID MIX BASIN CONCRETE AND PIPING SECTIONS

Drawn By: DAH
Checked By: SAH
Scale: AS SHOWN
Date: 08/28/2025

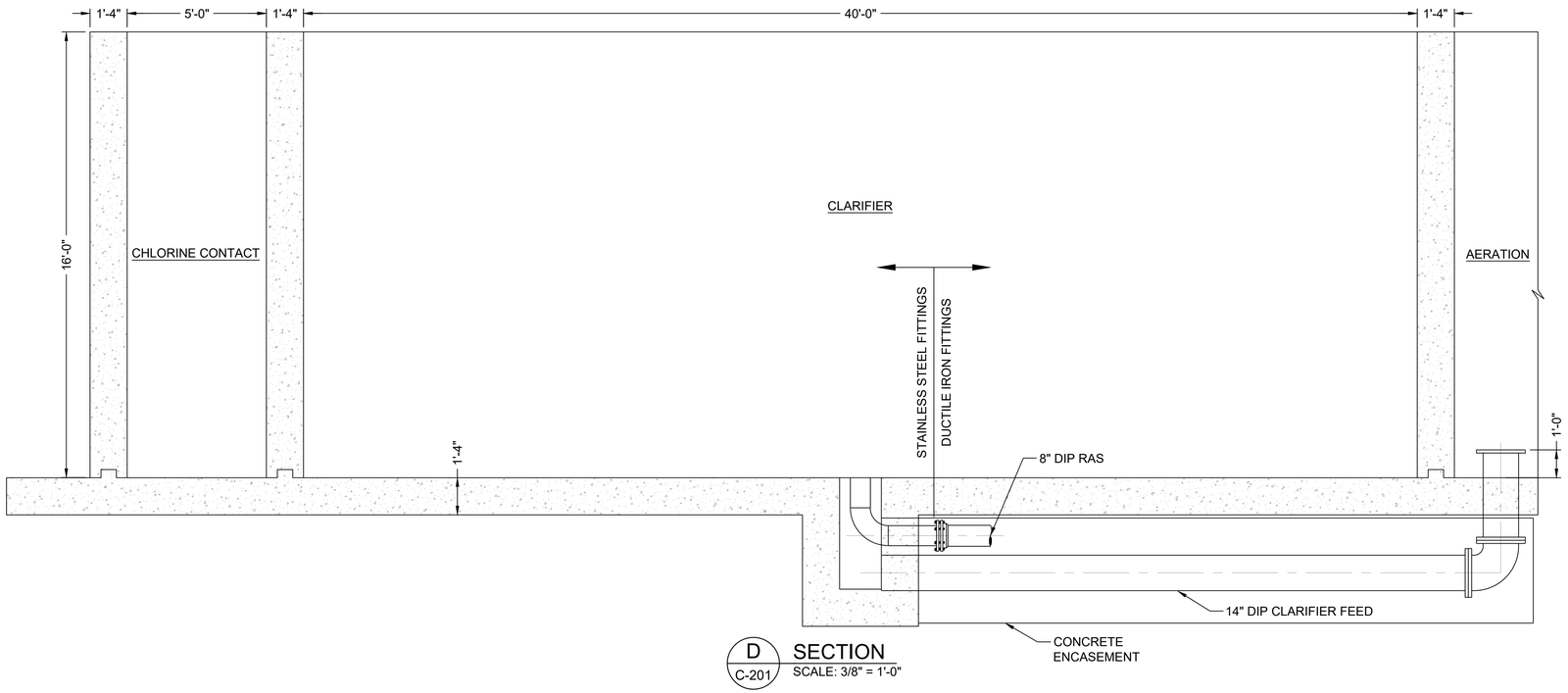
STATE OF TEXAS
TREY S. TAYLOR
94706
LICENSED PROFESSIONAL ENGINEER
08/28/2025

MRB Group

Sheet No. C-301
19 of 89
Project No. 1397.21002

1

N:\1397.21002\000\dwg\001 Civil - Mart WWTP Improvements\02 Production\3. Series 2C and 3C - PROPOSED CONCRETE & PIPING PLAN\CONCRETE AND PIPING PLAN AND SECTIONS.dwg

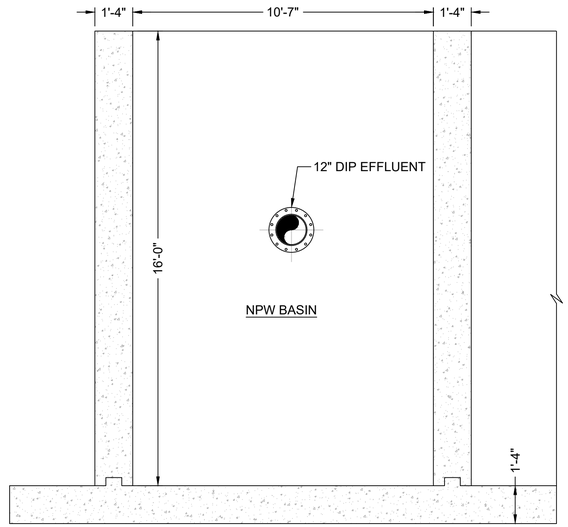


D C-201 SECTION
SCALE: 3/8" = 1'-0"

0 4 8 FEET
(11 X 17)

NOTES:

1. ELEVATIONS FOR STRUCTURES ARE NOTED ON SHEET G-009.
2. ALL UNDER SLAB PIPING SHALL BE CONCRET ENCASED.



E C-201 SECTION
SCALE: 3/8" = 1'-0"

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	TST	1-21-2026

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

CLARIFIER, CHLORINE, AND NPW CONCRETE AND PIPING SECTIONS

Drawn By: DAH
Checked By: SAH
Scale: AS SHOWN
Date: 08/28/2025

STATE OF TEXAS
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08/28/2025

MRB Group

Sheet No. C-302
20 of 89
Project No. 1397.21002

1

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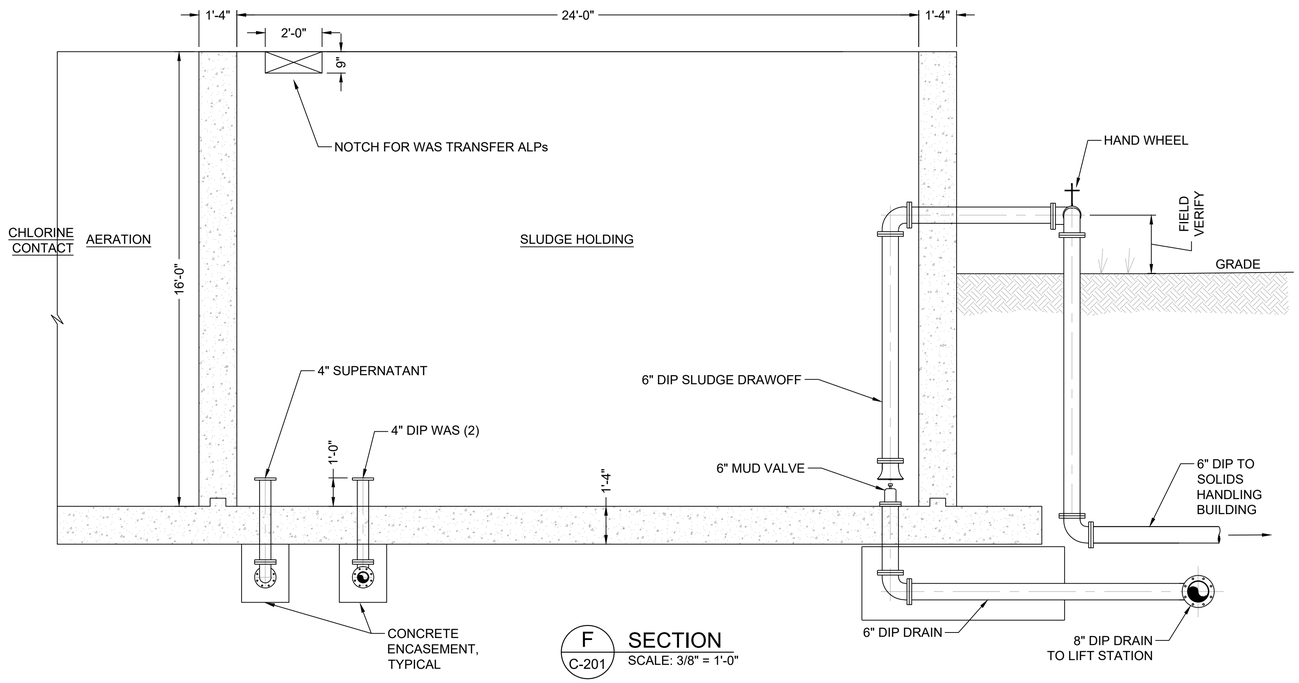
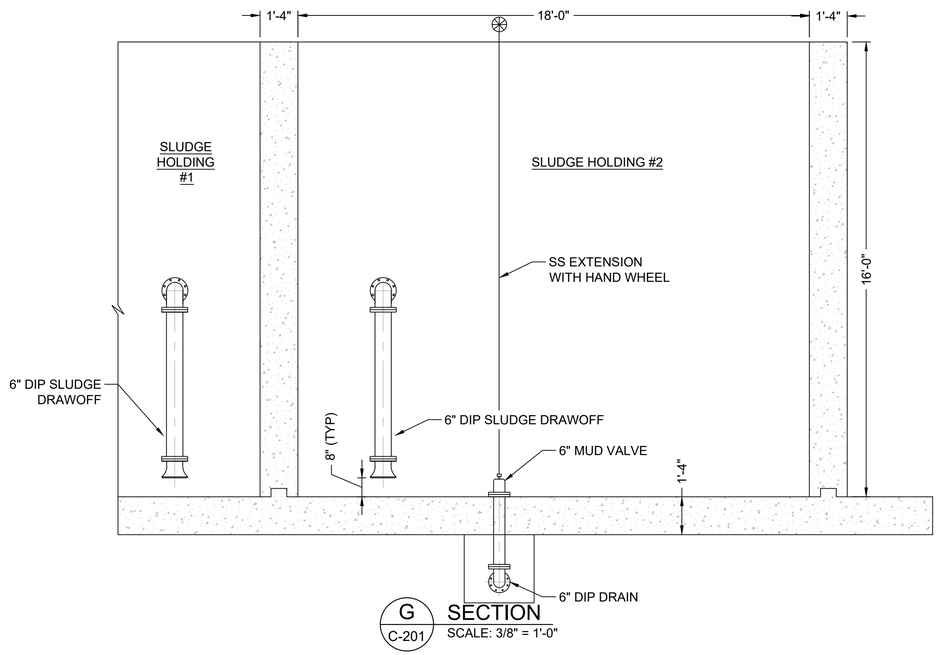


F C-201 SECTION
SCALE: 3/8" = 1'-0"

0 4 8 FEET
(11 X 17)

NOTES:

1. ELEVATIONS FOR STRUCTURES ARE NOTED ON SHEET G-009.
2. ALL UNDER SLAB PIPING SHALL BE CONCRETE ENCASED.



G C-201 SECTION
SCALE: 3/8" = 1'-0"

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	TST	1-21-2026

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

SLUDGE HOLDING CONCRETE AND PIPING SECTIONS

Drawn By: DAH
Checked By: SAH
Scale: AS SHOWN
Date: 08/28/2025

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08/28/2025

MRB Group

Sheet No. C-303
21 of 89
Project No. 1397.21002

PLANT DISCHARGE TO EXISTING MANHOLE

N M-304

E M-302

D M-301

Cl_2

OFFICE/LAB/BATHROOM

CONTROL/MCC BUILDING

LOCAL ON/OFF BLOWER CONTROL PANEL

PRESSURE SWITCH

SEE ARCHITECTURAL DRAWINGS FOR BUILDING DETAILS

16" HDG BLOWER MANIFOLD

HDG MANIFOLD SUPPORT

4' MANHOLE

TO RECYCLE LIFT STATION

H M-303

L M-304

CHLORINE

4" SS AIR HEADER

14" HDG CLARIFIER INLET STACK

1" GO DIFFUSER ASSEMBLY

8" HDG AIR HEADER

HDG HEADER SUPPORT

CLARIFIER

M M-304

G M-302

NPW PUMP SEE DWG M-303

NPW

24" HDG SHEAR TUBE WITH 2" GO DIFFUSER

F M-302

3" BFV

8" BUTTERFLY VALVE (TYP.2)

HDG HEADER SUPPORT

1" GO DIFFUSER ASSEMBLY

8" HDG AIR HEADER

K M-304

SOLENOID

HDG HEADER SUPPORT

AUTO AIR LIFT PUMP CONTROL PANEL

AERATION

J M-304

6" BUTTERFLY VALVE

HDG HEADER SUPPORT

2'-6" SS DO GATE

I M-304

6" BUTTERFLY VALVE

1" GO DIFFUSER ASSEMBLY

6" HDG AIR HEADER

HDG HEADER SUPPORT

4" TELESCOPING VALVE

4" SLUDGE TRANSFER AIRLIFT PUMPS

4" WAS AIRLIFT PUMPS

SLUDGE HOLDING #1

SLUDGE HOLDING #2

FLOAT SWITCH - HIGH LEVEL ALARM

6" HDG AIR HEADER

HDG HEADER SUPPORT

C M-301

B M-301

1" GO DIFFUSER ASSEMBLY

6" HDG RAS AIRLIFT PUMPS

A M-301

TO SLUDGE DEWATERING

8" DIP DRAIN (FROM SOLIDS HANDLING)

12" DIP INFLUENT

12" 304 SS INFLUENT PIPE

24" HDG SHEAR TUBE WITH 2" GO DIFFUSER

6" HDG BLIND FLANGE (FOR TRAIN 2 AIRLIFT)

4" DIP WAS WITH BLIND FLANGE (FOR FUTURE PHASE 2)

FROM LIFT STATION

CONTROL BOX FOR FLOW SENSOR

EFFLUENT FLOW METER STILLING WELL

PRESSURE TRANSDUCER WITH LOCAL CONTROL PANEL PROVIDED BY PUMP MANUFACTURER

HDG AIR BRIDGE WITH HDG GRATING AND ALUMINUM HANDRAIL AND TOE KICKS

HOSE RACK AND NPW HOSE BIB

8" DIP RAS WITH BLIND FLANGE (FOR FUTURE TRAIN 2)

0 10 20 Feet

(11 X 17)

1 MECHANICAL PLAN
M-201
SCALE: 1" = 5'-0"

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	TST	1-21-2026

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

PROPOSED MECHANICAL PLAN

Drawn By: DAH
Checked By: SAH
Scale: AS SHOWN
Date: 08/28/2025

STATE OF TEXAS
TREY S. TAYLOR
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LICENSED PROFESSIONAL ENGINEER
08/28/2025

MRB Group

Sheet No. M-201
22 of 89

Project No. 1397.21002

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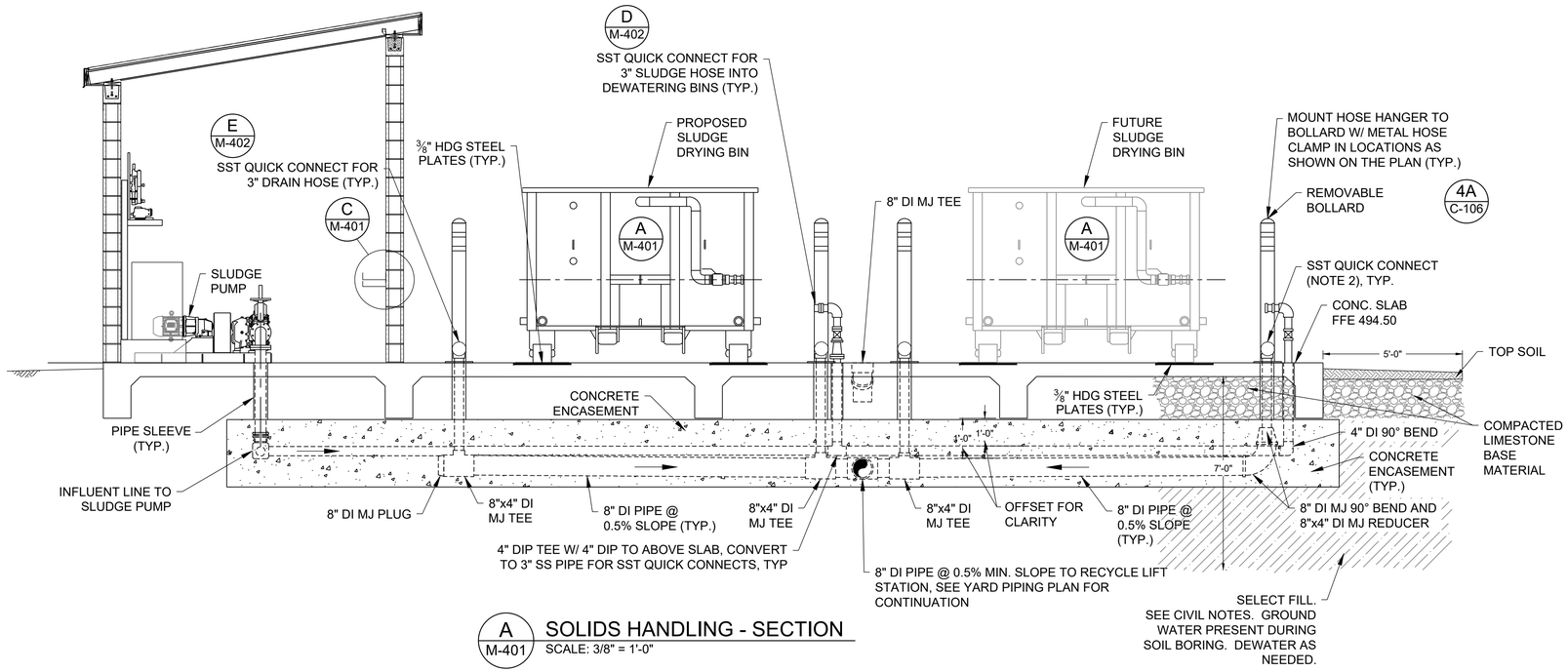
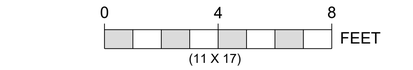
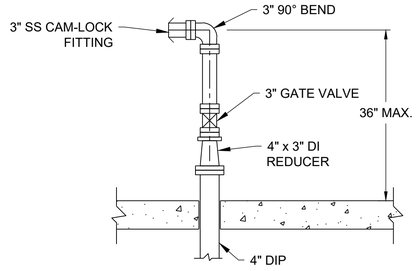
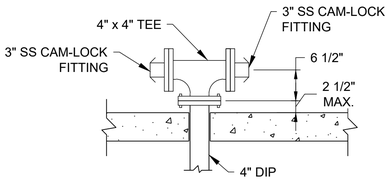


A M-401 SOLIDS HANDLING - SECTION
SCALE: 3/8" = 1'-0"



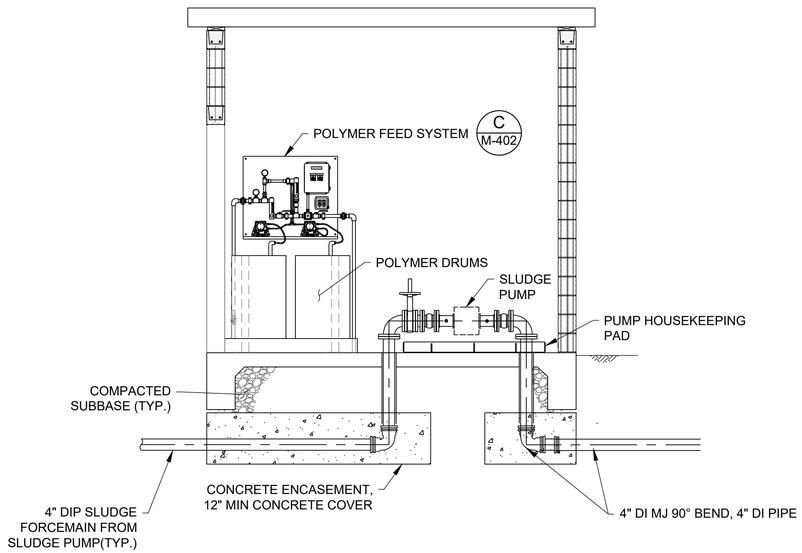


D M-402 SLUDGE FILL CONNECTION DETAIL
SCALE: 3/4" = 1'-0"

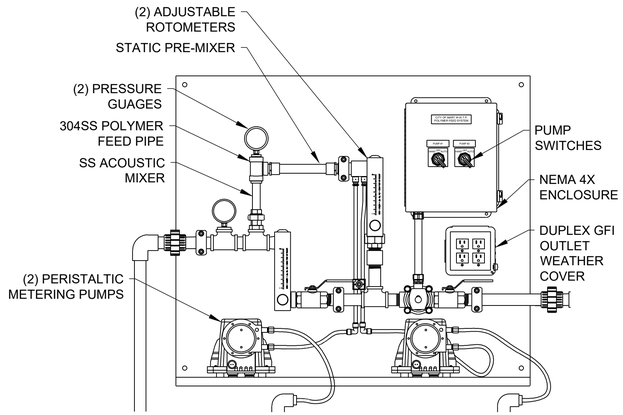


E M-402 SLUDGE DRAIN HOSE CONNECTION DETAIL
SCALE: 3/4" = 1'-0"

NOTES:
1. PROVIDE 25' OF 3" HEAVY DUTY WASTEWATER HOSE WITH CORD BRAID REINFORCING AND FLEXIBLE NEOPRENE EXTERIOR FOR EACH DRAIN (1 EACH) AND SLUDGE FEEDLINE (1 EACH) QUICK CONNECTION.
2. ALL QUICK CONNECT COUPLINGS AND ABOVE GRADE SLUDGE AND DRAIN PIPING AND VALVES SHALL BE TYPE 304 SST.
3. ALL BELOW-FOUNDATION PIPING SHALL BE CONCRETE ENCASED.
4. CONTRACTOR SHALL PROVIDE MINIMUM 50" CLEARANCE FOR SPILL CONTAINMENT PALLET AND DRUMS.



B M-401 SOLIDS HANDLING - SECTION
SCALE: 3/8" = 1'-0"



C M-402 POLYMER FEED DETAIL
SCALE: 3/8" = 1'-0"

ALL WORK THIS SHEET
ALTERNATE NO. 1

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	TST	1-21-2026

CITY OF MART, TX
WASTEWATER TREATMENT PLANT
IMPROVEMENTS

SOLIDS HANDLING
MECHANICAL SECTIONS

Drawn By: DAH
Checked By: SAH
Scale: SEE PLAN
Date: 08/28/2025

STATE OF TEXAS
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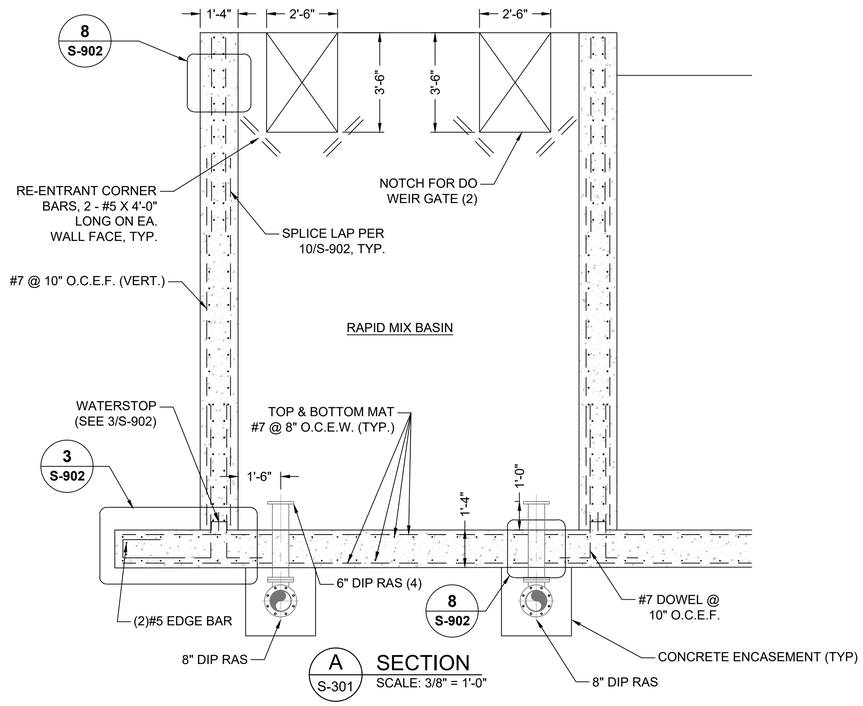
08/28/2025

MRB Group

Sheet No. M-402
28 of 89
Project No. 1397.21002

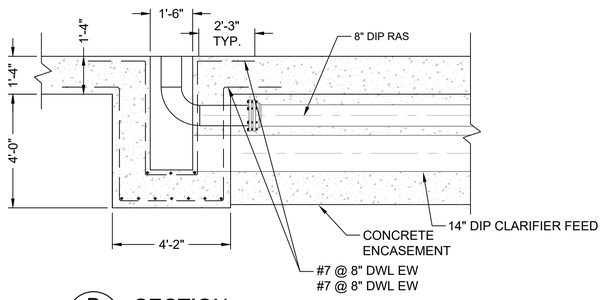
1



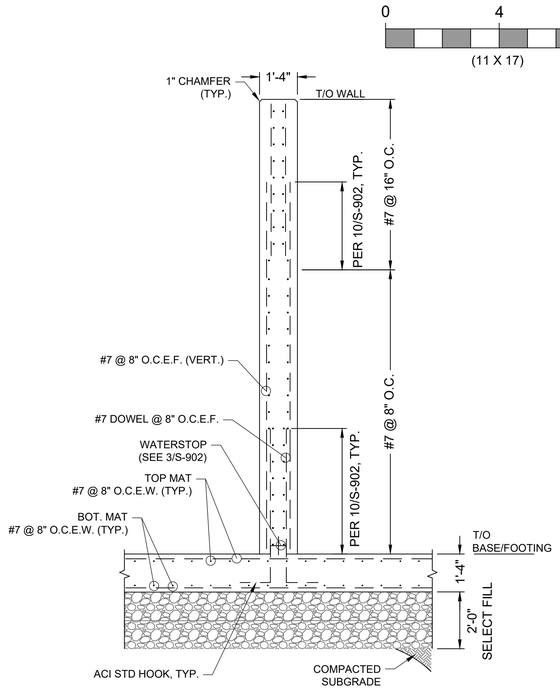
A S-301 SECTION
SCALE: 3/8" = 1'-0"

STRUCTURAL NOTES:

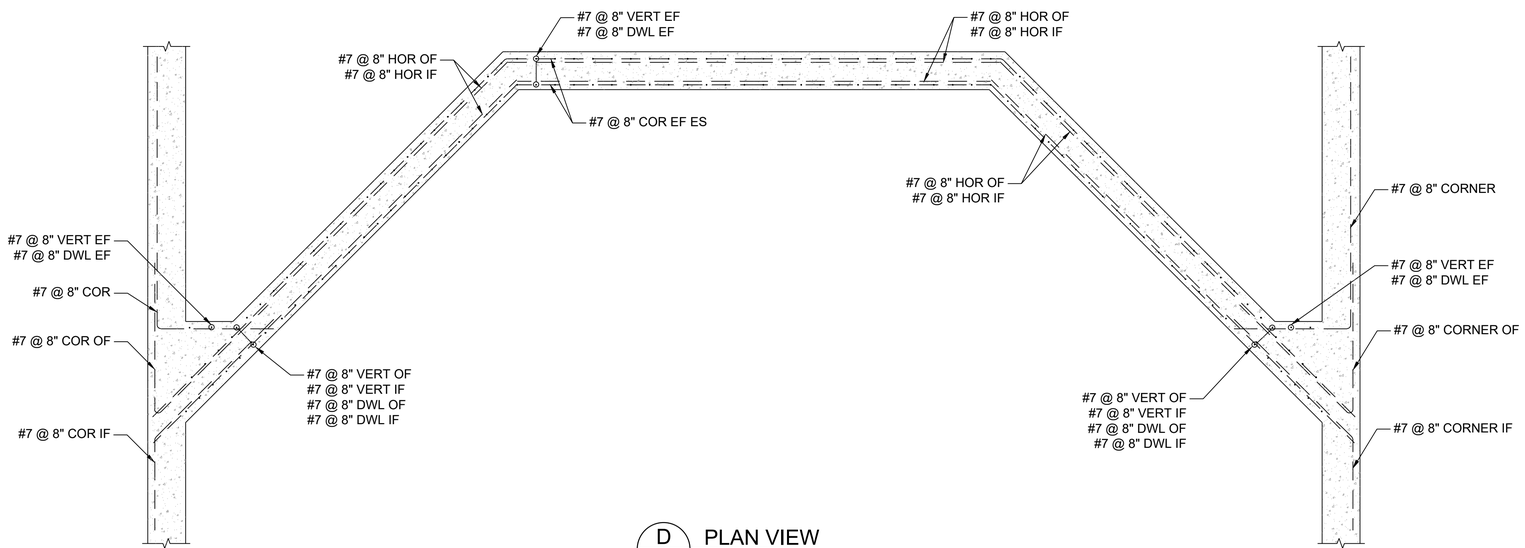
1. THE ENTIRE TREATMENT TRAIN STRUCTURAL WILL BE SIMILAR TO DETAIL SECTION A THIS SHEET.
2. PLEASE SEE STRUCTURAL DETAIL DRAWING S-902
3. ELEVATIONS FOR STRUCTURES ARE NOTED ON SHEET G-009.



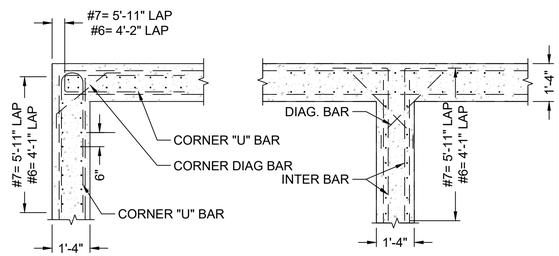
B S-301 SECTION
SCALE: 3/8" = 1'-0"



C S-301 SECTION
SCALE: 3/8" = 1'-0"



D S-301 PLAN VIEW
SCALE: 3/8" = 1'-0"



E S-301 TYP. WALL CORNER & INTERSECTION BAR
SCALE: 3/8" = 1'-0"

1

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	TST	1-21-2026

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

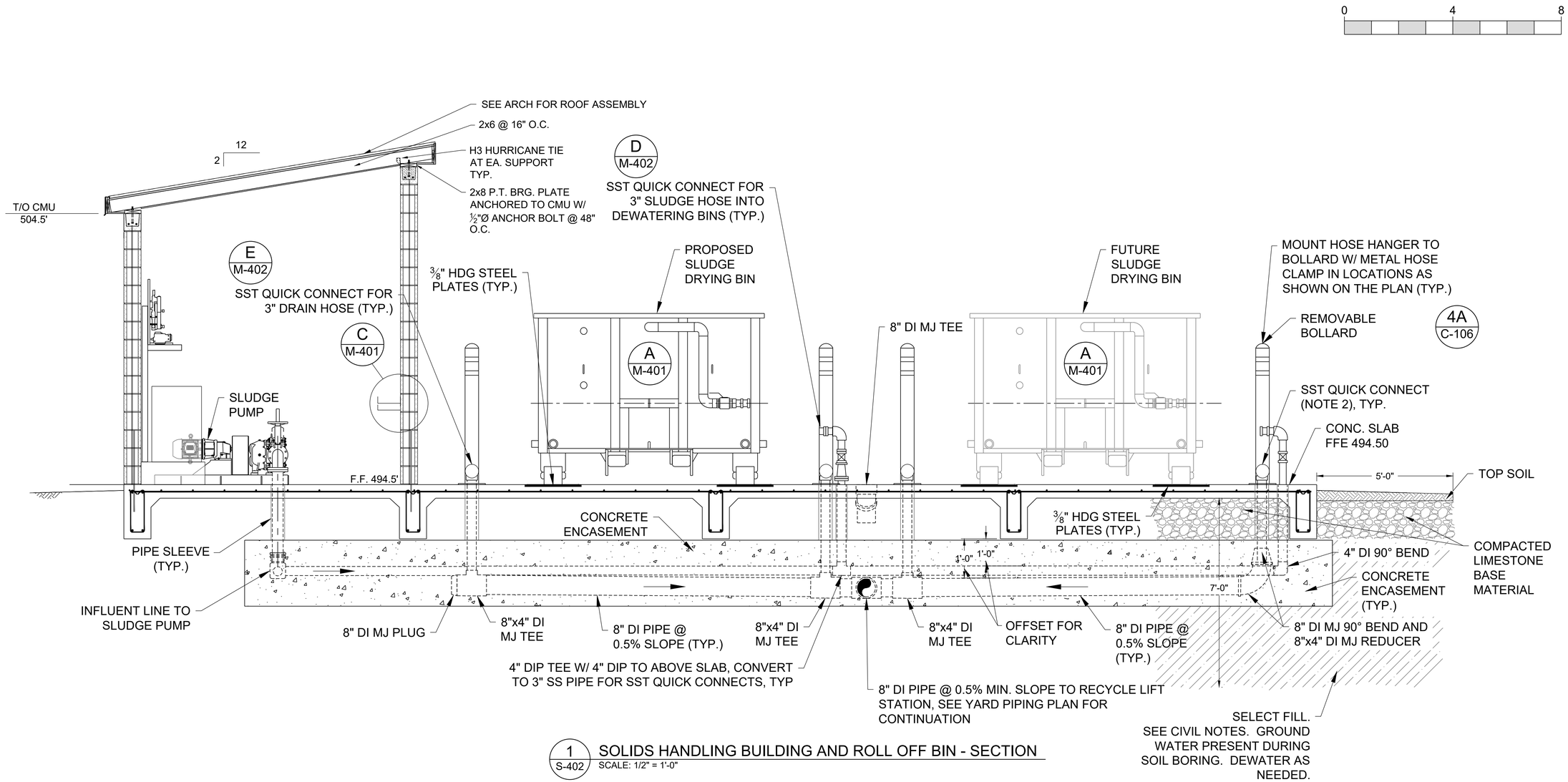
TREATMENT UNIT
STRUCTURAL DETAILS

Drawn By: DAH
Checked By: SAH
Scale: AS SHOWN
Date: 08/28/2025

STATE OF TEXAS
TREY S. TAYLOR
94706
LICENSED PROFESSIONAL ENGINEER
08/28/2025

MRB Group

Sheet No. S-301
34 of 89
Project No. 1397.21002



1 S-402 SOLIDS HANDLING BUILDING AND ROLL OFF BIN - SECTION
SCALE: 1/2" = 1'-0"

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	TST	1-21-2026

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

SOLIDS HANDLING STRUCTURAL SECTION

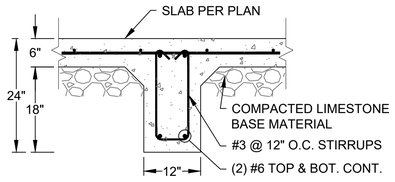
Drawn By: DAH
Checked By: SAH
Scale: AS SHOWN
Date: 08/28/2025

STATE OF TEXAS
TREY S. TAYLOR
94706
LICENSED PROFESSIONAL ENGINEER
08/28/2025

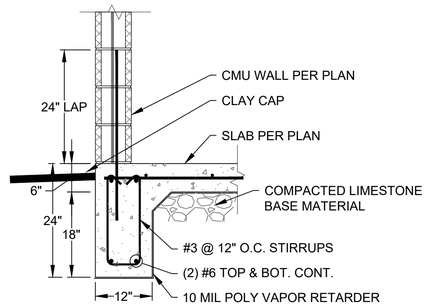
MRB Group

Sheet No. S-402
36 of 89
Project No. 1397.21002

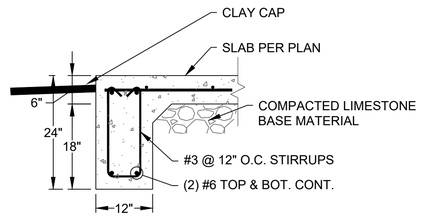
1



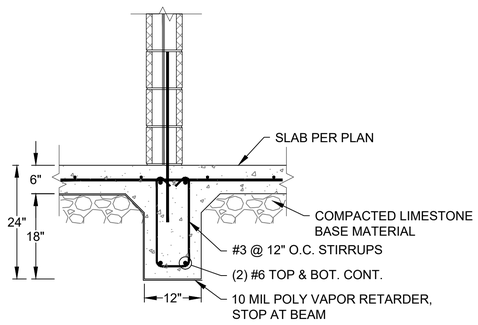
A S-403 INT. FOUNDATION BEAM SLUDGE BIN
SCALE: 3/4" = 1'-0"
S-403



B S-403 EXT. FOUNDATION BEAM BLDG
SCALE: 3/4" = 1'-0"



C S-403 EXT. FOUNDATION BEAM SLUDGE BIN
SCALE: 3/4" = 1'-0"



D S-403 FOUNDATION BEAMS BLDG./SLUDGE BIN INTERFACE
SCALE: 3/4" = 1'-0"

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	TST	1-21-2026

CITY OF MART, TX
WASTEWATER TREATMENT PLANT
IMPROVEMENTS

SOLIDS HANDLING
STRUCTURAL DETAILS

Drawn By: DAH
Checked By: SAH
Scale: AS SHOWN
Date: 08/28/2025

STATE OF TEXAS
TREY S. TAYLOR
94706
LICENSED PROFESSIONAL ENGINEER
08/28/2025

MRB Group

Sheet No. S-403
37 of 89
Project No. 1397.21002

1

N:\1397.21002.000\dwg\01 Civil - Mart WWTP Improvements\02 Production\4 Series 2M AND 3M MECHANICAL PLAN AND SECTIONS\SOLIDS HANDLING STRUCTURAL DETAILS.dwg

CODE PLAN LEGEND

- COMMON PATH OF TRAVEL
- EXIT TRAVEL DISTANCE
- 1 HOUR SEPARATION
- 2 HOUR SEPARATION
- 3 HOUR SEPARATION
- FEC — WALL-MOUNTED FIRE EXTINGUISHER CABINET
- EXIT OR EXIT ACCESS
- EXIT SIGN WITH DIRECTION TO EXIT

NOTE: SEMI-RECESSED FIRE EXTINGUISHER CABINETS SHALL MEET THE REQUIREMENTS OF UBC STANDARD 7-5 (ASTM E-814-83) G.C. TO PROVIDE F.E.C., OWNER TO PROVIDE FIRE EXTINGUISHERS. ADDITIONAL FIRE EXTINGUISHERS TO BE PROVIDED PER CITY FIRE MARSHALL. F.E.C. TO BE INSTALLED AT 3'-6" TO TOP OF CABINET, TYP.

CODE AND LIFE SAFETY SUMMARY

APPLICABLE CODES: PROJECT LIES IN AN ETJ WITH NO REQUIRED BUILDING PERMIT REVIEW. THE FOLLOWING CODES HAVE BEEN USED AS A REFERENCE.
- 2018 INTERNATIONAL BUILDING CODE
- 2018 INTERNATIONAL FIRE CODE
- 2018 INTERNATIONAL ENERGY CONSERVATION CODE
- 2018 INTERNATIONAL PLUMBING CODE
- 2018 INTERNATIONAL MECHANICAL CODE
- 2018 NATIONAL ELECTRIC CODE
- 2012 TEXAS ACCESSIBILITY STANDARDS
- TITLE 30, TEXAS COMMISSION ON ENVIRONMENTAL QUALITY CHAPTER 217

PROJECT ADDRESS: 1 OLD OIL MILL RD.
MART TX 76664
COUNTY: MCLENNAN
CLIMATE ZONE (PER IECC SECTION C301): 2A
AUTHORITY HAVING JURISDICTION: MCLENNAN COUNTY

PROJECT DESCRIPTION: THIS PROJECT CONSISTS OF A NEW PLANT OPERATIONS BUILDING AND A NEW SOLIDS HANDLING BUILDING WITHIN A WASTEWATER TREATMENT PLAN PROJECT SITE. THE 1 STORY CONSTRUCTION TO BE SLAB ON GRADE AND CONCRETE MASONRY UNIT STRUCTURE. THE ROOF IS TO BE A STANDING SEAM METAL ROOF CONSTRUCTION. THE BUILDINGS ARE TO BE USED TO HOUSE EQUIPMENT TO SUPPORT THE WASTEWATER TREATMENT PLANT OPERATIONS AND AN OFFICE/LAB SPACE WITH RESTROOM.

OCCUPANCY CLASSIFICATION: PLANT OPERATIONS BUILDING: H-2* & B OCCUPANCY
SOLIDS HANDLING BUILDING: H-2* OCCUPANCY

*H-2 OCCUPANCY IS A UTILITY SPACE FOR THE WASTE WATER TREATMENT PLANT AND THESE SPACES SHALL MEET THE REQUIREMENTS OF TAC TITLE 30 ENVIRONMENTAL QUALITY, CHAPTER 217, PART 1.

MIXED OCCUPANCY: PLANT OPERATIONS BUILDING: YES, SEPARATED, 3HR FIRE BARRIER (TABLE 508.4)
SOLIDS HANDLING BUILDING: NO

CONSTRUCTION TYPE:
PLANT OPERATIONS BUILDING: II-B
SOLIDS HANDLING BUILDING: II-B

SPRINKLER SYSTEM:
PLANT OPERATIONS BUILDING: NO
SOLIDS HANDLING BUILDING: NO

BUILDING HEIGHT:		ALLOWED	ACTUAL
PER TABLE 504.3	H-2 :	55 FT	13 FT PLANT OPERATIONS BUILDING
			13 FT SOLIDS HANDLING BUILDING

NUMBER OF STORIES:		ALLOWED	ACTUAL
PER TABLE 504.4	H-2 :	1	1 PLANT OPERATIONS BUILDING
			1 SOLIDS HANDLING BUILDING

BUILDING AREA:		ALLOWED	ACTUAL
PER TABLE 506.2	H-2	7,000 SF	650 SF PLANT OPERATIONS BUILDING
			130 SF SOLIDS HANDLING BUILDING

ACTUAL AREAS (GROSS SF):	NEW CONSTRUCTION	EXISTING	TOTAL
PLANT OPERATIONS BUILDING	650 SF	0 SF	650 SF
SOLIDS HANDLING BUILDING	130 SF	0 SF	130 SF

FIRE SEPARATION DISTANCE:
GREATER THAN 30 FT. (ALL EXT. WALLS)
EXTERIOR WALL RATING............................ NON-RATED PER TABLE 602
MAX AREA OF EXT. WALL OPENINGS...... NO LIMIT PER TABLE 705.8

TYPE OF CONSTRUCTION:
PER TABLE 601
TYPE IIB FIRE RESISTANCE RATING REQUIREMENTS:
- PRIMARY STRUCTURAL FRAME.. 0 HRS
- BEARING WALLS (EXTERIOR).. 0 HRS
- BEARING WALLS (INTERIOR).. 0 HRS
- NONBEARING WALLS AND PARTITIONS (EXTERIOR)............ 0 HRS
- NONBEARING WALLS AND PARTITIONS (INTERIOR).............. 0 HRS
- FLOOR CONSTRUCTION.. 0 HRS
- ROOF CONSTRUCTION.. 0 HRS

MEANS OF EGRESS (BOTH BUILDINGS)
COMMON PATH OF TRAVEL............. 25 FT. MAX. TABLE 1006.2.1 / 1006.3.2
NUMBER OF BUILDING EXITS........... 1 MIN. TABLE 1006.3.4(2)
EXIT ACCESS TRAVEL DISTANCE..... 100 FT MAX. TABLE 1017.2
CORRIDOR WIDTH............................ 36" MIN. TABLE 1020.3
DEAD END CORRIDOR...................... 20 FT. MAX. 1020.5

INTERIOR FINISHES PER TABLE 803.11 — INTERIOR WALL AND CEILING FINISH RATINGS SHALL BE CLASS A UNLESS SPECIFIED OTHERWISE. MINIMUM FINISH RATINGS SHALL BE AS FOLLOWS:
H-2 OCCUPANCY:
- VERTICAL EXITS AND EXIT PASSAGEWAYS........ CLASS A
- CORRIDORS.. CLASS A
- ROOMS AND ENCLOSED SPACES........................ CLASS B

B OCCUPANCY:
- VERTICAL EXITS AND EXIT PASSAGEWAYS........ CLASS A
- CORRIDORS.. CLASS B
- ROOMS AND ENCLOSED SPACES........................ CLASS C

FLOOR FINISH (ALL OCCUPANCIES) IN EXITS AND CORRIDORS SHALL BE MIN. CLASS II.

FLOOR COVERING MATERIALS IN ALL AREAS (ALL OCCUPANCIES SHALL COMPLY WITH THE "DOC FF-1 'PILL TEST' (CPSC 16 CFR PART 1630)"

DECORATIONS AND TRIM, INCLUDING CURTAINS, DRAPERIES, AND HANGINGS SHALL BE FLAME RESISTANT PER NFPA 701.

OCCUPANT LOAD: B OCCUPANCY = 150 GROSS
H-2 OCCUPANCY = UTILITY SPACE, MAINTENANCE ONLY
PLANT OPERATIONS BUILDING: 4 PPL
SOLIDS HANDLING BUILDING: 0 PPL

PLUMBING FIXTURES: PLANT OPERATIONS BUILDING ONLY

WATER CLOSETS: 1 REQUIRED, 1 PROVIDED
LAVATORIES: 1 REQUIRED, 1 PROVIDED
BATHTUBS/SHOWERS: N/A, 1 PROVIDED
DRINKING FOUNTAIN: 410.2 2018 IPC, DRINKING FOUNTAINS SHALL NOT BE REQUIRED FOR AN OCCUPANT LOAD OF 15 OR FEWER.
SERVICE SINK: FOR BUSINESS AND MERCANTILE CLASSIFICATIONS WITH AN OCCUPANCY OF 15 OR FEWER, A SERVICE SINK SHALL NOT BE REQUIRED.

INTERNATIONAL ENERGY CODE (TABLE C402.1.3)

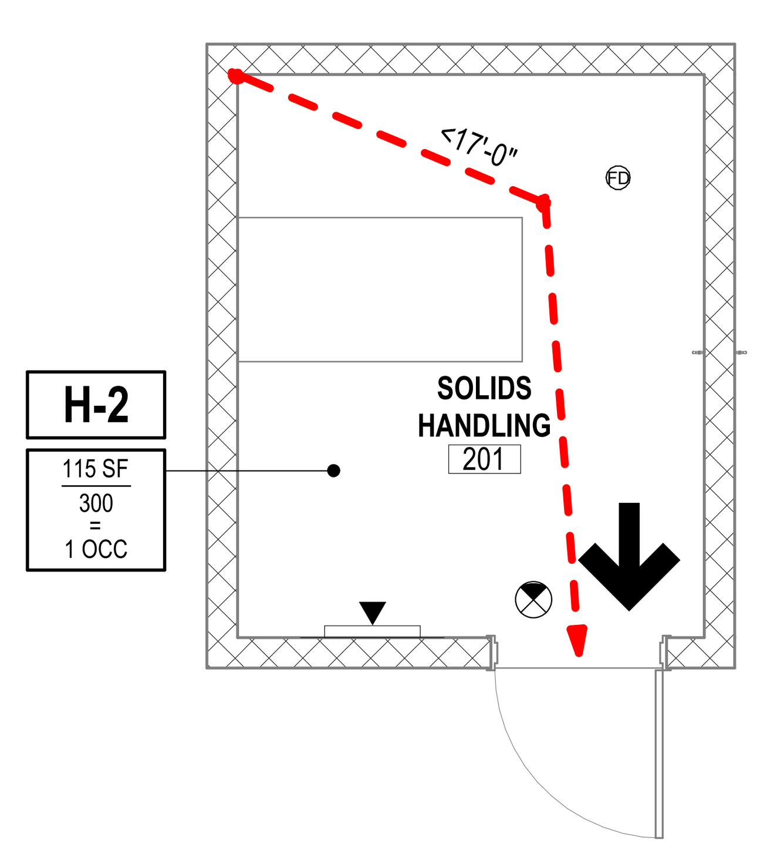
BUILDING COMPONENT	REQUIRED	PROVIDED
ROOF: ATTIC & OTHER	R-38	R-38
WALLS ABOVE GRADE: MASS	R-5.7CI	EXCEPTION C
SLAB-ON GRADE FLOORS: UNHEATED SLABS	NR	NR
OPAQUE DOORS: SWINGING	U-0.37	U-0.37
FENESTRATION U-FACTOR		
FIXED FENESTRATION	U-0.45	U-0.45
OPERABLE FENESTRATION	U-0.60	U-0.60

FENESTRATION SHGC	REQUIRED		PROVIDED	
	FIXED	OPERABLE	FIXED	OPERABLE
PF < 0.2	0.25	0.23	0.25	0.23
0.2 ≤ PF ≥ 0.5	0.30	0.28	0.30	0.28
PF ≥ 0.5	0.40	0.37	0.40	0.37

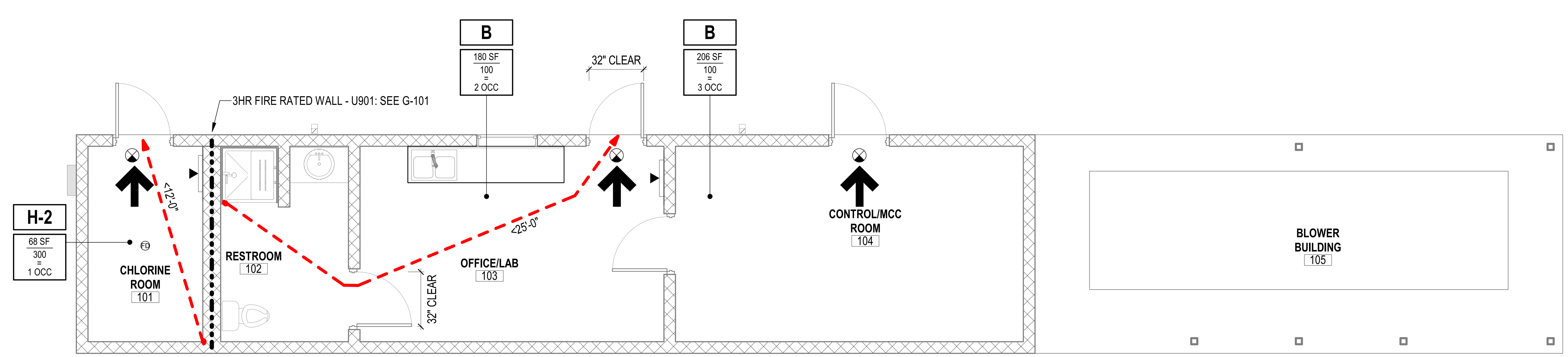
EXCEPTION C:
R-5.7ci IS ALLOWED TO BE SUBSTITUTED WITH CONCRETE BLOCK WALLS COMPLYING WITH ASTM C90, UNGROUTED OR PARTIALLY GROUTED AT 32 INCHES OR LESS ON CENTER VERTICALLY AND 48 INCHES OR LESS ON CENTER HORIZONTALLY, WITH UNGROUTED CORES FILLED WITH MATERIALS HAVING A MAXIMUM THERMAL CONDUCTIVITY OF 0.44 Btu-in/h-f²°F.

SECTION C402.2.2 ABOVE-GRADE WALLS:
THE MINIMUM THERMAL RESISTANCE (R-VALUE) OF MATERIALS INSTALLED IN THE WALL CAVITY BETWEEN FRAMING MEMBERS AND CONTINUOUSLY ON THE WALLS SHALL BE AS SPECIFIED IN TABLE C402.1.3, BASED ON FRAMING TYPE AND CONSTRUCTION MATERIALS USED IN THE WALL ASSEMBLY. THE R-VALUE OF INTEGRAL INSULATION INSTALLED IN CONCRETE MASONRY UNITS SHALL NOT BE USED IN DETERMINING COMPLIANCE WITH TABLE C402.1.3 EXCEPT AS OTHERWISE NOTED IN THE TABLE. IN DETERMINING COMPLIANCE WITH TABLE C402.1.4, THE USE OF THE U-FACTOR OF CONCRETE MASONRY UNITS WITH INTEGRAL INSULATION SHALL BE PERMITTED.

"MASS WALLS" WHERE USED AS A COMPONENT IN THE THERMAL ENVELOPE OF A BUILDING SHALL COMPLY WITH ONE OF THE FOLLOWING:
1. WEIGHT NOT LESS THAN 35 POUNDS PER SQUARE FOOT (171 kg/m²) OF WALL SURFACE AREA.
2. WEIGHT NOT LESS THAN 25 POUNDS PER SQUARE FOOT (122 kg/m²) OF WALL SURFACE AREA WHERE THE MATERIAL WEIGHT IS NOT MORE THAN 120 pcf (1900 kg/m³)
3. HAVE A HEAT CAPACITY EXCEEDING 7 Btu/ft²x °F (144 kJ/m²x K)
4. HAVE A HEAT CAPACITY EXCEEDING 5 Btu/ft²x °F (103 kJ/m²x K), WHERE THE MATERIAL WEIGHT IS NOT MORE THAN 120 pcf (1900 kg/m³)



2 LIFE SAFETY PLAN - SOLIDS HANDLING
1/4" = 1'-0"



1 LIFE SAFETY PLAN - PLANT OPERATIONS
1/4" = 1'-0"

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

CODE PLAN

Drawn By: AC
Checked By: MA
Scale: 1/4" = 1'-0"
Date: 01/21/2026

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	MNA	01/21/26

REGISTERED ARCHITECT STATE OF TEXAS 01/21/2026

MRB Group

Sheet No. G-100
of
Project No. 1397.21002

UL Product iQ®

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

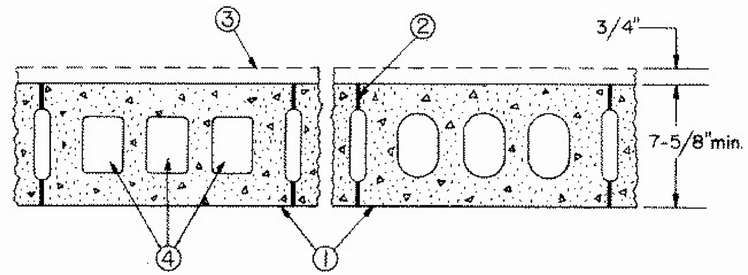
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U901

January 11, 2022

Bearing Wall Rating — 4 HR.
Nonbearing Wall Rating — 4 HR.
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Concrete Blocks* —** Various designs. Classification B-4 (4 hr).
See Concrete Blocks category for lists of eligible manufacturers.

2. **Mortar —** Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

3. **Portland Cement Stucco or Gypsum Plaster —** If used, add 1/2 hr. to Classification.

4. **Loose Masonry Fill —** If all core spaces are filled with loose dry expanded slag, burned clay or shale (rotary kiln process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation, Class D-2 (2 hr) or C-3 (3 hr) concrete blocks will provide a 4 hr fire resistance rating.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2022-01-11

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	MNA	01/21/26

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

UL ASSEMBLIES

Drawn By:	Checked By:	Scale:	Date:
AC	MA		01/21/2026

REGISTERED ARCHITECT
STATE OF TEXAS
31224

01/21/2026

MRB Group

1

Sheet No. G-101
of

Project No. 1397.21002

SYMBOLS

COLUMN LINE	CENTER LINE
LEVEL MARKER (Name / Elevation)	BREAK LINE
SPOT ELEVATION TAG (9'-0" AFF)	TRUE NORTH (IF REQUIRED) / NORTH ARROW
BUILDING SECTION (1 / A-300, SIM)	ROOM TAG (ROOM NAME 100 150 SF)
WALL SECTION (1 / A-301, SIM)	PLAN NOTES
SECTION DETAIL (1 / A-300, SIM)	REVISION TAG
EXTERIOR ELEVATION MARK (1 / A-300, SIM)	DOOR TAG (101)
INTERIOR ELEVATION MARK (1 SIM / A-401)	WINDOW TAG (W1)
DETAIL CALL OUT (1 / A-300, SIM)	EQUIPMENT OR FURNITURE TAG (RM-01, CH-1)
	PARTITION TAG
EXISTING WALL TO REMAIN	EXISTING DOOR TO REMAIN
EXISTING WALL TO BE REMOVED	EXISTING DOOR TO BE REMOVED
NEW WALL	NEW DOOR

MATERIAL HATCHES

- BRICK
- STONE / CAST STONE
- CONCRETE MASONRY UNITS
- CONCRETE
- EARTH
- CUT STONE OR GRAVEL
- STEEL
- ALUMINUM
- GYPSUM OR SAND
- RIGID INSULATION
- FIBERGLASS BATT INSULATION
- MINERAL WOOL BATT INSULATION
- SPRAY FOAM INSULATION / SPRAY APPLIED FIRE-RESISTANT MATERIAL
- DIMENSIONAL LUMBER
- NON-DIMENSIONAL LUMBER
- FINISHED WOOD
- PLYWOOD
- WORK NOT IN CONTRACT

GENERAL NOTES

GENERAL

1. ALL WORK SHALL CONFORM TO FEDERAL, STATE AND LOCAL CODES AS INTERPRETED BY THE LOCAL AUTHORITY HAVING JURISDICTION. THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR UNDERSTANDING AND COMPLYING WITH THESE CODES AND WITH ALL ADDITIONAL FEDERAL, STATE AND LOCAL LAWS, CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THE WORK OF THIS PROJECT.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A BUILDING PERMIT AND SHALL INCLUDE IN HIS BID ALL NECESSARY PERMIT AND INSPECTION FEES FOR THE MUNICIPALITY IN WHICH THE PROJECT IS LOCATED.

3. THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR SUPPLYING ALL MATERIALS, LABOR, ASSEMBLIES, FINISHES, ETC. TO PROVIDE THE OWNER WITH A COMPLETE JOB, THE QUALITY OF WHICH MATCHES OR EXCEEDS THE HIGHEST REASONABLE STANDARD OF QUALITY FOUND IN THE LOCAL INDUSTRY. WORKERS EXPERIENCED AND KNOWLEDGEABLE IN THE TRADE SHALL COMPLETE THE WORK.

4. CONTRACTOR(S) SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, INCLUDING, BUT NOT LIMITED TO, TEMPORARY BRACING AND SHORING OF EXISTING STRUCTURES TO BE PRESERVED AND/OR RECONSTRUCTED AND TEMPORARY SHORING OF NEW CONSTRUCTION, WHERE REQUIRED. SHORING AND BRACING SHALL BE MAINTAINED UNTIL SUCH TIME AS THE WORK IS STABLE AND BRACED IN ITS FINAL CONFIGURATION.

5. CONTRACTOR(S) SHALL REMOVE DEBRIS AND CLEAN UP THE PREMISES COMPLETELY AT THE END OF EACH WORKDAY. NOTWITHSTANDING THE PRIOR SENTENCE, CONTRACTOR(S) SHALL BE PERMITTED TO STORE MATERIALS AT THE SITE OF THE WORK DURING INSTALLATION IF SUCH STORAGE DOES NOT UNDULY INCONVENIENCE OTHER TENANTS OR BUILDING OCCUPANTS. CONTRACTOR(S) SHALL STORE MATERIALS IN A NEAT AND ORDERLY MANNER SO AS TO PREVENT DAMAGE FROM EXPOSURE TO THE ELEMENTS OR VANDALISM. DEBRIS SHALL BE LEGALLY TRANSPORTED AND DISPOSED OF OFF-SITE. CONTRACTOR MAY USE AN ON-SITE DUMPSTER, PROVIDED THE PLACEMENT IS APPROVED BY THE OWNER OR BUILDING MANAGER PRIOR TO DELIVERY.

6. ALL WORK SHALL BE PERFORMED WITHIN THE TENANT'S DEMISED AREA. THE CONTRACTOR SHALL TAKE REASONABLE MEASURES TO GUARD THE WORK AREA/PROJECT SITE AGAINST TRESPASSING AND TO PROTECT ADJACENT OCCUPANTS AND GENERAL PUBLIC FROM DANGEROUS CONDITIONS. ERECT TEMPORARY FENCING AND BARRIERS TO PROTECT THE PUBLIC AND OCCUPANTS FROM DANGERS ON THE PROJECT SITE.

7. PORTIONS OF THE BUILDING WILL BE OCCUPIED DURING CONSTRUCTION BY SEPARATE TENANTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT EXISTING BUILDING SYSTEMS ARE FUNCTIONAL DURING OCCUPANCY. THIS INCLUDES, BUT IS NOT LIMITED TO, FIRE ALARM SYSTEM, SPRINKLER SYSTEM, AND ELECTRICAL POWER. CONTRACTOR SHALL COORDINATE SHUTDOWN OF ANY BUILDING SYSTEM WITH OWNER, BUILDING MANAGER AND FIRE MARSHALL.

8. SEPARATION OF CONSTRUCTION AREAS FROM OCCUPIED SPACES: CONSTRUCTION AREAS WHICH ARE UNDER THE CONTROL OF A CONTRACTOR SHALL BE SEPARATED FROM OTHER OCCUPIED AREAS. PROVISIONS SHALL BE MADE TO PREVENT THE PASSAGE OF DUST AND CONTAMINANTS INTO OCCUPIED PARTS OF THE BUILDING. PERIODIC INSPECTION AND REPAIRS OF THE CONTAMINANT BARRIERS MUST BE MADE TO PREVENT EXPOSURE TO DUST OR CONTAMINANTS. GYPSUM BOARD MUST BE USED IN EXIT WAYS OR OTHER AREAS THAT REQUIRE FIRE RATED SEPARATION. HEAVY DUTY PLASTIC SHEETING MAY BE USED ONLY FOR A VAPOR, FINE DUST OR AIR FILTRATION BARRIER AND SHALL NOT BE USED TO SEPARATE OCCUPIED SPACES FROM CONSTRUCTION WORK AREAS.

9. CONSTRUCTION AND MAINTENANCE OPERATIONS SHALL NOT PRODUCE NOISE IN EXCESS OF 60 dba IN OCCUPIED SPACES OR SHALL BE SCHEDULED FOR TIMES WHEN THE BUILDING OR AFFECTED SPACES ARE NOT OCCUPIED OR ACOUSTICAL ABATEMENT MEASURES SHALL BE TAKEN.

10. MATERIAL, PRODUCTS, FIXTURES, AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND/OR SHOP DRAWINGS.

11. THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH THE CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS. PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH CONSTRUCTION THE CONTRACTOR SHALL CONFIRM THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN. THE CONTRACTOR(S) SHALL FURTHER BE RESPONSIBLE FOR ADVISING THE ARCHITECT OF ANY DISCREPANCIES AND/OR CONFLICTS BETWEEN THE EXISTING CONDITIONS AND THE PROPOSED WORK PRIOR TO PROCEEDING WITH THE WORK IN QUESTION. SHOULD THERE BE ANY QUESTIONS RELATED TO THE CONTRACT DOCUMENTS, EXISTING CONDITIONS, AND/OR THE DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.

12. CONTRACTOR TO COORDINATE ALL NEW DIMENSIONS WITH EXISTING FIELD CONDITIONS AND NOTIFY ARCHITECT OF ANY INTERFERENCES, DISCREPANCIES OR OTHER UNFORESEEN CONDITIONS PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

13. DUE TO REVISIONS DURING THE DEVELOPMENT OF THESE DRAWINGS, GRAPHIC ILLUSTRATIONS MAY NOT REFLECT THE DIMENSIONS NOTED. WHEREVER POSSIBLE, THE ABBREVIATION NTS (NOT TO SCALE) HAS BEEN USED TO IDENTIFY THESE CONDITIONS. DO NOT SCALE THE DRAWINGS. IF A DIMENSION IS REQUIRED THAT CANNOT BE DEDUCED FROM THE DRAWINGS, CONTACT THE ARCHITECT.

14. DIMENSIONS FOR STUD PARTITIONS ARE TO FACE OF STUD. DIMENSIONS FOR MASONRY WALLS ARE TO FACE OF MASONRY. DIMENSIONS TO EXISTING CONSTRUCTION ARE TO FINISHED FACE OF CONSTRUCTION. DIMENSIONS NOTED AS "CLEAR" ARE TO FINISHED SURFACE AND ARE CRITICAL FOR ACCESSIBILITY REQUIREMENTS OR BUILT-IN FURNISHINGS AND SHALL BE MAINTAINED.

15. PRIOR TO COMPLETION OF THE PROJECT THE CONTRACTOR(S) SHALL THOROUGHLY CLEAN ALL SURFACES IN THE WORK AREA(S) AND ADJACENT SPACES. THE CONTRACTOR(S) SHALL DELIVER THE STRUCTURE TO THE OWNER IN A "BROOM CLEAN" CONDITION. ALL NON-ESSENTIAL LABELS SHALL BE REMOVED FROM MATERIALS AND SURFACES SHALL BE CLEAN AND FREE OF DUST OR DIRT.

16. THE CONTRACTOR IS TO INCLUDE FIRE BLOCKING IN ALL WALLS AND CEILING STRUCTURES AS REQUIRED BY THE BUILDING CODE OF NEW YORK STATE. FIRE BLOCKING SHALL BE PLACED SO AS TO PREVENT THE SPREAD OF FIRE WITHIN OR THROUGH CONCEALED SPACES WITHIN INTERIOR WALLS AND CAVITIES OF THE STRUCTURE.

17. PERFORM SELECTIVE DEMOLITION WORK IN A SYSTEMATIC MANNER. USE SUCH METHODS AS REQUIRED TO COMPLETE WORK INDICATED ON DRAWINGS IN ACCORDANCE WITH GOVERNING REGULATIONS. DEMOLISH CONCRETE AND MASONRY IN SMALL SECTIONS. CUT CONCRETE AND MASONRY AT JUNCTURES WITH CONSTRUCTION TO REMAIN USING POWER-DRIVEN MASONRY SAW OR HAND TOOLS. DO NOT USE POWER-DRIVEN IMPACT TOOLS. REPAIR DEMOLITION PERFORMED IN EXCESS OF THAT REQUIRED. RETURN STRUCTURES AND SURFACES TO REMAIN TO CONDITION EXISTING PRIOR TO COMMENCEMENT OF SELECTIVE DEMOLITION WORK. REPAIR ADJACENT CONSTRUCTION OR SURFACES SOILED OR DAMAGED BY SELECTIVE DEMOLITION WORK.

18. IF HAZARDOUS MATERIALS ARE ENCOUNTERED DURING DEMOLITION OPERATIONS, COMPLY WITH APPLICABLE REGULATIONS, LAWS AND ORDINANCES CONCERNING REMOVAL, HANDLING AND PROTECTION AGAINST EXPOSURE OR ENVIRONMENTAL POLLUTION.

19. NOTIFY ARCHITECT OF ANY EXISTING DAMAGED OR DETERIORATED BUILDING ELEMENTS THAT ARE REVEALED DURING DEMOLITION OR CONSTRUCTION PRIOR TO PROCEEDING WITH ANY ADDITIONAL WORK IN THE IMMEDIATE AREA OF SUCH ITEMS.

20. THE CONTRACTOR SHALL GRADE AND SEED ALL DISTURBED AREAS RESULTING FROM CONSTRUCTION ACTIVITY. THE NEW FINISHED GRADE SHALL PROVIDE FOR THE DRAINAGE OF SURFACE WATER AWAY FROM THE STRUCTURE AT ALL LOCATIONS. LEVEL AND FILL ALL RUTS FROM MACHINE TIRES AND TRACKS WITH TOPSOIL. NEW GRADED AREAS SHALL HAVE A MINIMUM OF 4 INCHES OF SCREENED TOPSOIL PLACED ON THEM. THIS MATERIAL MUST BE IMPORTED TO THE SITE. SEED ALL DISTURBED AREAS WITH AN APPROPRIATE GRASS SEED MIXTURE.

21. ROUGH OPENINGS FOR DOORS SHALL BE LOCATED 4" FROM ADJACENT WALL UNLESS OTHERWISE NOTED.

22. CONTRACTOR SHALL FIELD VERIFY FINISHED DIMENSIONS AND CLEARANCES IN SPACES INDICATED TO RECEIVE BUILT-IN FURNISHINGS OR CASEWORK PRIOR TO FABRICATION.

23. ALL FIRE RATED PARTITIONS SHALL EXTEND TIGHT TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE UNLESS OTHERWISE NOTED. PROVIDE FIRE-SAFING MATERIAL AND/OR SEALANTS AT ALL PENETRATIONS AND VOIDS.

MASONRY/ CONCRETE

1. ALL VERTICAL CONCRETE SURFACES EXPOSED TO VIEW UPON COMPLETION OF WORK SHALL RECEIVE A SMOOTH-RUBBED FINISH.

2. ALL ENDS OF MASONRY WALLS THAT WILL BE EXPOSED TO VIEW UPON COMPLETION OF WORK SHALL BE PLAIN END UNITS.

3. PROVIDE GAP BETWEEN TOP OF MASONRY AT ALL LOCATIONS WHERE MASONRY EXTENDS TO UNDERSIDE OF STRUCTURAL MEMBERS OR FLOOR/ROOF DECK WITH LATERAL SUPPORT AS INDICATED IN THE STRUCTURAL DETAILS. AT RATED MASONRY PARTITIONS THE GAP SHALL BE FIRE SEALED WITH A UL APPROVED ASSEMBLY.

MASONRY/ GYPSUM BOARD

1. PROVIDE CONTROL JOINTS IN MASONRY AND GYPSUM BOARD/STUD PARTITIONS AT SPACING NOT EXCEEDING 25'-0" O.C. IN STRAIGHT RUNS EXCEEDING 25 FT. IN LENGTH. IN PARTITION TYPES WHICH INCLUDE BOTH MASONRY AND STUD CONSTRUCTION, CONTROL JOINTS SHALL ALIGN FROM UPPER TO LOWER CONSTRUCTION. LOCATE JOINTS AT DOOR/WINDOW OPENINGS TO GREATEST EXTENT POSSIBLE.

MISCELLANEOUS

1. PROVIDE BLOCKING IN ALL STUD WALLS AS REQUIRED TO SUPPORT WALL MOUNTED CASEWORK, FURNISHINGS, TOILET ACCESSORIES OR EQUIPMENT.

2. PROVIDE BLOCKING FOR FUTURE INSTALLATION OF GRAB BARS IN ALL TOILET/ BATHING ROOMS WITHIN DWELLING UNITS THAT ARE DESIGNATED AS ACCESSIBLE ON FLOOR PLANS. REFER TO DIAGRAMS IN DRAWING SET FOR MOUNTING LOCATIONS OF GRAB BARS.

3. ALL WOOD BLOCKING AND FURRING IN EXTERIOR WALLS AND ROOFING ASSEMBLIES SHALL BE PRESSURE TREATED.

4. ELECTRICAL, MECHANICAL OR PLUMBING PENETRATIONS THROUGH FIRE-RATED WALL OR FLOOR ASSEMBLIES SHALL BE SEALED WITH A U.L. APPROVED THROUGH-PENETRATION FIRESTOP SYSTEM APPROPRIATE FOR THE RATING OF THE WALL BEING PENETRATED. SUBMIT PROPOSED U.L. NUMBERS AND DETAILS TO ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. EACH PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR SEALING PENETRATIONS RELATED TO THEIR SCOPE OF WORK UNLESS NOTED OTHERWISE.

5. ALL STEEL MEMBERS OR UNFINISHED METAL ITEMS (INCLUDING BUT NOT LIMITED TO: COLUMNS, BASEPLATES, BEAMS, JOISTS, FLOOR/ROOF DECK, LINTELS, BUMPER RAILS, HANDRAILS, GUARDRAILS, MISCELLANEOUS PLATES, PIPING, CONDUIT, ETC.) THAT ARE EXPOSED TO VIEW UPON COMPLETION OF THE PROJECT SHALL BE FIELD PAINTED.

6. DO NOT INSTALL FIRE EXTINGUISHERS/CABINETS/BRACKETS UNTIL ALL LOCATIONS HAVE BEEN REVIEWED AND APPROVED BY THE CODE AUTHORITY HAVING JURISDICTION.

7. MEANS OF EGRESS AND BUILDING SECURITY SHALL BE MAINTAINED FOR THE EXISTING BUILDING THROUGHOUT THE DURATION OF THE PROJECT.

8. ANY COLORS/FINISHES NOT SPECIFICALLY IDENTIFIED SHALL BE SELECTED FROM MANUFACTURER'S STANDARD COLORS/FINISHES DURING SUBMITTAL REVIEW.

9. "FURNISH" MEANS TO SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR INSTALLATION. "INSTALL" MEANS TO PLACE IN POSITION FOR SERVICE OR USE. "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	MNA	01/21/26

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

GENERAL NOTES

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Scale: As indicated
Date: 01/21/2026

REGISTERED ARCHITECT STATE OF TEXAS
01/21/2026

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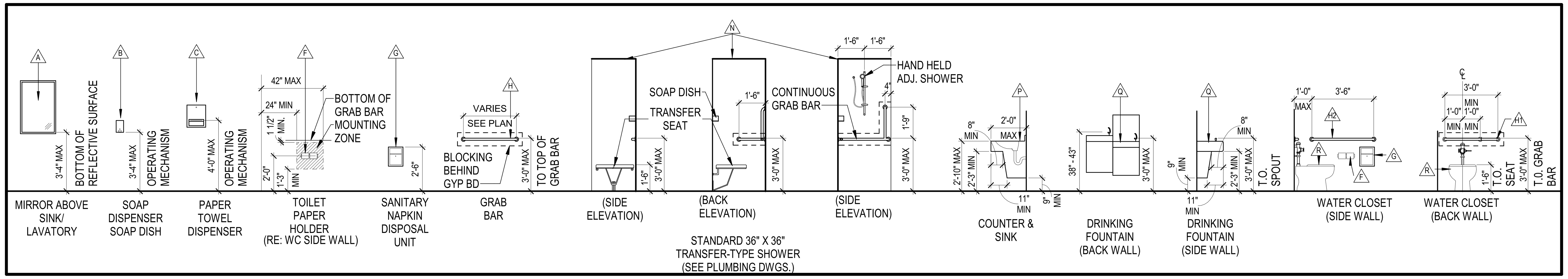
Sheet No. A-001 of

Project No. 1397.21002



TOILET ROOM MOUNTING HEIGHTS DIAGRAM

SCALE: N.T.S.

THESE MOUNTING HEIGHTS ARE FOR ADA-ACCESSIBILITY UNLESS OTHERWISE NOTED. THIS DRAWING IS FOR DIAGRAMMATIC PURPOSES ONLY. AN ITEMS' PRESENCE ON THIS DIAGRAM DOES NOT MEAN THAT IT APPEARS IN THIS PARTICULAR PROJECT. SEE FLOOR PLANS, SPECIFICATIONS, ETC. FOR THE ACTUAL TOILET ROOM ACCESSORIES IN THIS PROJECT.

NOTES:

1. G.C. TO PROVIDE WASHROOM ACCESSORIES AS INDICATED ON DRAWINGS. BASIS OF DESIGN FOR TOILET ROOM ACCESSORIES IS "BOBRICK", REFER TO PLAN SPECS FOR LISTING OF ADDITIONAL APPROVED MANUFACTURERS. PROVIDE CONCEALED BLOCKING FOR MOUNTING OF ALL ACCESSORIES - ONLY PROPOSED NEW ACCESSORIES WILL BE INDICATED ON DRAWINGS. ALL OTHERS ARE EXISTING TO REMAIN.

TOILET ACCESSORIES

- A — MIRROR - 24x36 TEMPERED GLASS MIRROR CENTERED OVER SINK
- B — SOAP DISPENSER
- C — PAPER TOWEL DISPENSER
- F — DOUBLE ROLL TOILET TISSUE DISPENSER
- H1 — GRAB BARS 1 1/2" DIAMETER - 36" LONG
- H2 — GRAB BARS 1 1/2" DIAMETER - 42" LONG
- N — 36" X 36" PREFAB SHOWER STALL
- P — COUNTER & SINK
- R — WATER CLOSET

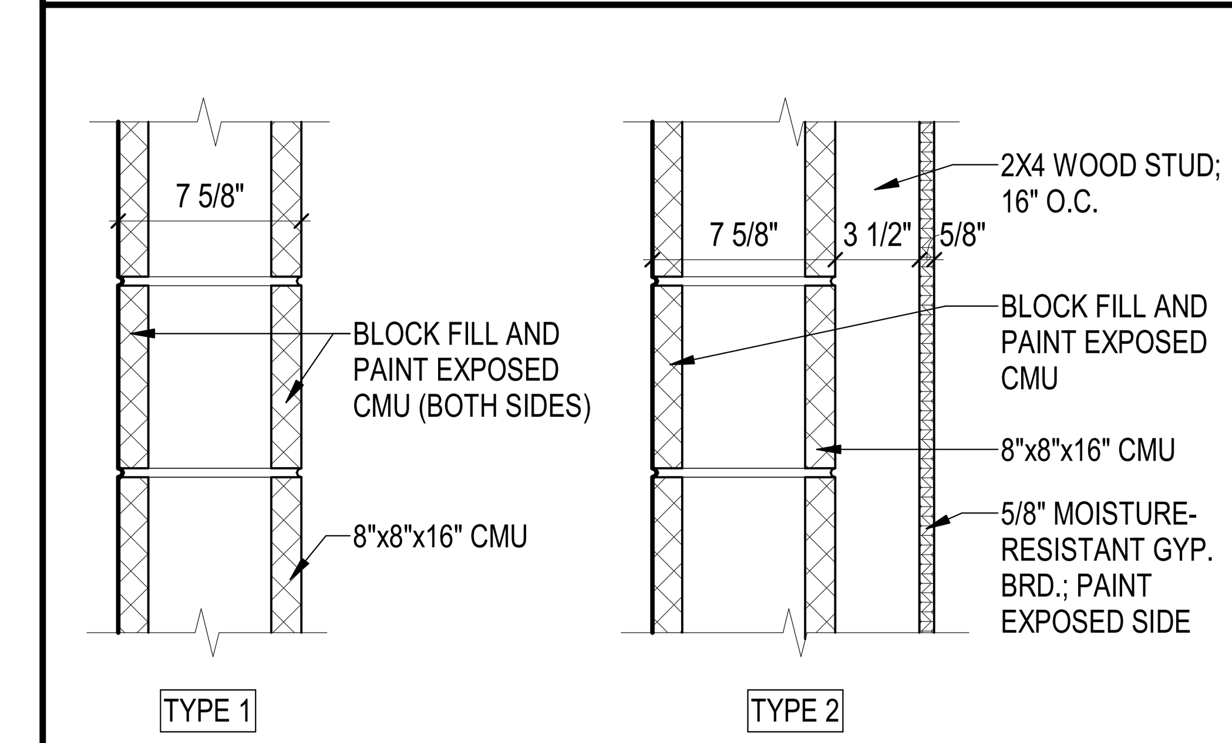
GENERAL NOTES

1. ALL EXTERIOR DIMENSIONS ARE F.O. CMU TO F.O. CMU & EQUALS EXTERIOR FACE OF FOUNDATION.
2. PROVIDE SEMI-RECESSED FEC (FIRE EXTINGUISHER CABINETS) AS NOTED ON CODE PLANS.
3. COORDINATE CLOSELY WITH STRUCTURAL ENGINEER REGARDING LOCATION OF CONTROL JOINTS IN CONCRETE SLAB.
4. AT ALL EXTERIOR LOCATIONS WHERE CONCRETE SLAB ABUTS AN EXTERIOR WALL PROVIDE AN ASPHALT IMPREGNATED BOND BREAKER.
5. WALL THICKNESS IS DIMENSIONED NOMINALLY. ALLOW FOR ACTUAL VS. NOMINAL DIMENSION DIFFERENCE WHEN WALLS ARE LAID OUT.
6. ALL COLUMN SPACING TO BE COORDINATE WITH BLOWER MANUFACTURER
7. ALL NON STRUCTURAL COLUMNS SHALL BE INSTALLED FOR AIR HEADER SUPPORT. FINAL LOCATION DETERMINED IN FIELD.
8. IECC 2018 TABLE C402.1.3 EXCEPTION C: R-5.7ci IS ALLOWED TO BE SUBSTITUTED WITH CONCRETE BLOCK WALLS COMPLYING WITH ASTM C90, UNGROUTED OR PARTIALLY GROUTED AT 32 INCHES OR LESS ON CENTER VERTICALLY AND 48 INCHES OR LESS ON CENTER HORIZONTALLY, WITH UNGROUTED CORES FILLED WITH MATERIALS HAVING A MAXIMUM THERMAL CONDUCTIVITY OF 0.44 Btu-in/h-f²°F.

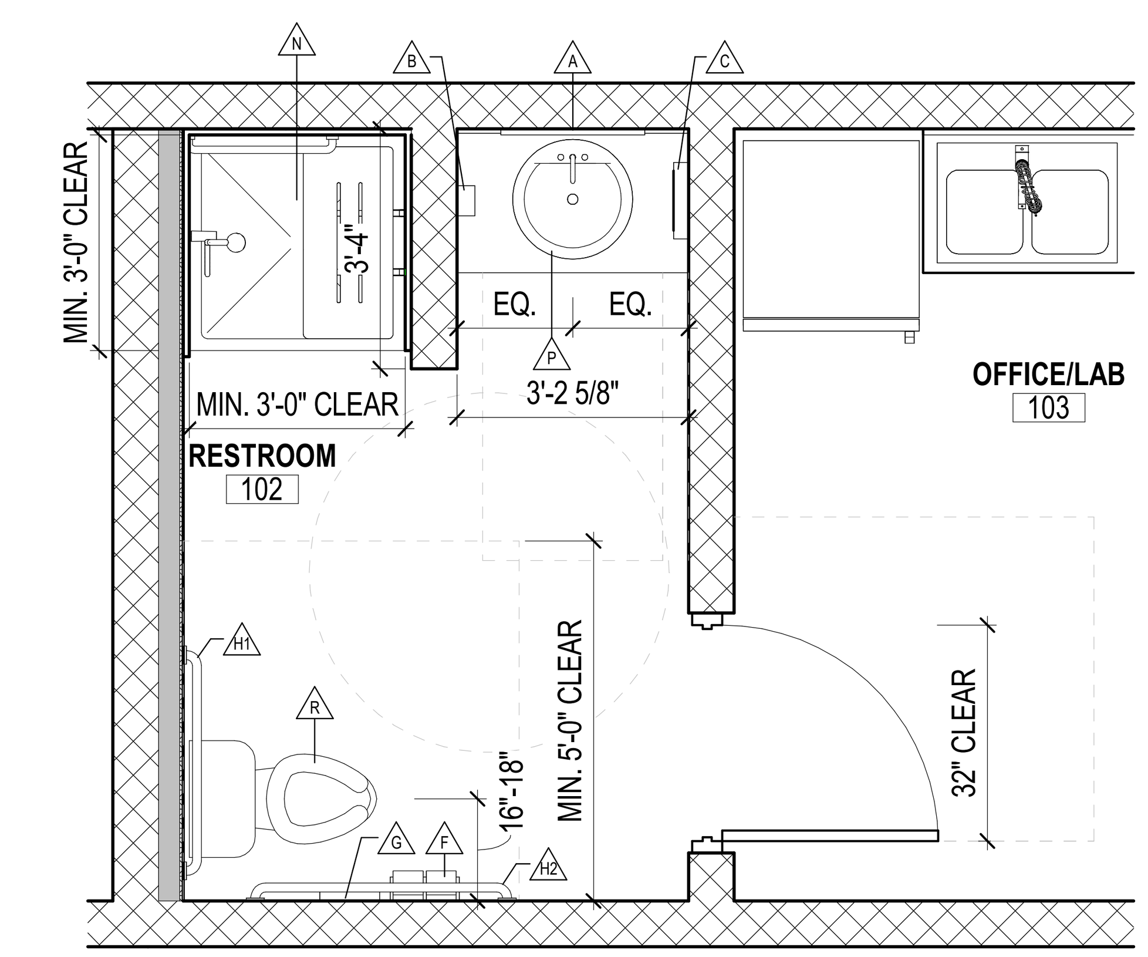
FLOOR PLAN KEYNOTES

1. SHOWER TO BE 3'X3' H/C ENCLOSURE - COORDINATE WITH SLAB AND DRAIN.
2. ROOF ABOVE
3. HOUSEKEEPING PAD (RE: STR)
4. COLUMN - GALVANIZED METAL
5. HOSE BIBB
6. HOSE BIBB AND HOSE RACK
7. SLAB FOR DEWATERING FACILITY - SEE CIVIL
8. 4X4 DOWNSPOUT

WALL TYPE

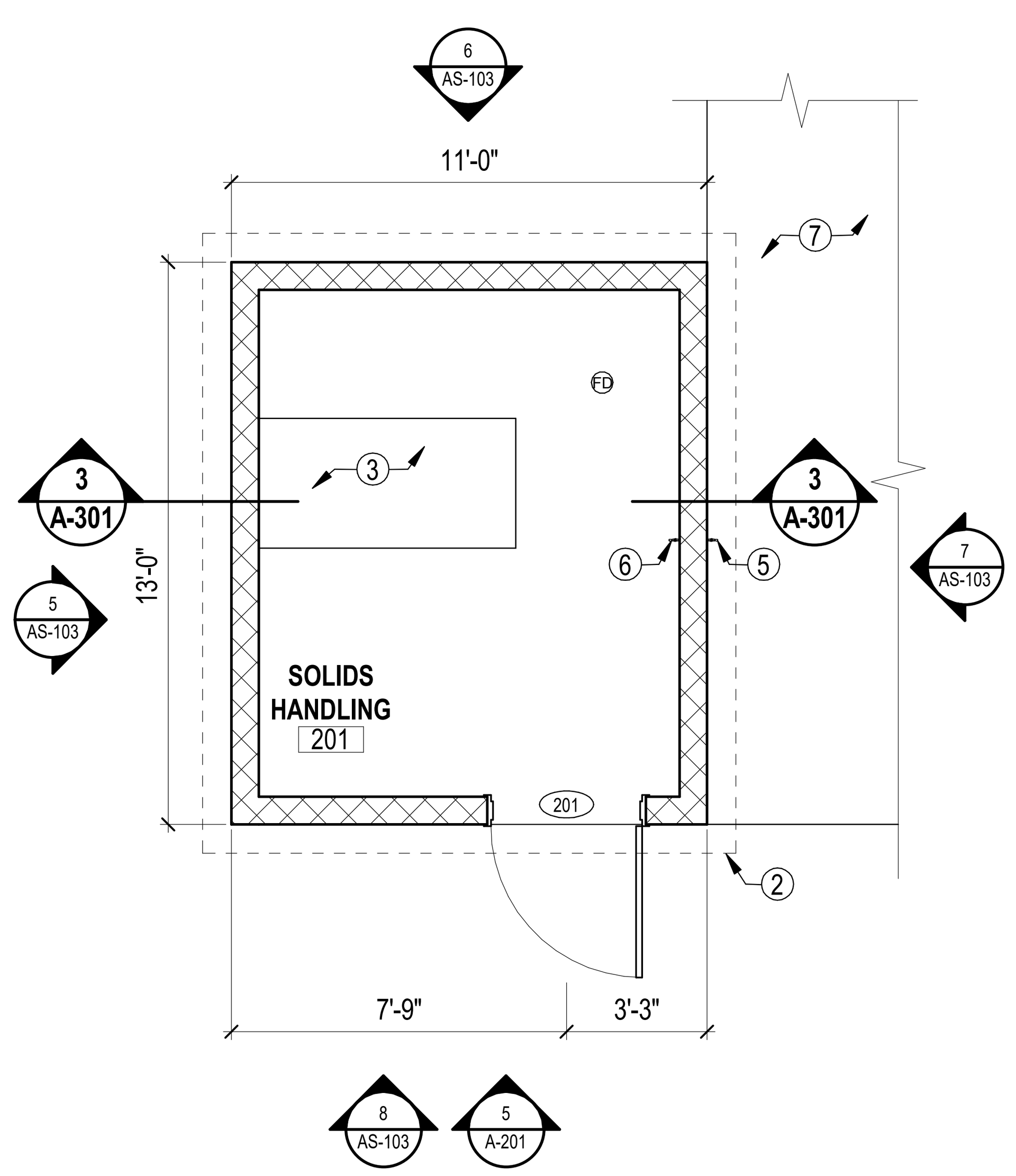


3 HR FIRE RATED - U901: SEE G-101



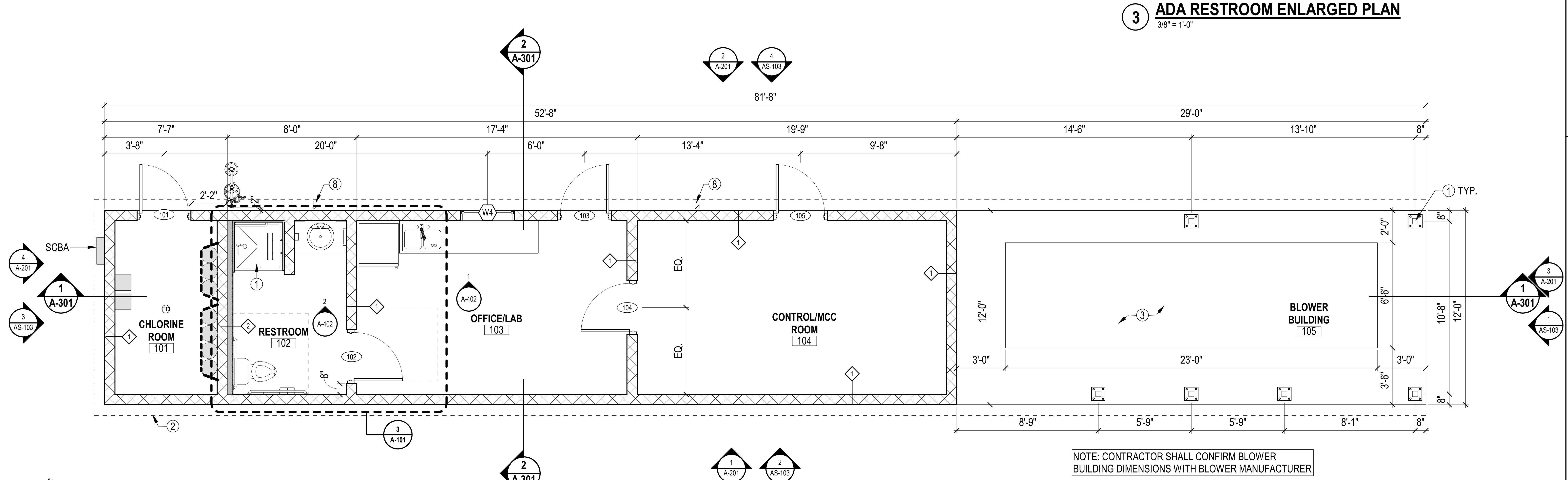
3 ADA RESTROOM ENLARGED PLAN

3/8" = 1'-0"



2 FLOOR PLAN - SOLIDS HANDLING BUILDING

1/4" = 1'-0"



NOTE: CONTRACTOR SHALL CONFIRM BLOWER BUILDING DIMENSIONS WITH BLOWER MANUFACTURER

1 FLOOR PLAN - PLANT OPERATIONS BUILDING

1/4" = 1'-0"

0' 2' 4' 8' 16'

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	MNA	01/21/26

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

FLOOR PLAN & ENLARGED PLAN

Drawn By: AC
Checked By: MA
Scale: As indicated
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REGISTERED ARCHITECT STATE OF TEXAS 31224
01/21/2026

MRB Group

Sheet No. A-101

40 of 89

Project No. 1397.21002

RCP LEGEND

Symbol	Description
(hatch)	SLOPED 5/8" PLYWOOD CEILING W/ RAFTERS
(stipple)	SLOPED 5/8" MOISTURE-RESISTANT GYP. BRD. CEILING W/ RAFTERS
(vertical lines)	SLOPED HARDI PANEL SMOOTH
(rectangle)	LIGHT FIXTURE - RE: ELEC.
(circle)	CEILING MOUNTED FIXTURE - RE: ELEC.
(circle on bracket)	EXT WALL MOUNTED FIXTURE - RE: ELEC.

RCP NOTES

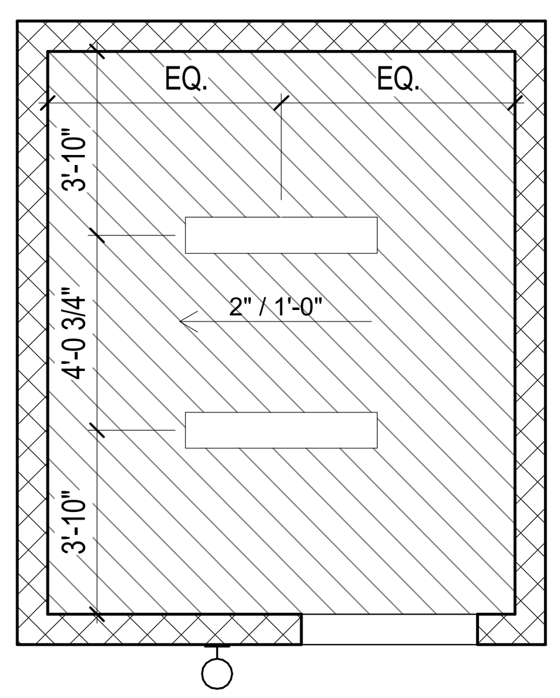
1. G.C. TO COORDINATE ALL LIGHT FIXTURE LOCATIONS WITH HVAC DIFFUSERS, RETURN GRILLES, ETC.
2. SEE ELECTRICAL DWGS. FOR FIXTURE TYPES & EMERGENCY LIGHTING

ROOF PLAN KEYNOTES

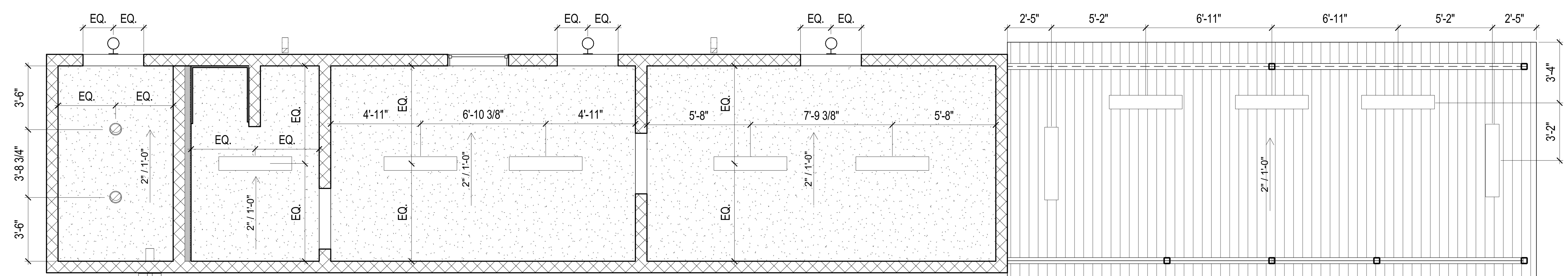
1. 6X6 GUTTER W/ 4X4 DOWNSPOUTS - RE: ELEV FOR LOCATIONS
2. 1" R-PANEL ON WEATHER BARRIER ON 5/8" SHEATHING ON 2X6 FRAMING WITH MIN R-38 SPRAY FOAM INSULATION AND 5/8" MOISTURE-RESISTANT GYP. BRD. BELOW
3. 1" R-PANEL ON 5/8" SHEATHING ON 2X6 FRAMING ON HARDI
4. BUILDING LINE BELOW

ROOF PLAN NOTES

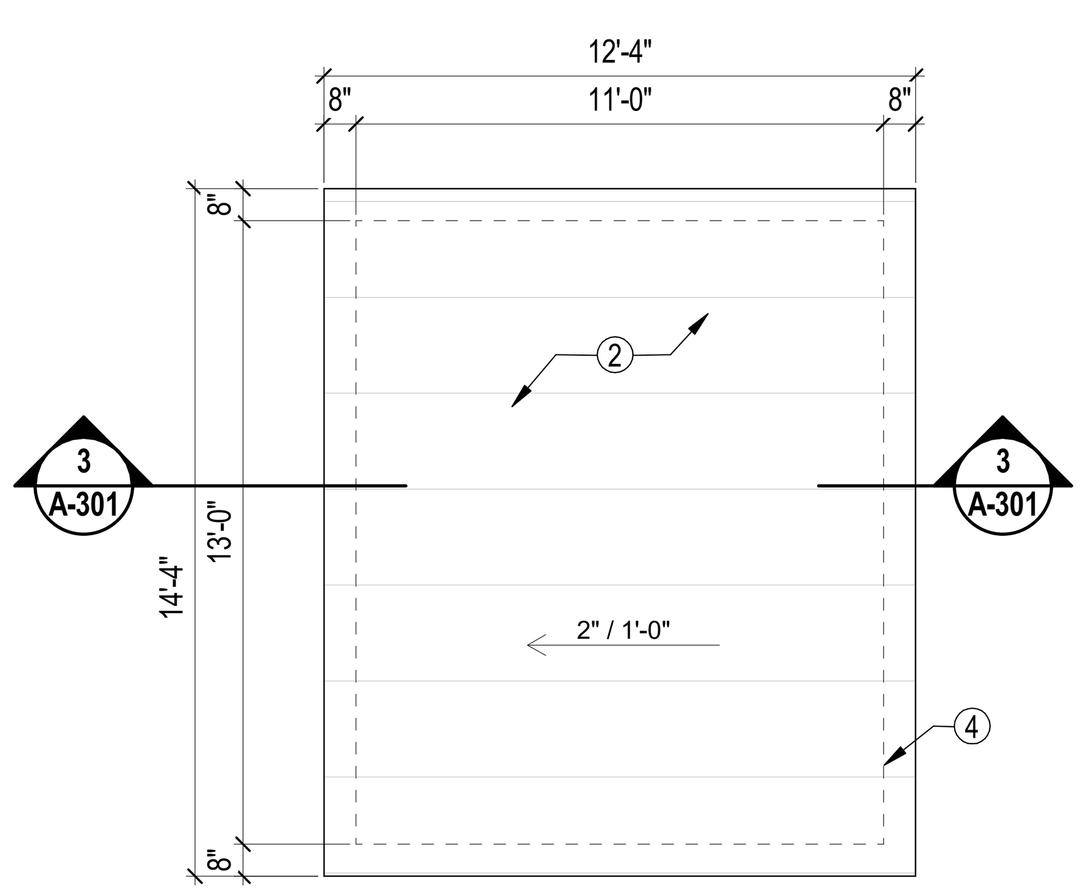
1. ALL ROOF PENETRATIONS TO BE FLASHED PER ROOFING MANUFACTURER'S RECOMMENDATIONS.
2. VERIFY ALL ROOF DIMENSIONS, SLOPES, AND ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.
3. ROOF SLOPE SHALL BE 2" PER 12" MINIMUM UNLESS NOTED OTHERWISE.
4. STANDING SEAM METAL ROOF PANELS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
5. PROVIDE CONTINUOUS UNDERLAYMENT OVER ROOF DECK PRIOR TO METAL PANEL INSTALLATION.
6. COORDINATE ROOF PENETRATIONS WITH MEP TRADES PRIOR TO FABRICATION AND INSTALLATION OF PANELS.
7. FASTENERS SHALL BE CORROSION-RESISTANT, INSTALLED PER MANUFACTURER REQUIREMENTS
8. PROVIDE CLOSURES, SEALANT, AND FOAM FILLERS AT ALL PANEL ENDS, RIDGES, HIPS, RAKES, AND EAVES TO ENSURE A WEATHER-TIGHT SYSTEM.
9. GUTTERS, DOWNSPOUTS, AND FLASHINGS SHALL BE FABRICATED FROM THE SAME MATERIAL/FINISH AS ROOF PANELS UNLESS NOTED OTHERWISE.



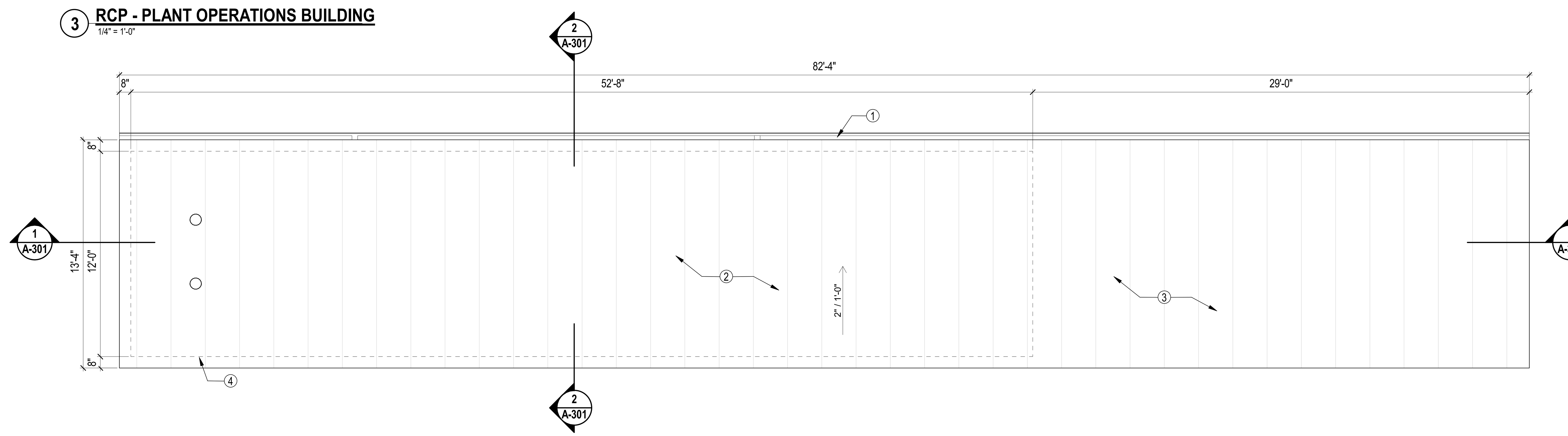
4 **RCP - SOLIDS HANDLING BUILDING**
1/4" = 1'-0"



3 **RCP - PLANT OPERATIONS BUILDING**
1/4" = 1'-0"



2 **ROOF PLAN - SOLIDS HANDLING BUILDING**
1/4" = 1'-0"



1 **ROOF PLAN - PLANT OPERATIONS BUILDING**
1/4" = 1'-0"

0' 2' 4' 8' 16'

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	MNA	01/21/26

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

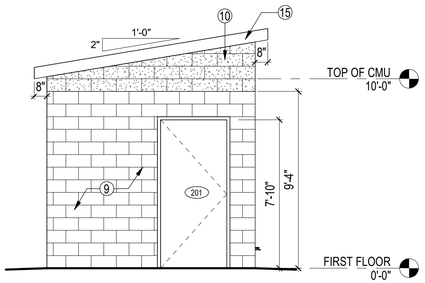
RCP & ROOF PLAN

Drawn By: AC
Checked By: MA
Scale: 1/4" = 1'-0"
Date: 01/21/2026

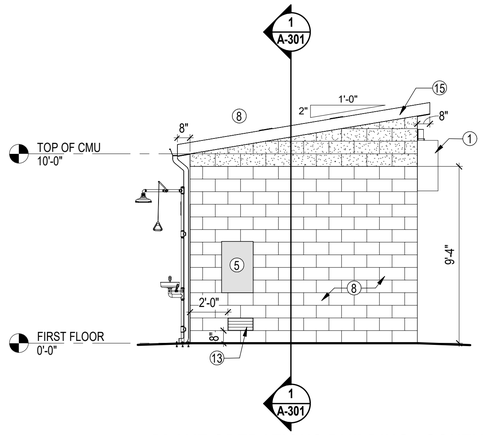
REGISTERED ARCHITECT STATE OF TEXAS 31224
01/21/2026

MRB Group

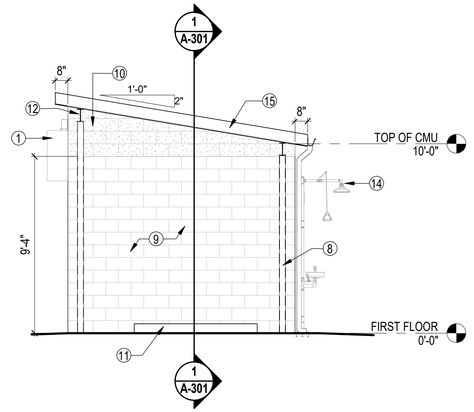
Sheet No. A-102
41 of 89
Project No. 1397.21002



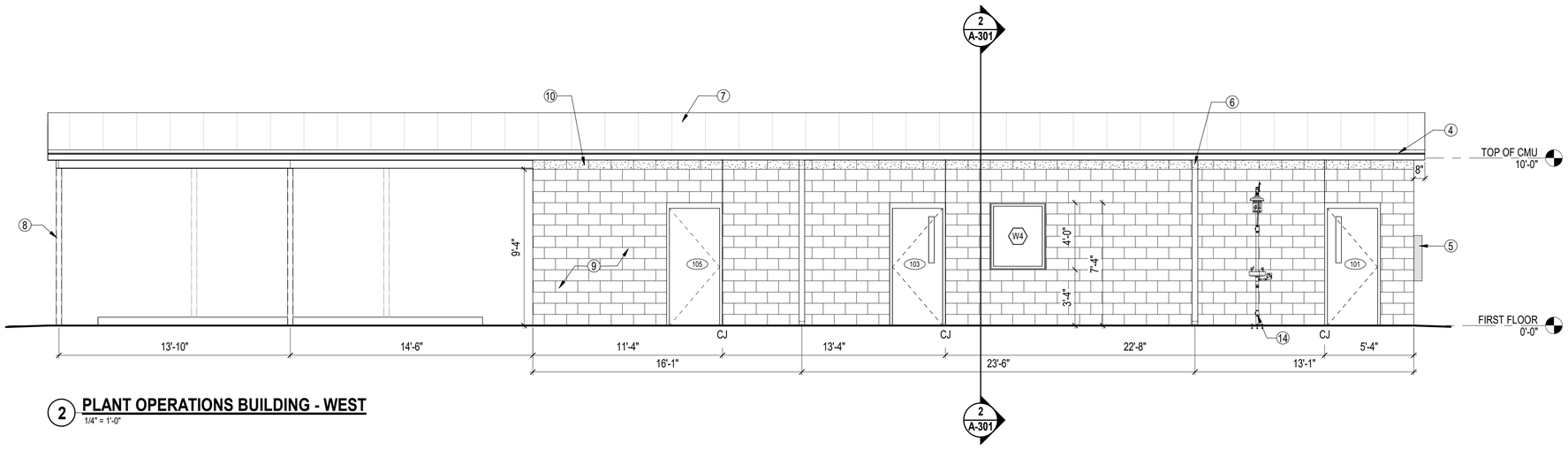
5 SOLIDS HANDLING BUILDING - SOUTH
1/4" = 1'-0"



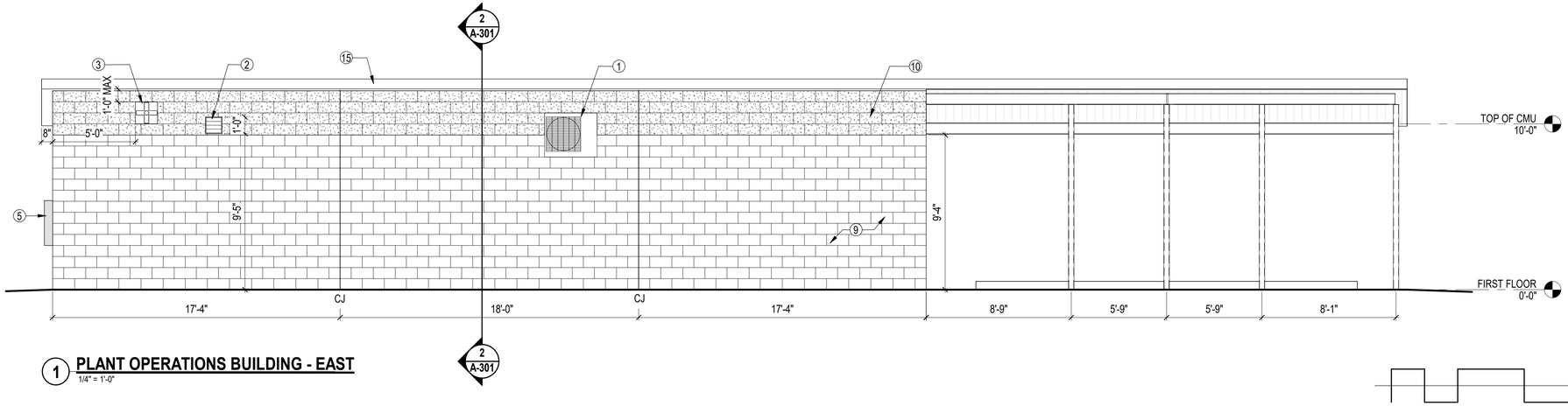
4 PLANT OPERATIONS BUILDING - SOUTH
1/4" = 1'-0"



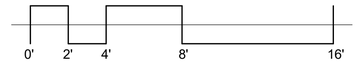
3 PLANT OPERATIONS BUILDING - NORTH
1/4" = 1'-0"



2 PLANT OPERATIONS BUILDING - WEST
1/4" = 1'-0"



1 PLANT OPERATIONS BUILDING - EAST
1/4" = 1'-0"



ELEVATION KEYNOTES

1. MINISPLIT CONDENSER - RE:MECHANICAL
2. EF-1 - RE: MECHANICAL
3. EF-2: FAN - RE:MECHANICAL
4. 6X6 ALUMINUM GUTTER WITH 4X4 DOWNSPOUTS AND SPLASH BLOCK
5. SCBA - MOUNTED PER MANUFACTURER'S RECOMMENDATION
6. 4X4 DOWNSPOUT
7. R-PANEL METAL ROOF
8. 4X4 TUBE STEEL ON 8X8 BASE PLATE WITH 4 BOLTS INTO SLAB
9. 8X8X16 SPLIT-FACED CMU - FF TO 9'-4" AFF
10. 8X8X16 SMOOTH FACE CMU - STARTING AT 9'-4" AFF
11. HOUSEKEEPING PAD ON TOP OF FOUNDATION SLAB
12. STEEL BEAM - RE: STRUCT
13. EXHAUST LOUVER - RE: MECH.
14. GUARDIAN GFR1902 FREEZE-RESISTANT SAFETY STATION WITH EYEWASH
15. FASCIA: HARDIE TRIM - PAINTED

No.	Addendum No. 1 Revisions and Descriptions	By	Date
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CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

EXTERIOR ELEVATIONS

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Checked By: MA
Scale: 1/4" = 1'-0"
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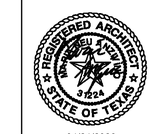

01/21/2026

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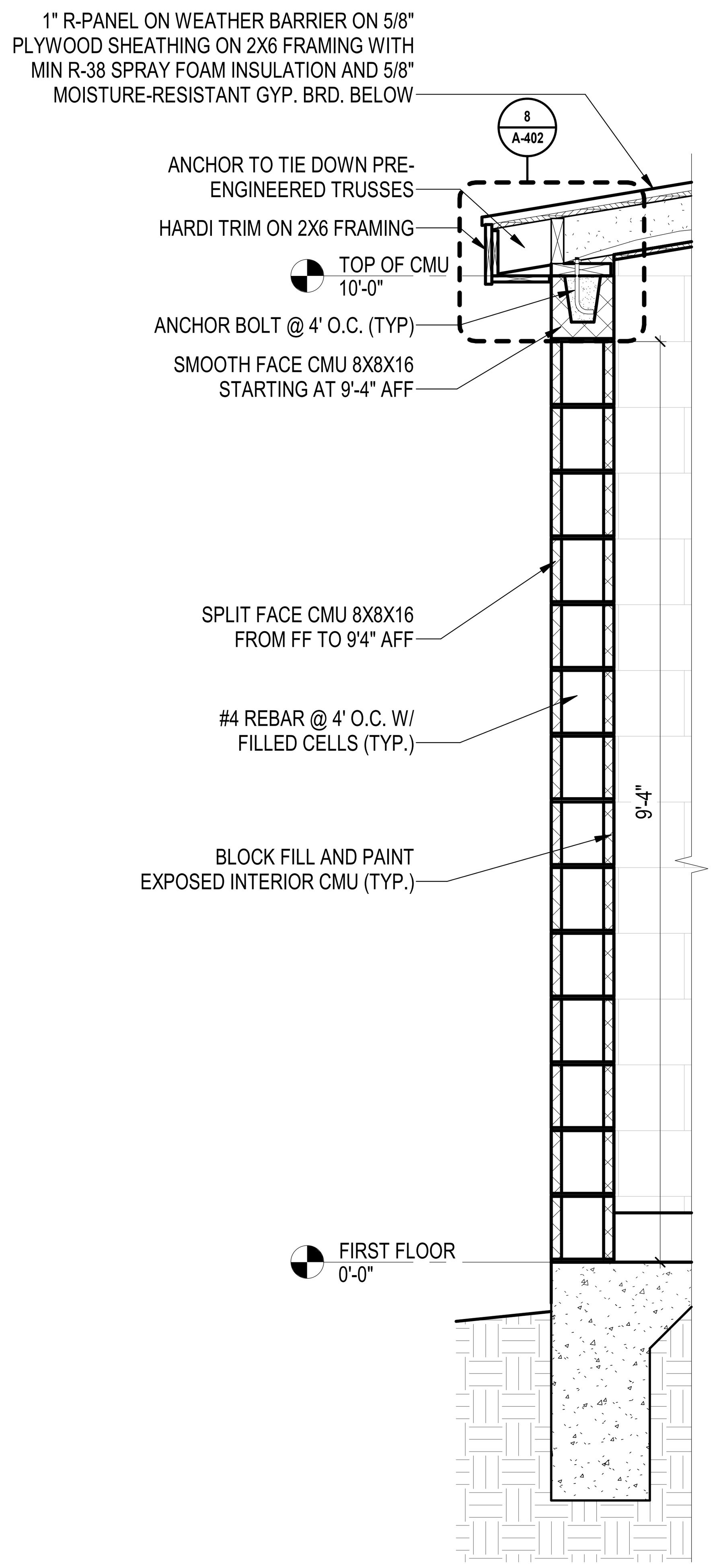
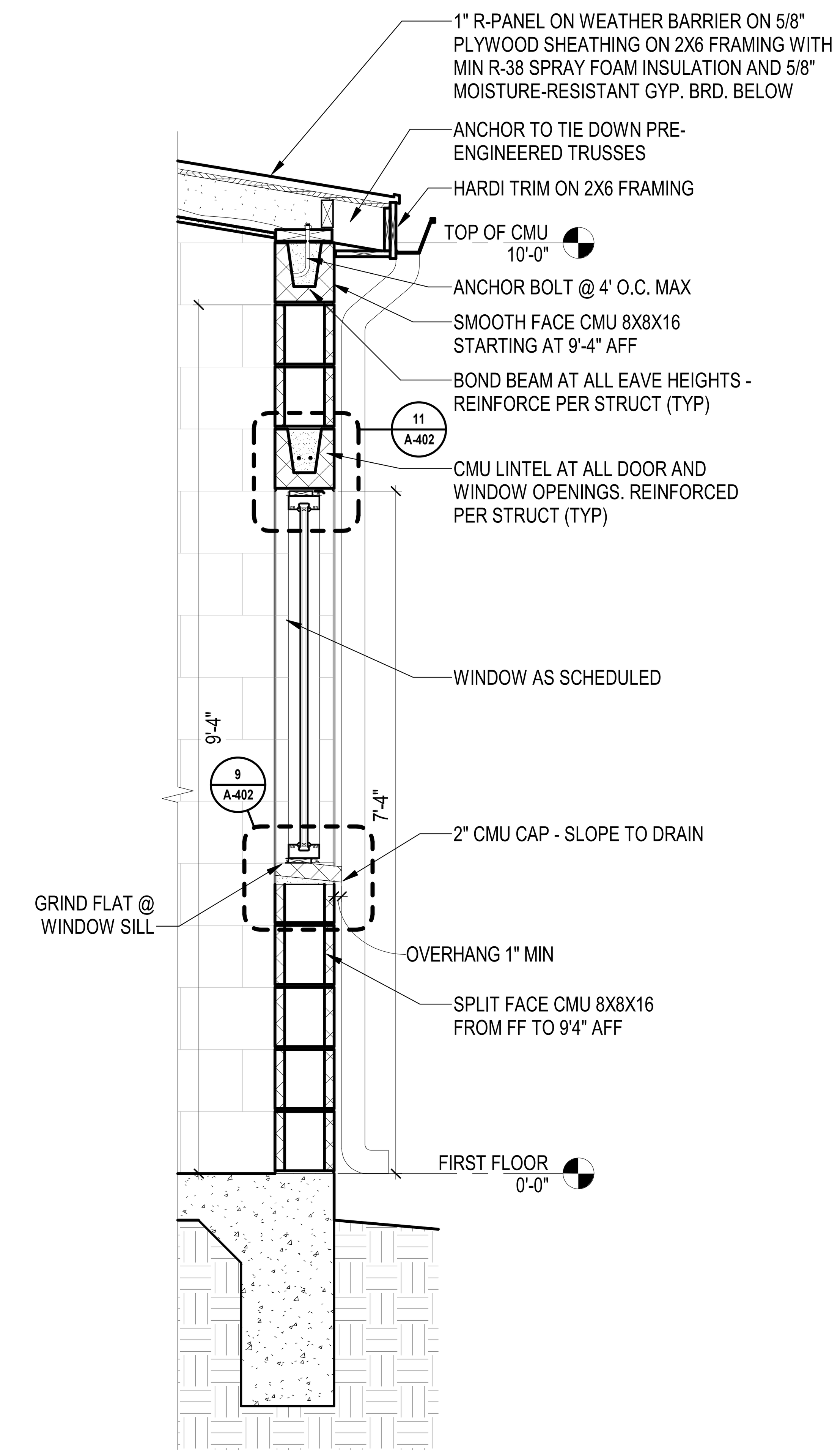
Sheet No. A-201
42 of 89

Project No. 1397.21002



6 **SOLIDS HANDILING BUILDING WALL SECTION**
3/4" = 1'-0"



5 **PLANT OPERATIONS BUILDING WALL SECTION 2**
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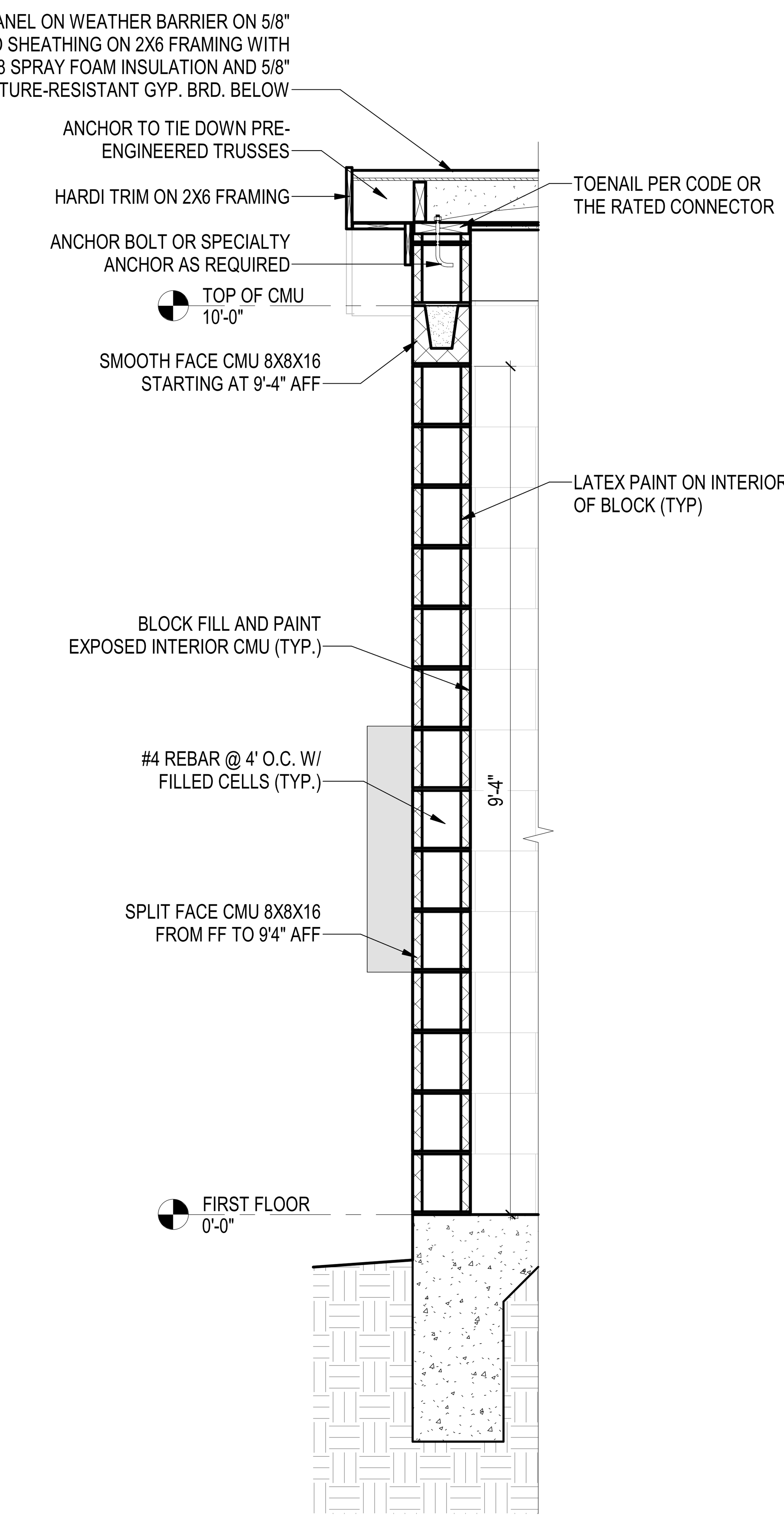

4 **PLANT OPERATIONS BUILDING WALL SECTION 1**
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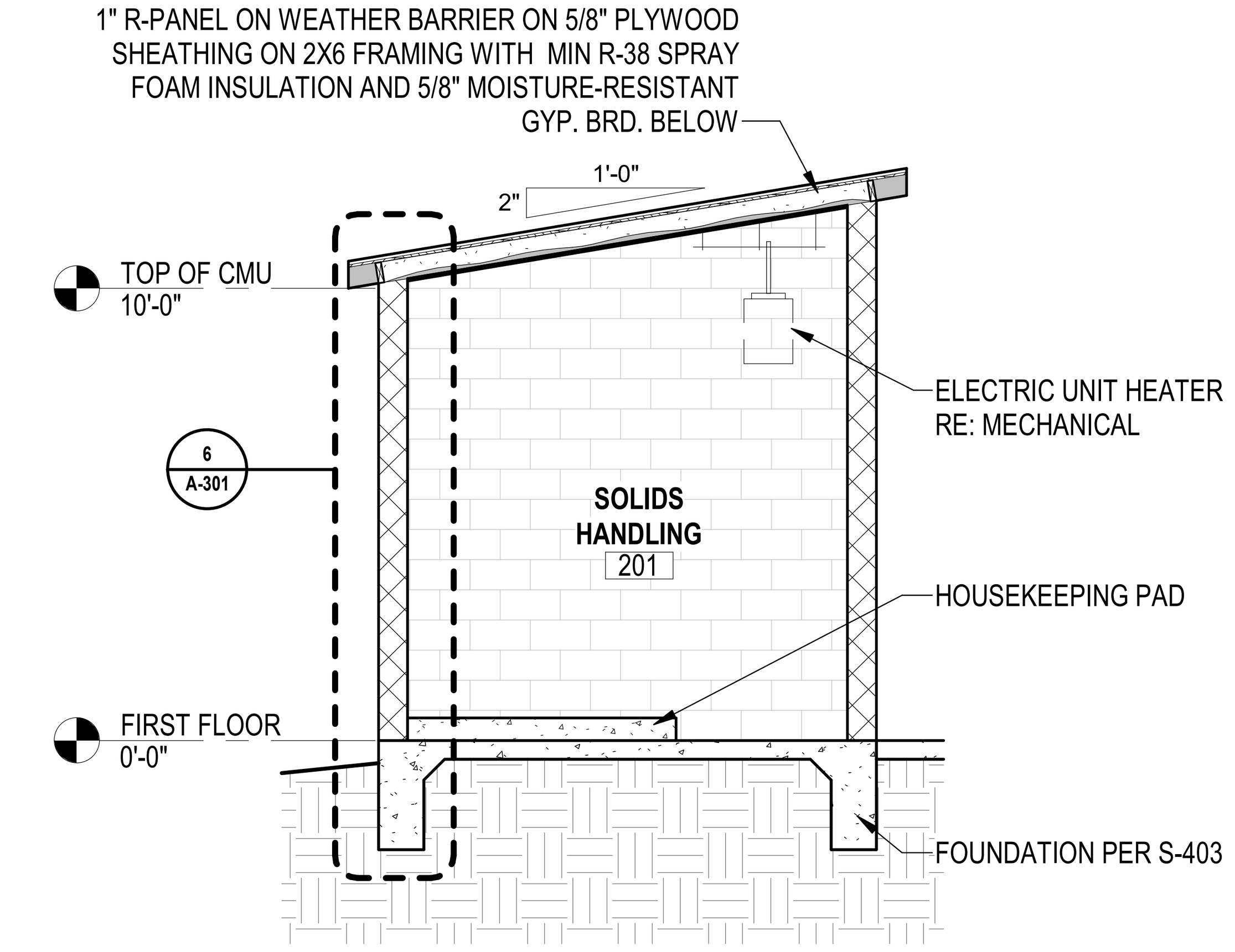
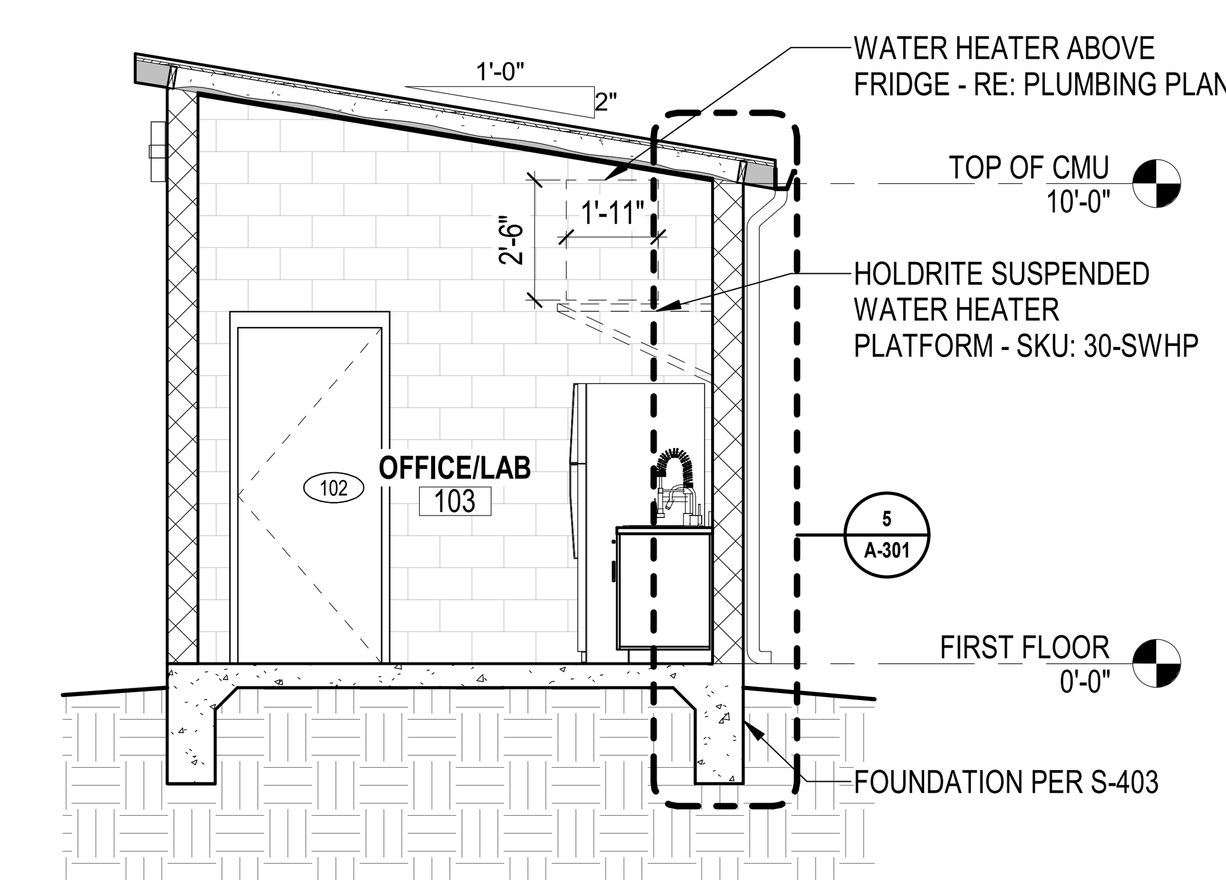


3 **SOLIDS HANDILING BUILDING SECTION**
1/4" = 1'-0"



2 **PLANT OPERATIONS BUILDING SECTION 2**
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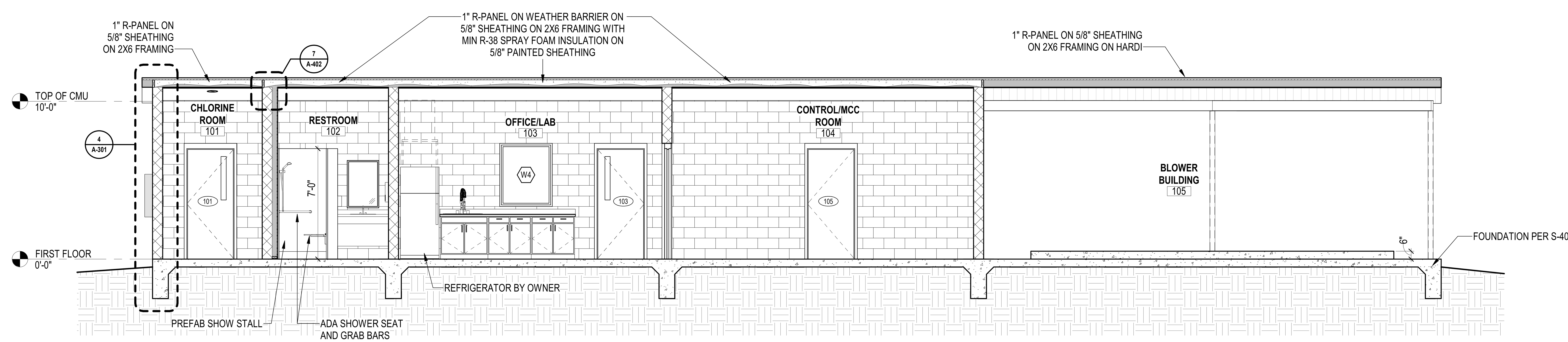


1 **PLANT OPERATIONS BUILDING SECTION 1**
1/4" = 1'-0"

0' 2' 4' 8' 16'

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	MNA	01/21/26

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

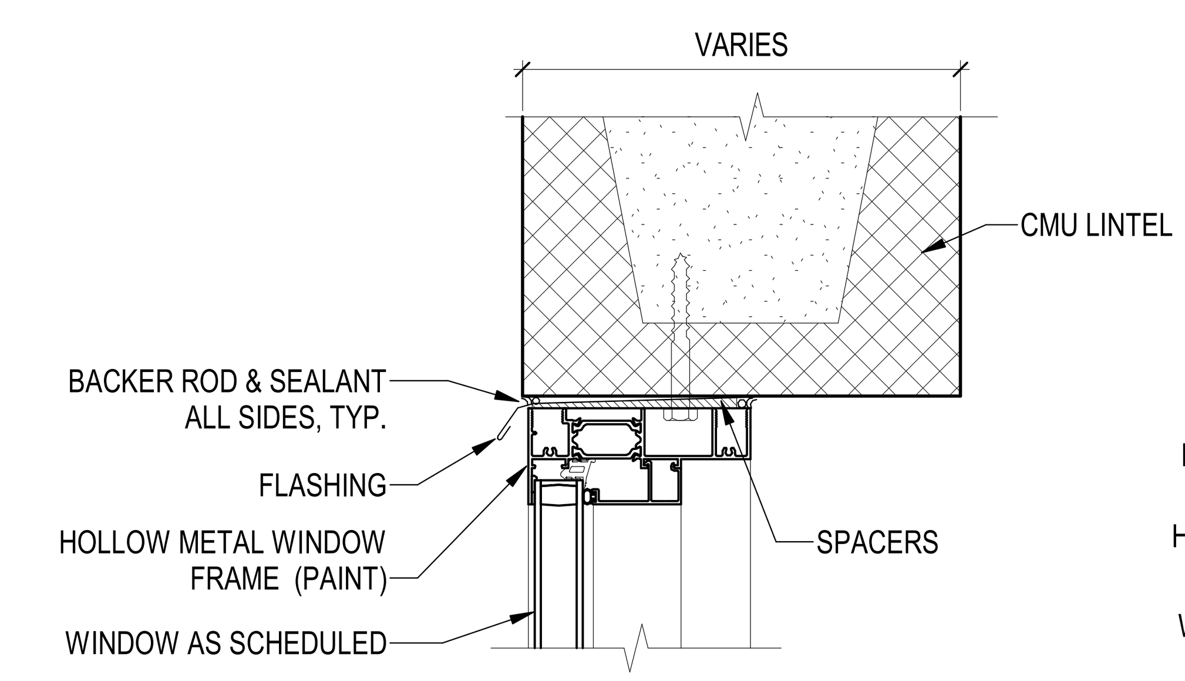
BUILDING & WALL SECTIONS

Drawn By: AC
Checked By: MA
Scale: As indicated
Date: 01/21/2026

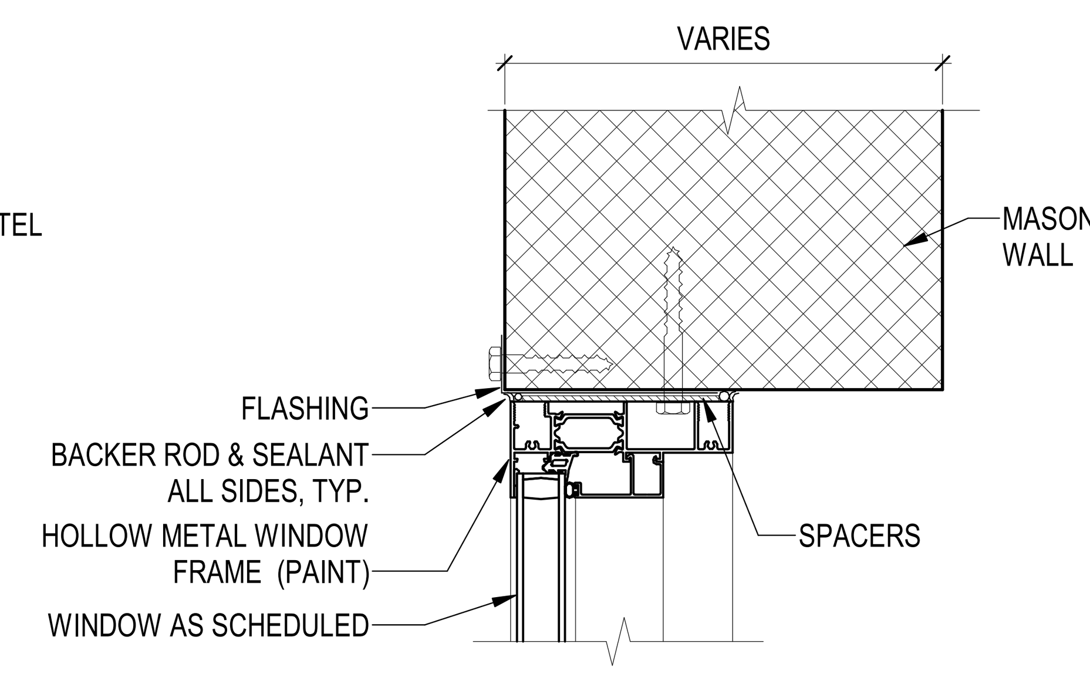
REGISTERED ARCHITECT STATE OF TEXAS 31224
01/21/2026

MRB Group

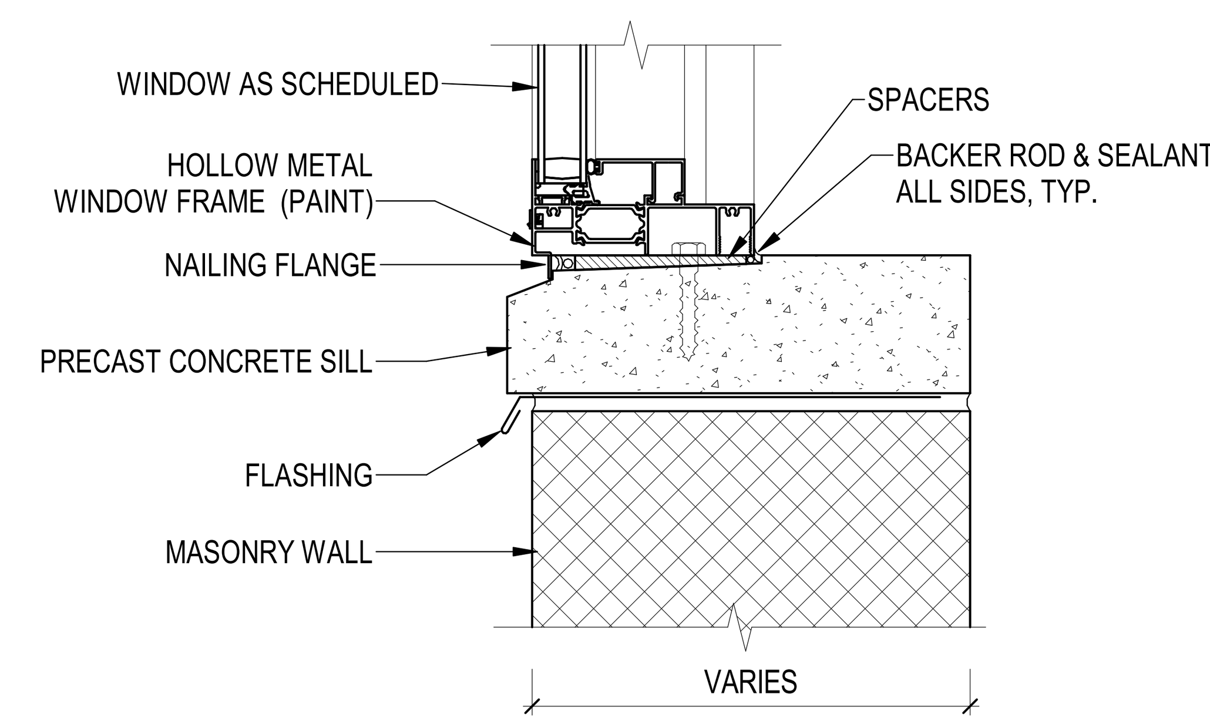
Sheet No. A-301
43 of 89
Project No. 1397.21002



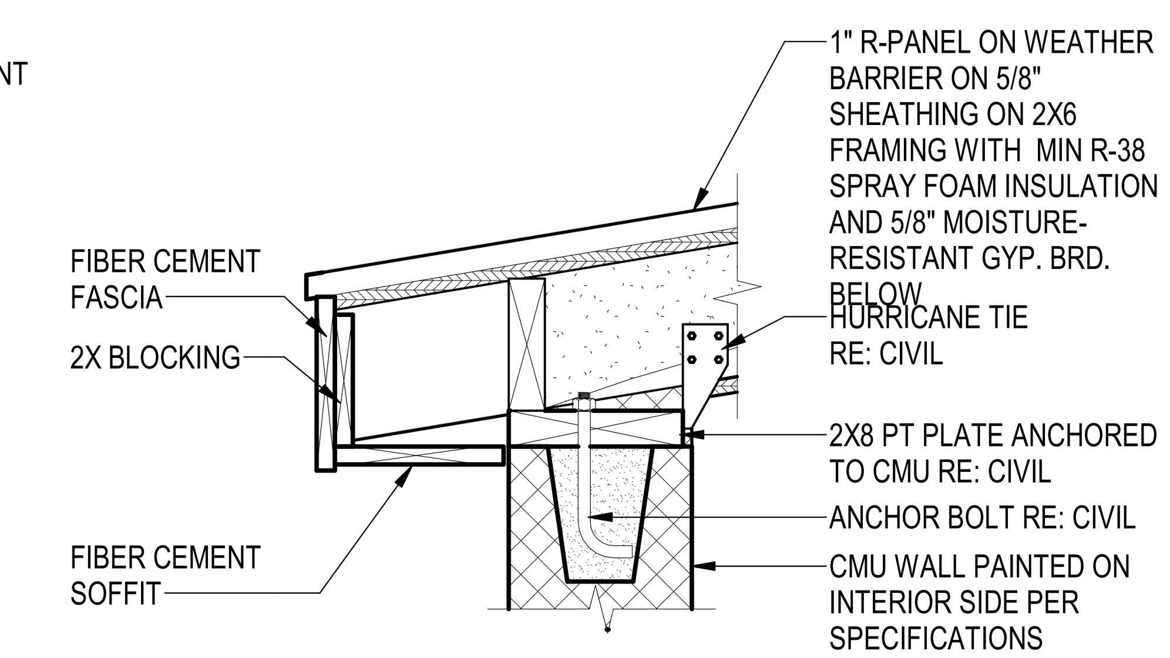
11 **WINDOW HEADER @ CMU**
3" = 1'-0"



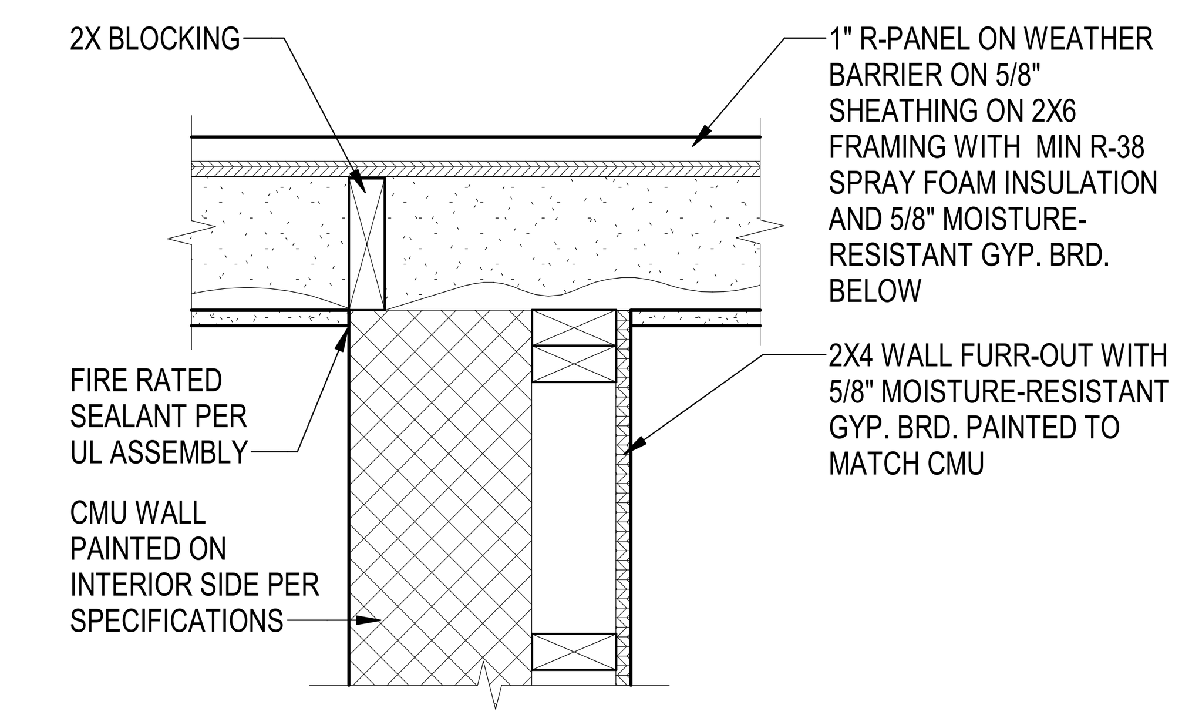
10 **WINDOW JAMB @ CMU**
3" = 1'-0"



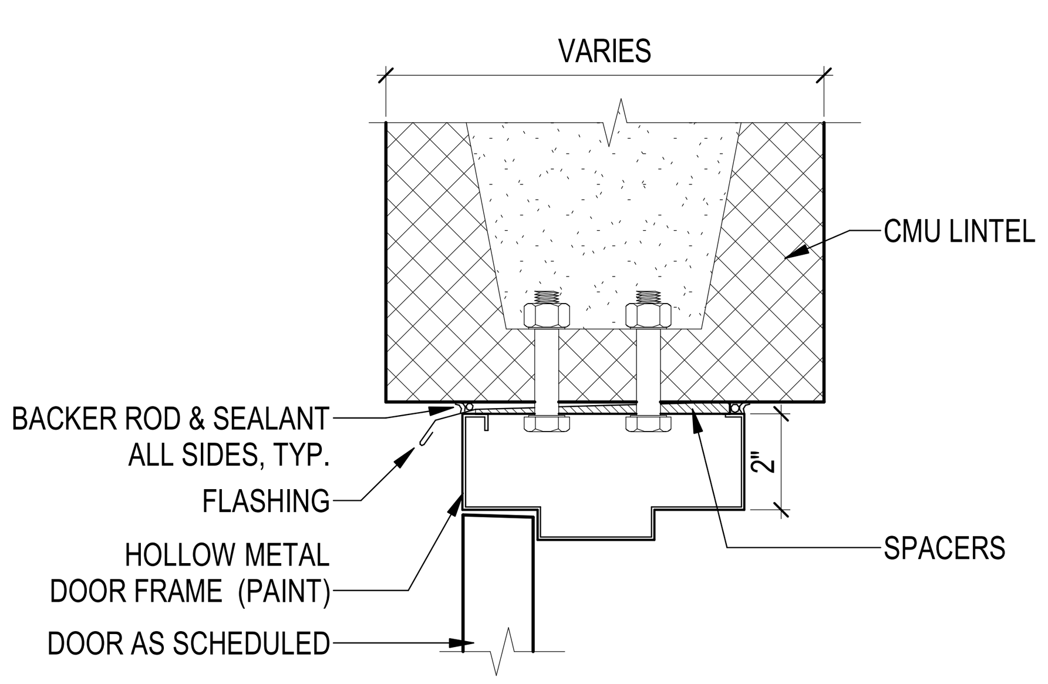
9 **WINDOW SILL @ CMU**
3" = 1'-0"



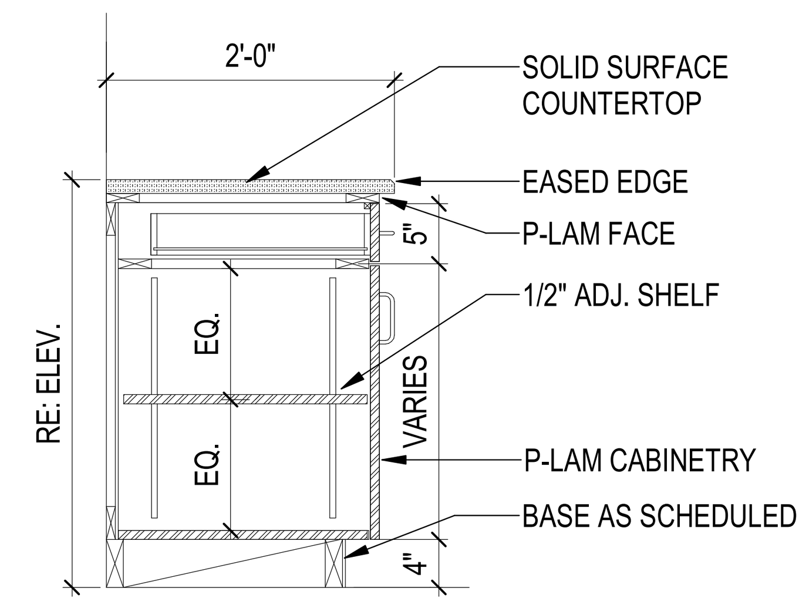
8 **FASCIA & SOFFIT DETAIL**
1 1/2" = 1'-0"



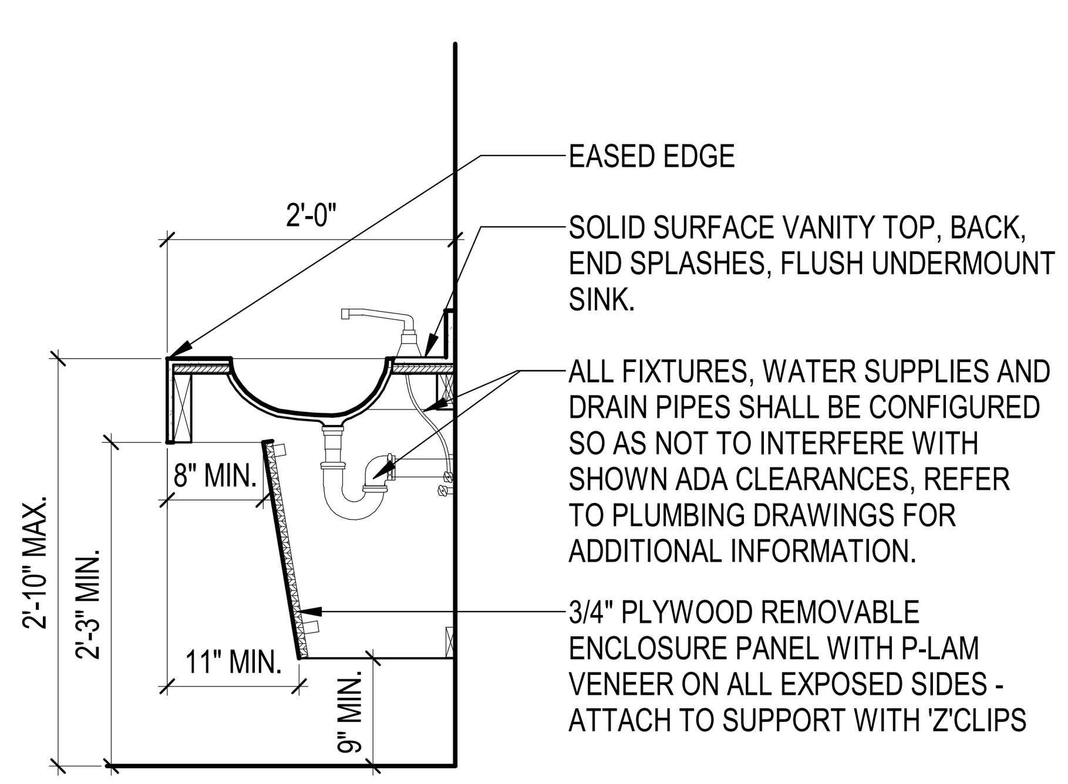
7 **ROOF & INT WALL CONNECTION**
1 1/2" = 1'-0"



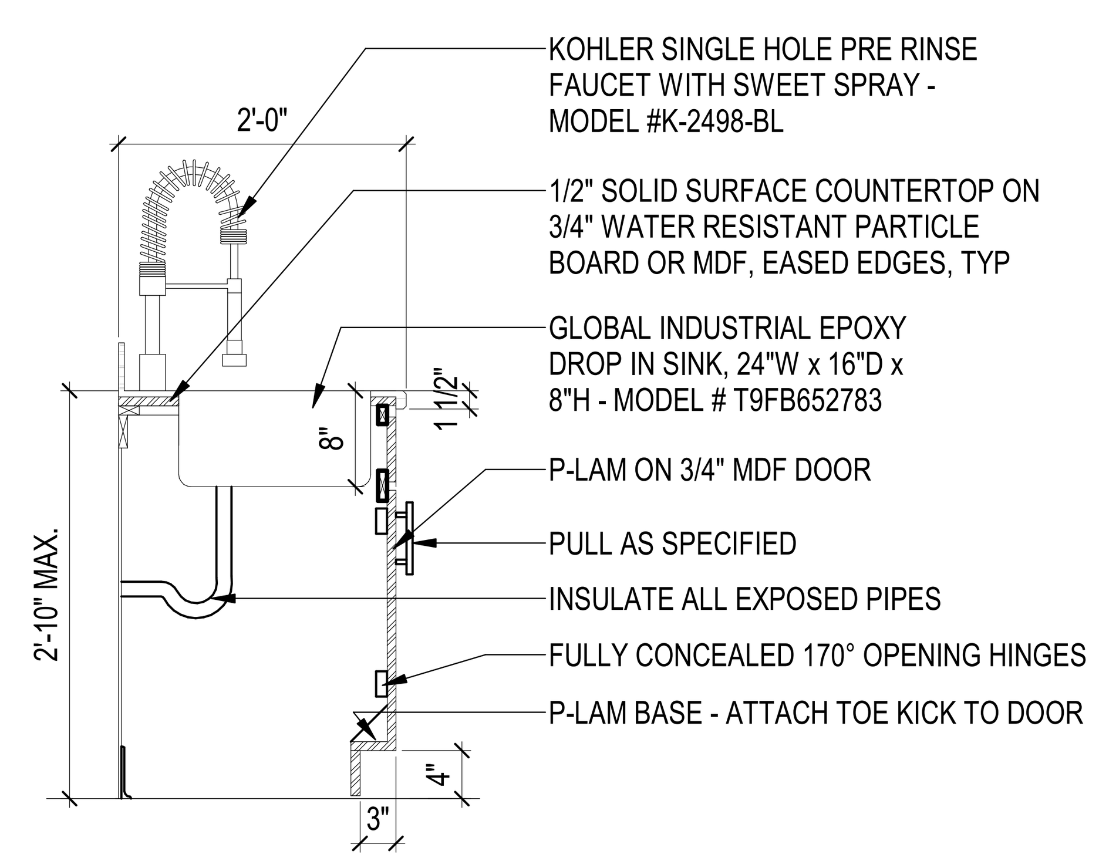
6 **EXT. DOOR HEADER @ CMU**
3" = 1'-0"



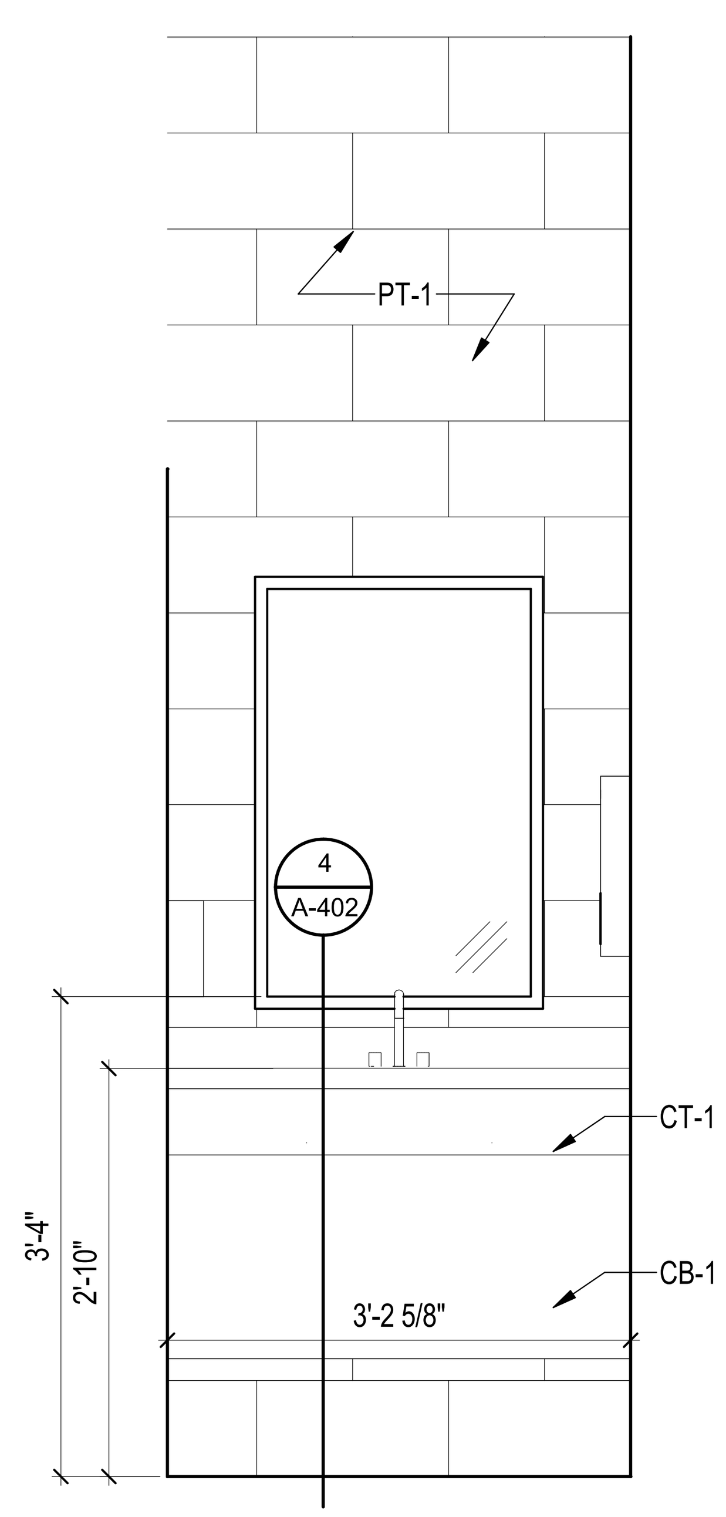
5 **CABINET DETAIL - DRAWER AND DOOR ADA (TYP.)**
3/4" = 1'-0"



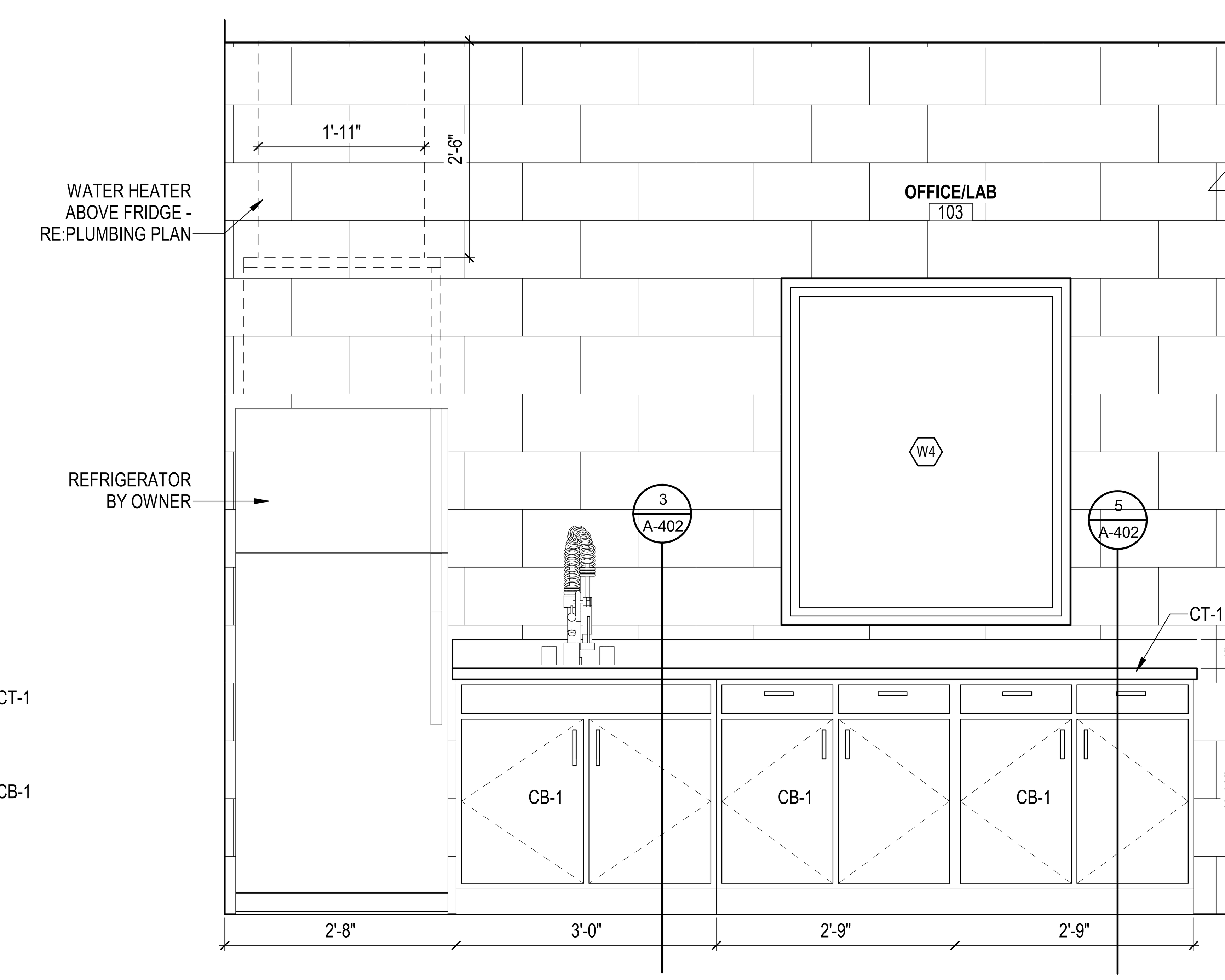
4 **ADA PRIVATE TOILET ROOM VANITY SINK**
3/4" = 1'-0"



3 **CABINET DETAIL @ SINK (OPERABLE DOORS)**
3/4" = 1'-0"



2 **RESTROOM**
3/4" = 1'-0"



1 **OFFICE/LAB ELEVATION**
3/4" = 1'-0"

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CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

INTERIOR ELEVATIONS AND DETAILS

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REGISTERED ARCHITECT STATE OF TEXAS 31224
01/21/2026

MRB Group

Sheet No. A-402
44 of 89
Project No. 1397.21002

ROOM FINISH SCHEDULE

ROOM NUMBER	NAME	FLOOR FINISH	WALL FINISH	CEILING FINISH	COMMENTS
FIRST FLOOR					
101	CHLORINE ROOM	SC-1	PT-1	GYP-1 & PT-2	
102	RESTROOM	SC-1	PT-1	GYP-1 & PT-2	
103	OFFICE/LAB	SC-1	PT-1	GYP-1 & PT-2	
104	CONTROL/MCC ROOM	SC-1	PT-1	GYP-1 & PT-2	
105	BLOWER BUILDING	SC-1	-	HARD-1 & PT-3	
201	SOLIDS HANDLING	SC-1	PT-1	PLY-1 & PT-2	

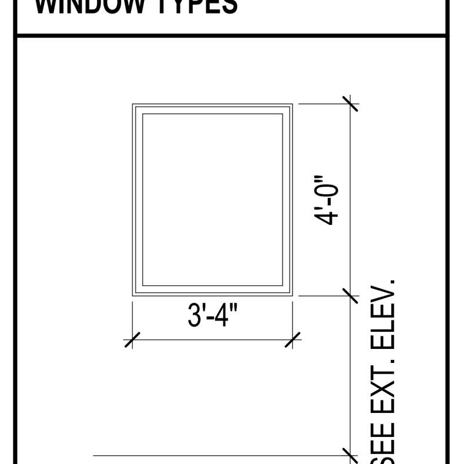
FINISH SCHEDULE

FINISH	MATERIAL	MANUFACTURER	STYLE	COLOR	NOTES
CEILINGS					
PLY-1	5/8" PLYWOOD	T.B.D.	T.B.D.	T.B.D.	-
HARD-1	1/4" HARDIE	T.B.D.	T.B.D.	T.B.D.	-
GYP-1	5/8" MOISTURE-RESISTANT GYPSUM BOARD	T.B.D.	T.B.D.	T.B.D.	-
FLOORS					
SC-1	SEALED CONCRETE	T.B.D.	T.B.E.	T.B.D.	-
WALLS					
PT-1	PAINT - ACRYLIC LATEX	SHERWIN WILLIAMS	SEMI-GLOSS	WHITE	-
PT-2	PAINT - ACRYLIC LATEX, INTERIOR CEILING	SHERWIN WILLIAMS	SEMI-GLOSS	WHITE	-
PT-3	PAINT - EXTERIOR HARDIE	SHERWIN WILLIAMS	SEMI-GLOSS	T.B.D.	-
CASEWORK					
CT-1	SOLID SURFACE	T.B.D.	T.B.D.	BLACK	-
CB-1	MDF - PREFINISHED	T.B.D.	T.B.D.	T.B.D	-

FINISH GENERAL NOTES

1. ALL PAINTS TO BE SHERWIN WILLIAMS UNLESS NOTED OR APPROVED EQUIVALENT
2. ALL PLYWOOD TO BE 5/8" AND PAINTED WITH ONE COAT PREP RITE 200 LATEX WALL PRIMER B28W200 (1.1 MILS) AND TWO COATS REGAL INTERIOR PAINT
3. ALL MOISTURE-RESISTANT GYP. BRD. CEILINGS TO BE 5/8" AND PAINTED WITH ONE COAT PREP RITE 200 LATEX WALL PRIMER B28W200 (1.1 MILS) AND TWO COATS REGAL INTERIOR PAINT
4. ALL WALLS, AND EXPOSED STEEL TO BE PAINTED - COLOR SELECTION BY OWNER
5. ALL HM DOOR FRAMES TO BE PRIMED AND PAINTED - COLOR SELECTION BY OWNER
6. ALL CEILINGS TO BE SLOPED WITH THE ROOF AND STRUCTURE.
7. ALL P.LAM EXPOSED EDGES TO BE FINISHED TO MATCH P.LAM FINISH - COLOR SELECTION BY OWNER
8. ALL COUNTERTOPS TO BE WILSONART SOLID SURFACE OR APPROVED EQUAL - COLOR SELECTION BY OWNER.
9. ALL GROUT COLORS TO BE SELECTED BY OWNER PRIOR TO INSTALLATION.
10. ALL INTERIOR CABINETS, SHELVES, & DRAWERS ARE TO HAVE MELAMINE ON ALL EXPOSED SURFACES & EDGES, U.N.O.
11. HINGES ARE TO BE CONCEALED, 360° ADJUSTABLE EUROPEAN STYLE HINGES.
12. DRAWER SLIDES ARE TO BE FULL EXTENSION.
13. ALL METAL TO BE GALVANIZED STEEL.
14. OWNER TO FURNISH ALL F.F.E.
15. ALL FLOORS TO BE SEALED CONCRETE

WINDOW TYPES



WINDOW NOTES

1. G.C. TO VERIFY ALL ROUGH OPENING DIMENSIONS.
2. PROVED TEMPERED GLAZING IN ALL WINDOWS WITHIN 24" ADJACENT TO ANY DOOR EDGE (WHEN CLOSED) & WITHIN 16" OF THE FINISHED FLOOR.
3. PROVIDE BACKER ROD & SEALANT AT ALUMINUM FRAMING PERIMETER INTERIOR & EXTERIOR. COLOR OF SEALANT TO MATCH ALUMINUM FRAMING FINISH COLOR.
4. SET FLUSH W/ EXTERIOR & TRIM EXPOSED ROUGH OPENING W/ 1 X STOCK - PAINT

DOOR SCHEDULE

DOOR NUMBER	DOOR LOCATION	DOORS						HARDWARE	FRAME			GLAZING	COMMENTS	DOOR NUMBER
		TYPE	WIDTH	HEIGHT	THICKNESS	MATERIAL	FINISH		TYPE	MATERIAL	FINISH			
FIRST FLOOR														
101	CHLORINE ROOM	2	3'-0"	7'-0"	1 3/4"	FRP	PT-2	HW 1	J1	FRP	PT-3	AIR TIGHT DOUBLE GLAZE		101
102	OFFICE/LAB	1	3'-0"	7'-0"	1 3/4"	HM	PT-2	HW 3	J1	HM	PT-3			102
103	OFFICE/LAB	2	3'-0"	7'-0"	1 3/4"	HM	PT-2	HW 1	J1	HM	PT-3			103
104	OFFICE/LAB	1	3'-0"	7'-0"	1 3/4"	HM	PT-2	HW 2	J1	HM	PT-3			104
105	CONTROL/MCC ROOM	1	3'-0"	7'-0"	1 3/4"	HM	PT-2	HW 1	J1	HM	PT-3			105
201	SOLIDS HANDLING	3	3'-6"	7'-10"	1 3/4"	HM	PT-2	HW 1	J1	HM	PT-3			201

HARDWARE SCHEDULE

HW 1

BAY SINGLE EGRESS:
1-1/2 PR HINGES 1279 - 4-1/2 x 4-1/2 HA
1 PULL 1191G-3 TR
1 PANIC 33A-L-06 VD
1 CYLINDER C953 - ICC/7 FA
1 CLOSER P1461 - TB LCN
1 BRACKET 1460-18PA LCN
1 STOP 1214ES - 2-1/4" TR
1 THRESHOLD 425 NGP
1 SWEEP 102V NGP
1 SEAL BY DOOR SUPPLIER

HW 2

STORAGE SECURITY SET:
1-1/2 PR HINGES 1279 - 4-1/2 x 4-1/2 HA
1 STOREROOM LOCK W581 DAN FA
1 CYLINDER C953 - ICC/7 FA
1 STOP 1211 \ 1270 TR
1 (6) PIN REMOVABLE CORE C646 FA

HW 3

BATHROOM PRIVACY:
1-1/2 PR HINGES 1279 - 4-1/2 x 4-1/2 HA
1 PRIVACY LOCK W301S DAN FA
1 STOP 1211 \ 1270 TR
3 SILENCER GJ64 GJ
DOUBLE COAT HOOK 7345-S ASI

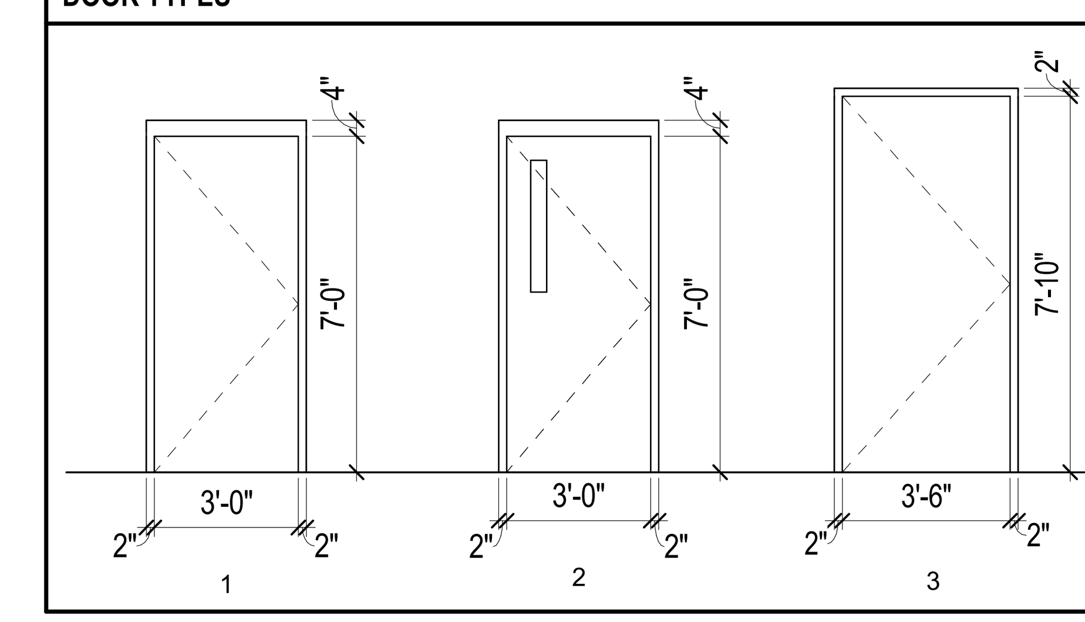
MANUFACTURERS LISTING:

SEL SELECT HINGE
HA HAGER HINGE
VD VON DUPRIN
FA FALCON LOCK
A/R ADAMS-RITE
DO DORMA
LCN LCN
NGP NATIONAL GUARD PRODUCTS
TR TRIMCO MFG
GJ GLYNN-JOHNSON

HARDWARE NOTES:

1. ALL HARDWARE FINISHES TO BE 626/US26D.
2. FINAL HARDWARE SCHEDULE TO BE REVIEWED AND APPROVED BY OWNER AND OWNER'S SECURITY VENDOR PRIOR TO ORDERING DEVICES.
3. ALL LOCKSETS SUPPLIED FOR INTERIOR AND EXTERIOR DOORS SHALL BE KEYED TO MASTER KEY.

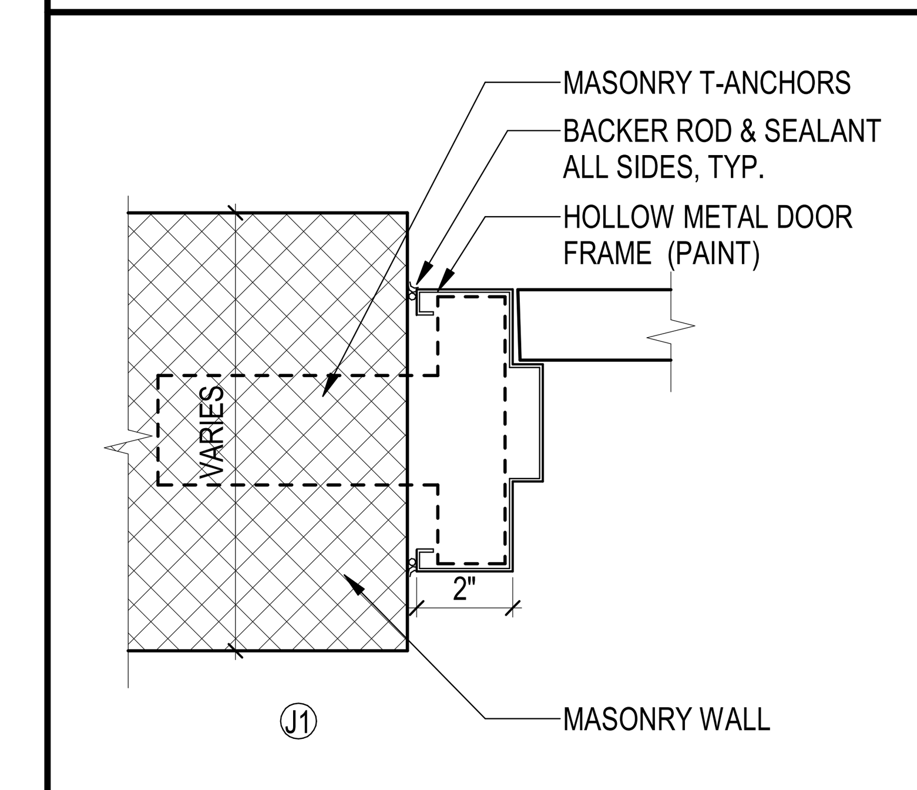
DOOR TYPES



DOOR & FRAME NOTES

1. ALL STOREFRONT DOOR & FRAMES TO BE HOLLOW METAL, CLEAR ANODIZED.
2. ALL HOLLOW METAL DOORS TO BE INSULATED.
3. ALL EXTERIOR FRAMES TO BE WELDED FRAME.

DOOR JAMB DETAILS



CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

DOOR, WINDOW, AND FINISH SCHEDULE

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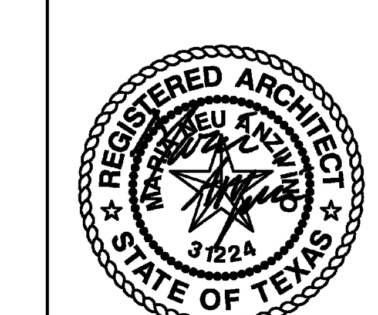


01/21/2026

MRB Group

Sheet No. A-601
45 of 89
Project No. 1397.21002

MECHANICAL GENERAL NOTES:

1. CODES, RULES AND REGULATIONS - DESIGN OF SYSTEM
   A.) ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES AND CODES.
   B.) WHEN THE DRAWINGS CALL FOR MATERIALS OR CONSTRUCTION OF A BETTER QUALITY OR LARGER SIZES THAN REQUIRED BY THE ABOVE MENTIONED CODES AND RULES, WORK SHALL BE AS SPECIFIED OR SHOWN RATHER THAN AS REQUIRED BY CODE. ALL ITEMS OR FEATURES OF THE MECHANICAL SYSTEMS REQUIRED BY CODE SHALL BE INCLUDED, EVEN THOUGH NOT SPECIFIED HEREIN.
   C.) INSTALLATION OF THE SYSTEMS SHALL BE IN ACCORDANCE WITH THE ABOVE MENTIONED CODES AND REGULATIONS AND ALSO SHALL CONFORM TO GOOD, ACCEPTED MECHANICAL PRACTICES.

2. AUTOMATIC TEMPERATURE CONTROL DEVICE FOR REGULATION OF SPACE TEMPERATURE SHALL BE CAPABLE OF BEING SET FROM 55 TO 85 DEGREES FAHRENHEIT, AND HAVE THE ABILITY YO OPERATE THE HEATING AND COOLING IN SEQUENCE. CONTROL SHALL BE ADJUSTABLE TO PROVIDE A RANGE OF UP TO 5 DEGREES FAHRENHEIT BETWEEN FULL HEATING AND FULL COOLING.

3. APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE FASTENED IN PLACE.

4. A MAINTENANCE LABEL SHALL BE AFFIXED TO MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE CITY OF MART'S USE.

5. PROVIDE ACCESS PANEL FOR ALL CEILING MOUNTED EQUIPMENT AND YOUNG REGULATORS OR ACCESS PANEL FOR VOLUME DAMPERS.

6. PROVIDE MIN. 10'-0" SEPARATION BETWEEN POINT OF EXHAUST AND ANY FRESH AIR INTAKE, OR A/C UNIT OUTSIDE AIR INTAKE.

7. PROVIDE FIRE DAMPERS OR SMOKE/FIRE DAMPERS WHERE DUCT PENETRATES FIRE RATED CEILING OR WALL IF APPLICABLE.

8. TRANSVERSE JOINTS FOR ALL AIR SUPPLY DUCTS INSTALLED WHERE AIR LEAKAGE WOULD BE NON-BENEFICIAL TO THE OCCUPIED AREA, TEMPERATURE REQUIREMENTS SHALL BE SEALED WITH APPROVED MASTIC OR TAPE.

9. SHOP PRIME ALL MISCELLANEOUS INTERIOR BRACKETS AND HANGERS UNLESS GALVANIZED OR STAINLESS STEEL.

10. ENERGY CONSERVATION STANDARDS FOR NEW NON RESIDENTIAL BUILDINGS HAVE BEEN REVIEWED AND DESIGN SUBSTANTIALLY CONFORMS TO THEM.

11. EACH SINGLE SYSTEM PROVIDING HEATING OR COOLING AIR IN EXCESS OF 2,000 CFM SHALL BE EQUIPPED WITH AN AUTOMATIC SHUT-OFF. THE SMOKE DETECTOR SHALL BE INSTALLED IN THE RETURN AIR DUCT AHEAD OF THE OSA INTAKE. SEE CODE FOR EXEMPTIONS AND LOCAL AUTHORITY FOR CODE INTERPRETATION, OR AS INDICATED ON PLAN.

12. ALL EQUIPMENT AND APPLIANCES ARE LISTED PRODUCTS, AND WILL BE INSTALLED ACCORDING TO THEIR LISTING, AND ALL LISTING INFORMATION WILL BE AVAILABLE FOR INSPECTION.

13. REFER TO DETAILS OR GUIDELINES FOR MECHANICAL CONSTRUCTION REQUIREMENTS. INSTALL IN FULL ACCORDANCE WITH PROPER CODES AND GUIDELINES.

14. ALL EXTERIOR BRACKETS, CLAMPS, AND HANGERS SHALL BE HOT DIPPED GALVANIZED. COAT ALL CUT ENDS AND WELDS WITH "ZRC: COLD GALVANIZING COMPOUND.

SUPPLY DIFFUSER NECK SIZING SCHEDULE

SIZE	AIRFLOW (CFM)
4" ø	0 - 50
6" ø	50 - 100
8" ø	100 - 210
10" ø	210 - 380
12" ø	380 - 500
14" ø	500 - 700
16" ø	700 - 800

CONDENSATE DRAIN SIZING SCHEDULE

PIPE DIA.	EQUIPMENT CAPACITY
3/4" ø	UP TO 5 TONS
1" ø	OVER 5 TONS TO 25 TONS
1-1/4" ø	OVER 25 TONS TO 60 TONS
1-1/2" ø	OVER 60 TONS TO 100 TONS
2" ø	OVER 100 TONS TO 200 TONS

MECHANICAL CONTRACTOR NOTES

CONTRACTOR TO BE AWARE OF OBSTRUCTIONS AND BE PREPARED TO OFFSET DUCT AND PIPING BOTH VERTICALLY AND HORIZONTALLY TO ROUTE MECHANICAL SYSTEM. CONTRACTOR SHALL MAINTAIN FREE AREA OF DUCTWORK. CONTRACTOR SHALL SUBMIT RFIS FOR ALL CHANGES PRIOR TO INSTALLATION. CONTRACTOR SHALL REFER TO MANUFACTURE RECOMMENDATIONS FOR INSTALLATION INSTRUCTION.

CONTRACTOR SHALL COORDINATE ALL REFRIGERANT PIPING AND CONTROL WIRING REQUIREMENTS WITH VRF MANUFACTURER PRIOR TO CONSTRUCTION.

MECHANICAL KEYED NOTES

1. PROVIDE UNIT WITH MANUFACTURER'S SUGGESTED CLEARANCES FOR ACCESS AND MAINTENANCE, CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES PRIOR TO INSTALL OR FABRICATION TO ENSURE PROPER CLEARANCES OF SYSTEMS AND CODE REQUIREMENTS ARE MAINTAINED. PROVIDE AIR HANDLING UNIT WITH CONDENSATE OVERFLOW CUT-OFF SWITCH. AIR HANDLING UNIT SHALL INCLUDE FILTER BANK.
2. ROUTE CONDENSATE DRAIN LINE DOWN TO GROUND
3. INSULATE PIPE AS REQUIRED.
4. SIDEWALL VENT - 75 CFM SHALL BE BROAN 512M INTERLOCK WITH LOCAL SWITCH
5. SIDEWALL VENT - 250 CFM SHALL BE GREENHECK SBE-1H24-LMDX-QD; WITH EXTERIOR CONTROLS WITHIN 12" OF CEILING
6. INLET FAN - 12" WITH ALUMINUM SHUTTER & ALUMINUM EXHAUSE SHUTTER - 250 CFM SHALL BE 16"X16" EME220DD (BOTH WITH BUG SCREEN) @ 12" OFF FINISH FLOOR, MAX - PROVIDE LEAK DETECTION MONITORING @ VENT; RE: CIVIL

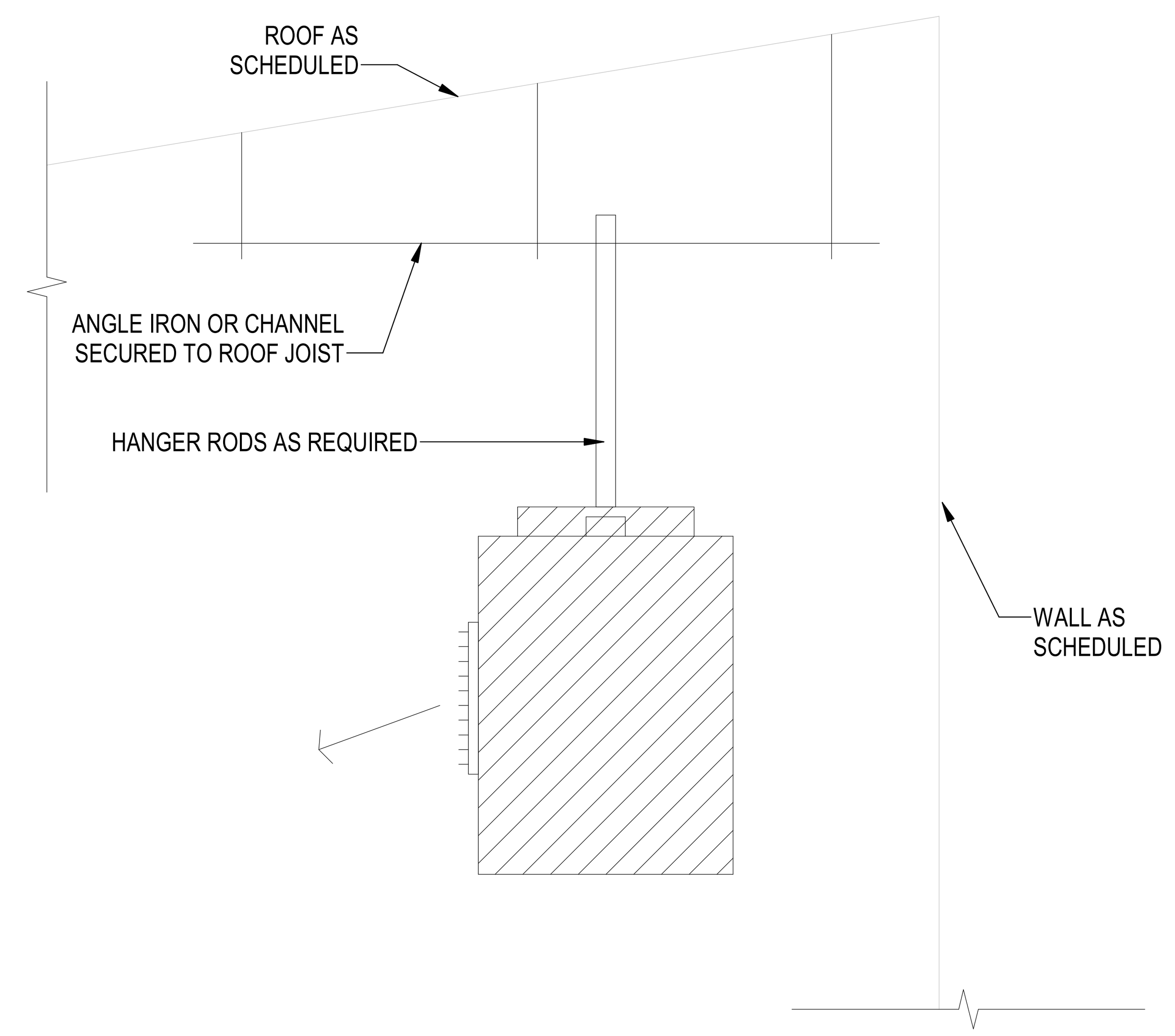
MECHANICAL SYSTEMS

AHU-3 : MINISPLIT DAIKIN FTXV09AVJU9 7000 BTU
AHU-4 : MINISPLIT DAIKIN FTXV09AVJU9 7000 BTU
HPCU-2 : CONDENSER DAIKIN FTXV09AVJU9
EUH-1 : ELECTRIC UNIT HEATER

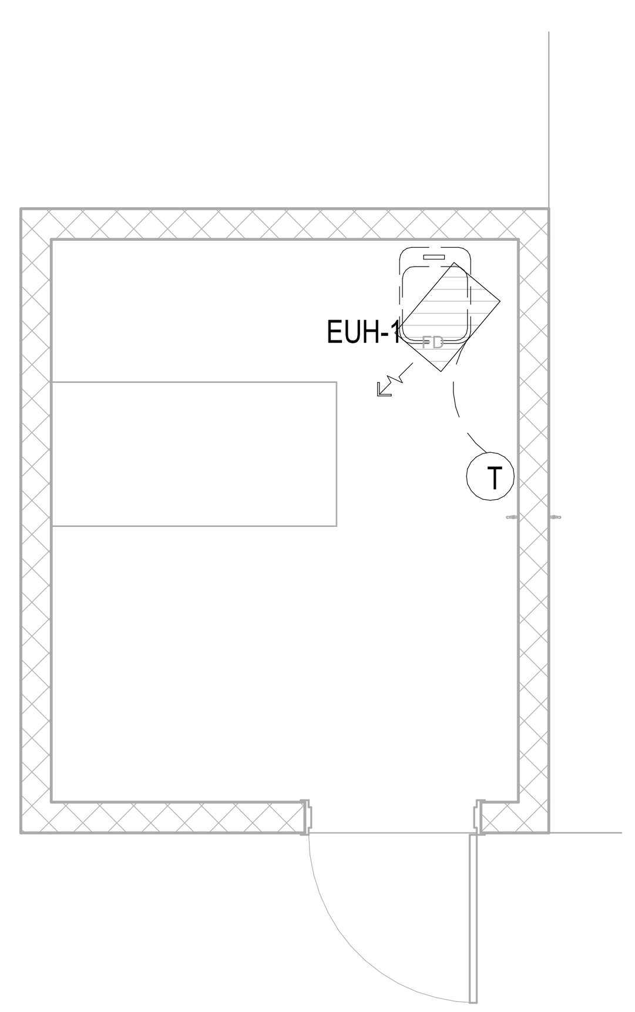
ELECTRIC UNIT HEATER SCHEDULE

MARK	MFG.	MODEL	AIRFLOW (CFM)	HTG. CAPACITY (KW)	TEMP RISE (F)	V/PH/HW	NOTES
EUH-1	MARKEL	MUH0321	350	3.0	27.0	240/1/60	1, 2

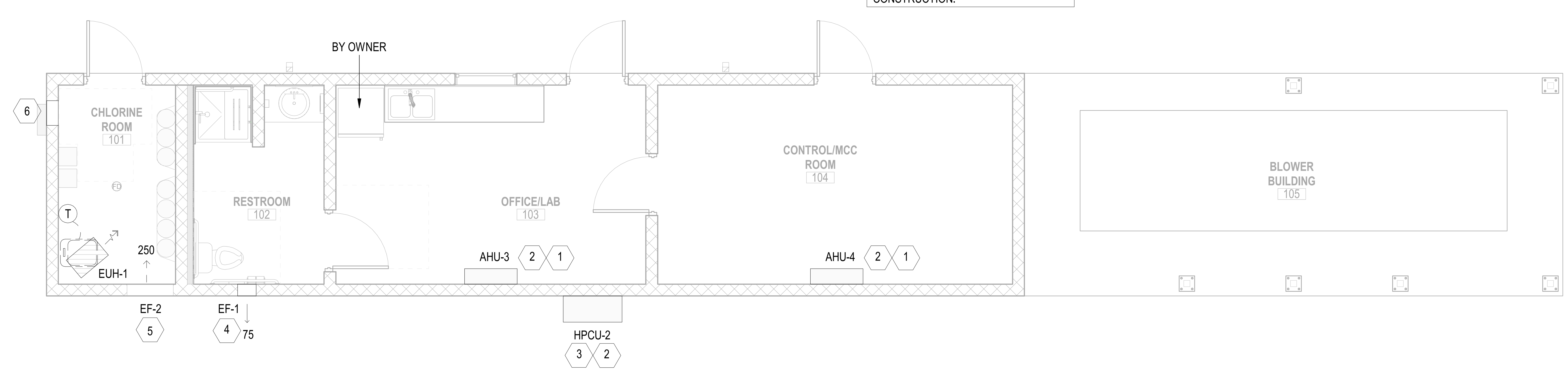
NOTES:
1. PROVIDE WALL MOUNTED LINE VOLTAGE THERMOSTAT WITH 55 DEGREES FAHRENHEIT TEMPERATURE SETPOINT (ADJ.).
2. INSTALL PER MANUFACTURER'S RECOMMENDATIONS, FOLLOW ALL APPLICABLE CODES.



3 ELECTRIC UNIT HEATER DETAIL
1 1/2" = 1'-0"



2 MECH. PLAN - SOLIDS HANDLING BUILDING
1/4" = 1'-0"



1 MECH. PLAN - PLANT OPERATIONS BUILDING
1/4" = 1'-0"

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WASTEWATER TREATMENT PLANT IMPROVEMENTS

MECHANCIAL PLAN

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REGISTERED ARCHITECT · STATE OF TEXAS
01/21/2026

MRB Group

Sheet No. AM-101
46 of 89
Project No. 1397.21002

MECHANICAL SPECIFICATIONS

1.1 SCOPE

A. THE WORK OF THIS DIVISION CONSISTS OF PROVIDING LABOR, MATERIALS, PRODUCTS, AND IN PERFORMING ALL OPERATIONS REQUIRED FOR THE COMPLETE OPERATING INSTALLATION OF ALL MECHANICAL AND PLUMBING SYSTEMS IN ACCORDANCE WITH THE SPECIFICATIONS AS WELL AS APPLICABLE DRAWINGS, TERMS, CONDITIONS OF THE CONTRACT AND ALL APPLICABLE CODES AND ORDINANCES GOVERNING THE INSTALLATION OF THE VARIOUS MECHANICAL AND PLUMBING SYSTEMS. ALL WORK SHALL BE FULLY CORRELATED WITH THE WORK OF OTHER CRAFTS.

B. EACH CONTRACTOR SHALL STUDY THE CONTRACT DOCUMENTS TO DETERMINE THE EXTENT OF WORK PROVIDED UNDER THIS CONTRACT AS WELL AS ASCERTAIN THE DIFFICULTY TO BE ENCOUNTERED IN PERFORMING THE WORK ON THE DRAWINGS AND OUTLINED HEREINAFTER AND IN MAKING CONNECTIONS TO EXISTING UTILITIES, INSTALLING NEW EQUIPMENT AND SYSTEMS AND COORDINATING THE WORK WITH THE OTHER TRADES.

C. EXAMINATION OF THE SITE: THE CONTRACTOR SHALL THOROUGHLY EXAMINE SITE AND SATISFY HIMSELF AS THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL VERIFY, AT THE SITE, ALL MEASUREMENTS AFFECTING HIS WORK AND SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF THE SAME. NO EXTRA COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR EXPENSES DUE TO HIS NEGLECT TO EXAMINE OR FAILURE TO DISCOVER CONDITIONS WHICH AFFECT HIS WORK. NO EXTRA COMPENSATION WILL BE ALLOWED ON ACCOUNT OF DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND THOSE INDICATED ON THE DRAWINGS.

1.2 REGULATORY REQUIREMENTS

A. CODES AND ORDINANCES/PERMIT AND FEES: PERFORM ALL WORK IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINATES, THE CURRENT EDITION OF NFPA, THE INTERNATIONAL BUILDING CODE, INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, AND ALL CURRENT SUPPLEMENTS THERETO, AND ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE WORK. PROCURE AND PAY FOR ALL PERMITS, LICENSES, FEES AND CHARGES, AND GIVE ALL NOTICES NECESSARY.

B. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND REQUIREMENTS OF ANY CODE OR AUTHORITIES HAVING JURISDICTION, THE MOST STRINGENT REQUIREMENTS OF THE AFOREMENTIONED SHALL BE GOVERNED.

C. SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE BUILDING CODES, STATE LAWS, AND LOCAL ORDINANCES AND INDUSTRY STANDARDS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING THE DEFICIENCIES, AS APPROVED BY THE ARCHITECT.

D. INTENT: THE DRAWINGS SHOW GENERAL ARRANGEMENTS AND THE EXTENT OF THE WORK. THE DRAWINGS DO NOT SHOW, IN MINUTE DETAIL, ALL FEATURES OF THE INSTALLATION. FOLLOW THE DRAWINGS AS CLOSELY AS ACTUAL CONSTRUCTION WILL PERMIT. ALL MATERIAL AND LABOR NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE INTENT OF THE SPECIFICATIONS AND DRAWINGS SHALL BE FURNISHED BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE. THE JOB SHALL BE BID AND INSTALLED COMPLETE AND CONSISTENT IN EVERY REQUEST.

1.3 COORDINATION OF WORK

A. EACH CONTRACTOR SHALL COMPARE HIS DRAWINGS AND SPECIFICATIONS WITH THOSE OF OTHER TRADES. ALL WORK SHALL BE INSTALLED IN COOPERATION WITH ALL OTHER TRADES INSTALLING INTERRELATED WORK. BEFORE INSTALLATION, ALL TRADES SHALL MAKE PROPER PROVISIONS TO AVOID INTERFERENCES.

B. EACH CONTRACTOR SHALL COORDINATE THE LOCATION OF HIS SYSTEMS TO THAT ALL OUTSIDE AIR INTAKES, PLUMBING VENTS, AND EXHAUST FANS ARE LOCATED IN SUCH A WAY AS TO PREVENT CROSS–CONTAMINATION. SUCH A DISTANCE SHALL BE NOT LESS THAN 10'–0"FT.

C. LOCATIONS OF CONDUIT, DUCTS, PIPING, SPRINKLER HEADS AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE THE WORK WITH INTERFERENCES ANTICIPATED AND ENCOUNTERED. EXACT ROUTING AND LOCATION OF SYSTEMS SHALL BE DETERMINED PRIOR TO FABRICATION OR INSTALLATION.

D. OFFSETS AND CHANGES OF DIRECTION IN ALL CONDUIT, DUCTS AND PIPING SYSTEMS SHALL BE MADE AS REQUIRED TO MAINTAIN PROPER HEADROOM AND PITCH OF SLOPING LINES.

1.4 REGULATORY REQUIREMENTS

A. COMPLY WITH ALL CURRENT LOCAL, STATE, AND NATIONAL CODES, INCLUDING THE AMERICANS WITH DISABILITIES ACT (MOST CURRENT EDITION) AND SECURE AND PAY FOR ALL APPLICABLE COSTS, FEES, PERMITS AND LICENSES. NO ADDITIONAL COSTS SHALL BE PAID BY THE OWNER FOR THESE ITEMS.

B. PERFORM ALL WORK WITH HIGHEST REGARD TO SAFETY. EXCAVATE BY HAND AND WITH CAUTION TO LOCATE ALL UTILITIES IN THE BOUNDS OF THE AREA TO BE EXCAVATED PRIOR TO MACHINE EXCAVATING. PROCEED WITH SAFETY AND CAUTION SO THAT NO UTILITY IS DAMAGED OR INTERRUPTED.

C. PRIOR TO BID, VERIFY AND COORDINATE ALL REQUIRED CONNECTIONS AND/OR RELOCATIONS OF UTILITIES WITH UTILITY COMPANIES. PERFORM SUCH WORK IN ACCORDANCE WITH UTILITY COMPANY REGULATIONS. PAY ALL APPLICABLE FEES AND COSTS INCLUDING THOSE FOR ANY EXTENSIONS, RELOCATIONS AND/OR CONNECTIONS.

D. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ABOVE GROUND AND MARKED UTILITIES.

1.5 SUBMITTALS

A. SUBMITTALS SHALL BE COMPLETE FOR SYSTEM(S) INVOLVED. PROVIDE SUBMITTALS FOR ALL HVAC EQUIPMENT.

B. WHERE EQUIPMENT OF THE ACCEPTABLE MANUFACTURERS REQUIRE DIFFERENT ARRANGEMENT OR CONNECTIONS FROM THOSE SHOWN, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE EQUIPMENT TO OPERATE PROPERLY AND IN HARMONY WITH THE ORIGINAL INTENT OF THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL MAKE ALL NECESSARY CHANGES IN ALL AFFECTED RELATED WORK PROVIDED UNDER OTHER SECTIONS INCLUDING LOCATIONS OF ROUGH–IN CONNECTIONS BY OTHER TRADES, CONDUIT SUPPORTS, INSULATION, ETC. ALL CHANGES SHALL BE MADE AT NO INCREASE IN THE CONTRACT AMOUNT OR ADDITIONAL COSTS TO THE OTHER TRADES AND/OR OWNER.

1.6 GUARANTEE

A. ALL EQUIPMENT AND WORK SHALL BE GUARANTEED FOR A PERIOD OF 12 MONTHS AFTER ACCEPTANCE. ANY DEFECTS IN EQUIPMENT OR WORKMANSHIP SHALL BE PROMPTLY REPAIRED OR REPLACED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER. THE GUARANTEE PERIOD OF ANY PART OF THE REPAIRED ITEMS SHALL BE EXTENDED FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUCH REPAIR OR REPLACEMENT.

1.7 COMPLETION

A. UPON COMPLETION OF THE MECHANICAL INSTALLATION, DEMONSTRATE TO THE OWNER'S SATISFACTION THAT THE SYSTEMS HAVE BEEN INSTALLED IN A SATISFACTORY MANNER IN ACCORDANCE WITH THE PLANS AND APPLICABLE CODES. SHOW THAT ALL CONTROLS ARE OPERABLE AND ARE PROPERLY ADJUSTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FINAL SYSTEMS BALANCE, THAT ALL SYSTEMS ARE PROPERLY BALANCED, THAT ALL EQUIPMENT OPERATES PROPERLY, THAT FILTERS AND STRAINERS ARE CLEAN, AND THAT ALL COMPONENTS OF ALL SYSTEMS ARE INSTALLED AND ADJUSTED FOR PROPER OPERATION.

PRODUCTS

2.1 GENERAL

A. ALL MATERIALS SHALL BE NEW AND OF THE QUALITY SPECIFIED. MATERIALS SHALL BE FREE FROM DEFECTS. MANUFACTURERS SHALL BE AS SPECIFIED HEREIN, OR BY ADDENDA. ALL PIPING EQUIPMENT, ETC., WHICH NEEDS TO BE INSULATED TO CONSERVE HEAT OR COLD, OR TO PREVENT FREEZING OR CONDENSATION, SHALL BE INSULATED. ALL MATERIALS SHALL HAVE THE UNDERWRITERS LABORATORIES, INC. LABEL.

BASIC MECHANICAL METHODS

1.1 DIMENSION AND FIT

A. CUT MATERIALS ACCURATELY FROM MEASUREMENTS TAKEN ON THE JOB SITE.

B. DO NOT SPRING OR BEND PIPE TO FIT CONDITIONS OR MAKE UP JOINTS

1.2 SERVICEABILITY OF PRODUCTS

A. FURNISH ALL PRODUCTS TO PROVIDE THE PROPER ORIENTATION OF SERVICEABLE COMPONENTS TO ACCESS SPACE PROVIDED.

B. COORDINATE INSTALLATION OF PIPING, DUCTWORK, EQUIPMENT, SYSTEM COMPONENTS, AND OTHER PRODUCTS TO ALLOW PROPER SERVICE OF ALL ITEMS REQUIRING PERIODIC MAINTENANCE OR REPLACEMENT.

C. REPLACE OR RELOCATE ALL PRODUCTS INCORRECTLY ORDERED OR INSTALLED TO PROVIDE PROPER SERVICEABILITY.

D. PROVIDE ACCESS DOORS AND ACCESS PANELS IN CEILINGS, WALLS, FLOORS, ETC. FOR ACCESS TO TRAPS, VALVES, PRIMERS, DAMPERS, AUTOMATIC DEVICES, AND ALL SERVICEABLE OR OPERABLE EQUIPMENT IN CONCEALED SPACES.

E. PROVIDE VIBRATION ISOLATORS ON ALL EQUIPMENT HAVING MOTORS AND SUPPORTED BY THE BUILDINGS STRUCTURE.

1.3 ROUTING

A. ROUTE ALL PIPELINES AND DUCTWORK PARALLEL WITH BUILDINGS LINES AND AS HIGH AS POSSIBLE.

B. ROUTE PIPING AND DUCTS TO CLEAR ALL DOORS, WINDOWS, AND OTHER OPENINGS AND TO AVOID ALL OTHER PIPES AND DUCTS, LIGHT FIXTURES AND SIMILAR PRODUCTS.

C. PROVIDE UNIONS ADJACENT TO ALL EQUIPMENT AND WHERE REQUIRED FOR DISCONNECT AND MAINTENANCE OF EQUIPMENT.

D. SECURELY FASTEN ALL MECHANICAL/PLUMBING WORK TO THE STRUCTURE TO PREVENT HAZARD HUMAN LIFE AND LIMB, AND TO PREVENT DAMAGE TO PRODUCTS OF CONSTRUCTION UNDER ALL CONDITIONS OF OPERATION.

E. DO ALL SLEEVING, CUTTING, AND PATCHING OF ROUGH CONSTRUCTION FOR PIPING. ALL CUTTING, REPAIRING AND REQUIRED STRUCTURAL REINFORCING FOR INSTALLATION OF THIS WORK SHALL BE DONE IN CONFORMANCE WITH ARCHITECT'S DIRECTIONS AND ANY DAMAGE CAUSED BY CUTTING SHALL BE REPAIRED EQUAL TO ORIGINAL CONDITIONS. NO CUTTING WITHOUT ARCHITECT'S APPROVAL.

F. PLACE ANY SLEEVES, CHASES, CONCRETE INSERTS, ANCHOR BOLTS, ETC., BEFORE CONCRETE IS POURED, AND BE RESPONSIBLE FOR CORRECT LOCATION AND INSTALLATION OF THESE ITEMS.

VIBRATION AND SEISMIC CONTROL FOR HVAC PIPING AND EQUIPMENT

1.1 PERFORMANCE REQUIREMENTS

A. SEISMIC–RESTRAINT LOADING:
- a. SITE CLASS AS DEFINED IN THE IBC: AS REQUIRED BY LOCAL JURISDICTION.
- b. ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC: AS REQUIRED BY LOCAL JURISDICTION.
- c. DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (0.2 SECOND).
- d. DESIGN SPECTRAL RESPONSE ACCELERATION AT 1–SECOND PERIOD.

1.2 COMPONENTS:

A. VIBRATION ISOLATORS:
- a. ISOLATOR PADS: NEOPRENE.
- b. MOUNTS: DOUBLE–DEFLECTION TYPE.
- c. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST–DUCTILE–IRON HOUSING.
- d. SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN–SPRING TYPE.
- e. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN–SPRING TYPE WITH SEISMIC RESTRAINT.
- f. HOUSED SPRING MOUNTS: DUCTILE–IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.
- g. ELASTOMERIC HANGERS: DOUBLE–DEFLECTION TYPE.
- h. SPRING HANGERS: COMBINATION COIL–SPRING AND ELASTOMERIC–INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.
- i. SPRING HANGERS WITH VERTICAL–LIMIT STOP: COMBINATION COIL–SPRING AND ELASTOMERIC–INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL–LIMIT STOP.
- j. PIPE RISER RESILIENT SUPPORT: ALL–DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.
- k. RESILIENT PIPE GUIDES.

B. AIR–MOUNTING SYSTEMS:
- a. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED–AIR BELLOWS.
- b. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED–AIR BELLOWS.

C. RESTRAINED VIBRATION ISOLATION ROOF–CURB RAILS: FACTORY–ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR– AND WATERTIGHT CURB RAIL; WITH
SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.

D. VIBRATION ISOLATION EQUIPMENT BASES:
- a. STEEL BASE: FACTORY–FABRICATED, WELDED, STRUCTURAL–STEEL BASES AND RAILS.
- b. INERTIA BASE: FACTORY–FABRICATED, WELDED, STRUCTURAL–STEEL BASES AND RAILS READY FOR FIELD–APPLIED, CAST–IN–PLACE CONCRETE.

E. SEISMIC–RESTRAINT DEVICES:
- a. SNUBBERS: WELDED STRUCTURAL–STEEL SHAPES AND REPLACEABLE RESILIENT ISOLATION WASHERS AND BUSHINGS.
- b. CHANNEL SUPPORT SYSTEM: MFMA–3 SLOTTED STEEL CHANNELS.
- c. RESTRAINT CABLES: STAINLESS–STEEL CABLES.
- d. ANCHOR BOLTS: MECHANICAL TYPE, SEISMIC RATED.
- e. RESILIENT ISOLATION WASHERS AND BUSHINGS: MOLDED NEOPRENE.

1.3 FIELD QUALITY CONTROL

A. TESTING: BY CONTRACTOR.

AIR DISTRIBUTION

1.1 FILTERS

A. MANUFACTURERS: AAF OR APPROVED EQUIVALENT.
- a. PLEATED FILTERS MERV–8, OR AS NOTED ON THE DRAWINGS.

1.2 DUCTWORK

A. MATERIALS:
- a. STEEL DUCTS: GALVANIZED STEEL SHEET, LOCK–FORMING QUALITY, MINIMUM GAUGE PER SMACNA STANDARDS.
- b. INSULATED FLEXIBLE DUCTS: FLEXIBLE DUCT WRAPPED WITH FLEXIBLE GLASS FIBER INSULATION, ENCLOSED BY R–8 METALIZED VAPOR BARRIER JACKET.
- c. SEALANT: NON–HARDENING, WATER RESISTANT, FIRE RESISTIVE, USED ALONE OR WITH TAPE.

B. METAL DUCTWORK:
- a. FABRICATE AND SUPPORT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE EXCEPT AS INDICATED.
- b. CONSTRUCT T'S, BENDS, AND ELBOWS WITH RADIUS OF 1–1/2 TIMES WIDTH OF DUCT ON CENTER LINE. WHERE NOT POSSIBLE PROVIDE TURNING VANES.
- c. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 30 DEGREES DIVERGENCE AND 45 DEGREES CONVERGENCE.
- d. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH DRAW BANDS
- e. USE CRIMP JOINTS WITH OR WITHOUT BEAD FOR JOINING ROUND DUCT SIZES 8 INCHES AND SMALLER WITH CRIMP IN DIRECTION OF AIR FLOW.
- f. DUCT SCHEDULE:
  - f.a. SUPPLY DUCTS CONNECTED TO CONSTANT–VOLUME AIR–HANDLING UNITS, SINGLE ZONE VARIABLE–VOLUME AIR–HANDELING UNITS, AND SECONDARY DUCTWORK AFTER TERMINAL UNITS:
    - f.a.a. PRESSURE CLASS: POSITIVE 2–INCH WG.
    - f.a.b. MINIMUM SMACNA SEAL CLASS: B
    - f.a.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
    - f.a.d. SMACNA LEAKAGE CLASS FOR ROUND: 12
  - f.b. SUPPLY DUCTS CONNECTED TO VARIABLE–VOLUME AIR–HANDLING UNITS:
    - f.b.a. PRESSURE CLASS: POSITIVE 4–INCH WG.
    - f.b.b. MINIMUM SMACNA SEAL CLASS: B
    - f.b.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 6
    - f.b.d. SMACNA LEAKAGE CLASS FOR ROUND: 6
  - f.c. RETURN DUCTS CONNECTED TO VARIABLE AND CONSTANT–VOLUME AIR–HANDLING UNITS:
    - f.c.a. PRESSURE CLASS: POSITIVE OR NEGATIVE 2–INCH WG.
    - f.c.b. MINIMUM SMACNA SEAL CLASS: B
    - f.c.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
    - f.c.d. SMACNA LEAKAGE CLASS FOR ROUND: 12
  - f.d. EXHAUST DUCTS
    - f.d.a. PRESSURE CLASS: POSITIVE OR NEGATIVE 2–INCH WG.
    - f.d.b. MINIMUM SMACNA SEAL CLASS: B IF NEGATIVE, A IF POSITIVE
    - f.d.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
    - f.d.d. SMACNA LEAKAGE CLASS FOR ROUND: 6
  - f.e. OUTSIDE AIR DUCTS:
    - f.e.a. PRESSURE CLASS: POSITIVE OR NEGATIVE 2–INCH WG.
    - f.e.b. MINIMUM SMACNA SEAL CLASS: B
    - f.e.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
    - f.e.d. SMACNA LEAKAGE CLASS FOR ROUND: 12
- g. SEISMIC–RESTRAINT DEVICES
  1. CHANNEL SUPPORT SYSTEM.
  2. GALVANIZED STEEL RESTRAINT CABLES.
  3. HANGER ROD STIFFENER: STEEL TUBE OR STEEL SLOTTED–SUPPORT–SYSTEM SLEEVE WITH INTERNALLY BOLTED CONNECTIONS OR REINFORCING STEEL ANGLE CLAMPED TO HANGER ROD.

1.3 VOLUME CONTROL DAMPERS

C. PROVIDE ALL BRANCHES AND DUCT TAKE–OFFS, FABRICATE IN ACCORDANCE WITH SMACNCA HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE, AND AS INDICATED.

D. FABRICATE SPLITTER DAMPERS OF MATERIAL SAME GAGE AS DUCT TO 24 INCHES SIZE IN EITHER DIRECTION, OR TWO GAGES HEAVIER FOR LARGER SIZES. SECURE WITH CONTINUOUS HINGE OR ROD. OPERATE WITH MINIMUM ¼ INCH DIAMETER ROD.

E. FABRICATE SINGLE BLADE DAMPERS FOR DUCT SIZES TO 12X30 INCH.

F. EXCEPT IN ROUND DUCTWORK 12 INCHES AND SMALLER, PROVIDE END BEARINGS.

G. PROVIDE LOCKING, INDICATING QUADRANT REGULATORS ON SINGLE AND MULTI–BLADE DAMPERS. WHERE WIDTH EXCEEDS 30 INCHES PROVIDE REGULATOR AT BOTH ENDS.

1.4 FLEXIBLE DUCT CONNECTIONS

A. UL LISTED FIRE–RETARDANT NEOPRENE COATED WOVEN GLASS FIBER FABRIC TO NFPA 90, APPROXIMATELY 3 INCHES (75 MM) WIDE, CRIMPED INTO METAL EDGING STRIP.

1.5 AIR OUTLETS

A. MANUFACTURERS: PRICE, TITUS, TUTTLE AND BAILEY, KRUEGER, OR APPROVED EQUIVALENT.

B. DIFFUSERS/REGISTERS/GRILLES: PROVIDE AIR DEVICE TYPE, OPERATION, COLOR, ETC. AS SCHEDULED.

2.1 INSTALLATION

A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. INSTALL FLEXIBLE CONNECTIONS SPECIFIED BETWEEN FAN INLET AND DISCHARGE DUCTWORK. FLEXIBLE CONNECTORS SHALL NOT BE IN TENSION WHILE RUNNING.

C. PROVIDE BACK DRAFT DAMPERS ON DISCHARGE OF EXHAUST FANS AND AS INDICATED.

D. PREVENT PASSAGE OF UNFILTERED AIR AROUND FILTERS WITH FELT, RUBBER, OR NEOPRENE GASKETS.

E. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.

F. PROVIDE FLEXIBLE CONNECTIONS IMMEDIATELY ADJACENT TO EQUIPMENT IN DUCTS ASSOCIATED WITH FANS AND MOTORIZED EQUIPMENT.

G. CHECK LOCATION OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM TO ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENTS.

H. PROVIDE BALANCING DAMPERS ON DUCT TAKE–OFF TO DIFFUSERS, AND GRILLES AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER, OR GRILLE AND REGISTER ASSEMBLY.

MECHANICAL INSULATION

1.1 SCOPE

A. GENERAL: FURNISH ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETE INSTALLATION OF THERMAL INSULATION ON ALL HOT AND COLD PIPING SURFACE AND DUCTWORK INSTALLED UNDER THIS CONTRACT WHICH REQUIRE INSULATIONS FOR HEAT OR COLD CONSERVATION: FREEZE PROTECTION, PREVENTION OF CONDENSATION OR DRIPPINGS; COMFORT FOR OCCUPANTS; EFFICIENCY OR

BASE OF OPERATION. MECHANICAL INSULATION SHALL BE COMPLETE AND EFFECTIVE THROUGHOUT THE PROJECT.

B. SYSTEMS TO RECEIVE INSTALLATION INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO:
- a. HYDRONIC WATER LINES (SUPPLY AND RETURN).
- b. CONDENSATE DRAINAGE.
- c. HORIZONTAL RAIN LEADERS AND ROOF DRAINS.
- d. REFRIGERANT LINES (BOTH HIGH AND LOW PRESSURES).
- e. PIPING ACCESSORIES AND SPECIALTIES.
- f. DUCTWORK

1.2 PIPE INSULATION

A. ALL ABOVE GRADE INSULATION SHALL HAVE COMPOSITE (INSULATION, JACKET OR FACING, ALL ADHESIVE OR CEMENT USED TO ADHERE THE JACKET TO THE INSULATION) FIRE AND SMOKE HAZARD RATINGS AS TESTED UNDER PROCEDURE ASTM E–84 AND NFPA 225.

B. APPROVED MANUFACTURERS: CERTAINEED, OWENS/CORNING, JOHNS–MANVILLE, UPJOHN, ARMSTRONG, OR APPROVED EQUIVALENT.

C. LOCATE INSULATION AND COVER SEAMS IN LEAST VISIBLE LOCATIONS.

D. NEATLY FINISH INSULATION AT SUPPORTS, PROTRUSIONS, AND INTERRUPTIONS.

E. PROVIDE INSULATED DUAL TEMPERATURE PIPES OR COLD PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE WITH VAPOR BARRIER JACKETS. FINISH WITH GLASS CLOTH AND VAPOR BARRIER ADHESIVE. INSULATE COMPLETE SYSTEM.

F. FOR INSULATED PIPES CONVEYING FLUIDS ABOVE AMBIENT TEMPERATURE, PROVIDE STANDARD JACKETS. BEVEL AND SEAL ENDS OF INSULATION AT EQUIPMENT, FLANGES, AND UNIONS.

G. PROVIDE INSERT BETWEEN SUPPORT SHIELD AND PIPING ON PIPING 2 INCHES (50 MM) DIAMETER OR LARGER. FABRICATE OF CORK OR OTHER HEAVY DENSITY INSULATING MATERIAL SUITABLE FOR TEMPERATURE, NOT LESS THAN 6INCHES (150 MM) LONG.

H. SCHEDULE:
- a. CONDENSATE DRAINS: 1" FLEXIBLE ELASTOMERIC. PROVIDE ALUMINUM JACKETING ON PIPING EXPOSED TO WEATHER.
- b. REFRIGERANT LINES; 1" FLEXIBLE ELASTOMERIC, PROVIDE ALUMINUM JACKETING ON PIPING EXPOSED TO WEATHER.

1.3 DUCTWORK INSULATION

A. MANUFACTURERS: KNAUF, OR APPROVED EQUIVALENT.

B. FIBERGLASS BLANKET INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 553, TYPE II AND ASTM C 1290, TYPE III WITH FACTORY–APPLIED FSK JACKET. FACTORY–APPLIED JACKET REQUIREMENTS ARE SPECIFIED IN "FACTORY–APPLIED JACKETS" ARTICLE.
- a. "K" (KSI) VALUE: 0.29 AT 75 DEGREES F (0.042 AT 24 DEGREES C).
- b. DENSITY: 0.75 LB/CU FT (24 KG/CU M).
- c. VAPOR BARRIER JACKET: ALUMINUM–FOIL, FIBERGLASS–REINFORCED SCRIM WITH KRAFT–PAPER BACKING; COMPLYING WITH ASTM C 1136, TYPE II.

C. INSULATION PINS AND HANGERS:
- a. METAL, ADHESIVELY ATTACHED, PERFORATED–BASE INSULATION HANGERS: BASEPLATE WELDED TO PROJECTING SPINDLE THAT IS CAPABLE OF HOLDING INSULATION, OF THICKNESS INDICATED, SECURELY IN POSITION INDICATED WHEN SELF–LOCKING WASHER IS IN PLACE. COMPLY WITH THE FOLLOWING REQUIREMENTS:

D. GLASS FIBER BLANKET INSULATION SCHEDULE (UNLESS SPECIFIED ON PLANS):
- i. EXHAUST DUCTS EXPOSED TO OUTDOOR AIR: 1–1/2"
- ii. VENTILATION DUCTS: 2"
- iii. SUPPLY DUCTS: 2"
- iv. RETURN DUCTS IN UNCONDITIONED SPACES: 1–1/2"

1.4 INSTALLATION

A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. CONTINUE INSULATION VAPOR BARRIER THROUGH PENETRATIONS.

C. MASTICS
- a. MATERIALS SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES; COMPLY WITH MIL–PRF–19565C, TYPE II.
- i. FOR INDOOR APPLICATIONS, USE MASTICS THAT HAVE A VOC CONTENT OF 50 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

SYSTEM TESTING, ADJUSTING, AND BALANCING

A. TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE MADE BY AN INDEPENDENT NBC, OR AABC CONTRACTOR WHO IS CURRENTLY LICENSED. THE HVAC CONTRACTOR SHALL INSTALL NEW FILTERS IN ALL UNITS PRIOR TO THE AIR BALANCE. THE COMPLETE AIR BALANCE SHALL TAKE PLACE WITH OUTSIDE AIR DAMPERS IN MINIMUM POSITION.

B. BALANCE AIR AND WATER QUANTITIES TO WITHIN +/– 5% OF THAT INDICATED ON THE DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS, PULLEYS, OR THE ADDITION OF DAMPERS REQUIRED TO ACHIEVE SPECIFIED FLOW RATES SHALL BE PERFORMED BY THE HVAC CONTRACTOR WITH NO ADDITIONAL COST.

C. THE BALANCE REPORT SHALL INCLUDE AS A MINIMUM THE FOLLOWING INFORMATION:
- A. CERTIFICATION NUMBER AND SIGNATURE OF BALANCING CONTRACTOR.
- B. INSTRUMENTATION LIST WITH LAST CALIBRATION DATES.
- C. MAKE AND MODEL NUMBERS OF ALL HVAC EQUIPMENT.
- D. AIR CFM AND STATIC PRESSURE READINGS (DISCHARGE AND SUCTION) AS MEASURED BY PITOT TUBE DUCT TRAVERSE AT THE UNIT.
- E. MOTOR NAMEPLATE DATA WITH ACTUAL FIELD VOLTAGE AND AMPERAGE READINGS FOR EACH LEG.
- F. MOTOR AND FAN RPMS, SHEAVE SIZES AND BELT SIZES.
- G. OUTSIDE, RETURN, MIXED AND SUPPLY AIR TEMPERATURES AT FULL COOLING AND HEATING.
- H. WATER BALANCE DATA INCLUDING GPM WITH INLET AND OUTLET TEMPERATURE AND PRESSURE READINGS (WHERE APPLICABLE)
- I. MAKE AND MODEL NUMBERS OF ALL AIR DISTRIBUTION EQUIPMENT.
- J. FINAL BALANCED AIR VOLUMES AT ALL OUTLETS (INCLUDING RETURNS WHERE DUCTED).
- K. INDEXED PLAN WITH DIFFUSER AND RETURN LOCATIONS.

E. ALL CONTROL SEQUENCES SHALL BE TESTED (INTERLOCKED EQUIPMENT, SMOKE DETECTORS, SMOKE EVACUATION, ECONOMIZER, ETC.) AND OPERATING STATUS RECORDED IN THE REPORT.

F. THREE COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED THROUGH THE GENERAL CONTRACTOR TO THE TENANT'S CONSTRUCTION MANAGER FOR APPROVAL.

G. THE BALANCING CONTRACTOR SHALL PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS AS REQUIRED FOR THE SYSTEM DESIGNED IN THESE DRAWINGS. THE BALANCING CONTRACTOR SHALL RECHECK ANY ITEMS THAT THE TENANT DEEMS NECESSARY AT NO ADDITIONAL COST TO THE TENANT.

H. CONTROLS CONTRACTOR SHALL PROVIDE, AT NO COST, ALL NECESSARY SOFTWARE AND HARDWARE REQUIRED FOR SYSTEM BALANCE AND VERIFICATION OF CONTROLS. CONTROLS CONTRACTOR SHALL BE PRESENT AND ASSIST TEST & BALANCE CONTRACTOR DURING CONTROLS VERIFICATION. PRIOR TO START OF TEST & BALANCE, THE CONTROLS CONTRACTOR SHALL VERIFY ALL CONTROLS ARE OPERATIONAL AND ALL INPUT VALUES HAVE BEEN ENTERED PER DESIGN DOCUMENTATION. CONTROLS CONTRACTOR SHALL PROVIDE CONTROL SYSTEM START–UP SHEETS VERIFYING CONTROLS OPERATION PRIOR TO THE START OF TEST & BALANCE.

I. FINAL BALANCE REPORT SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUALS.

No.	Revisiona and Descriptions	By	Date
1	Addendum No. 1	MNA	01/21/26

CITY OF MART, TX
WASTEWATER TREATMENT PLANT
IMPROVEMENTS

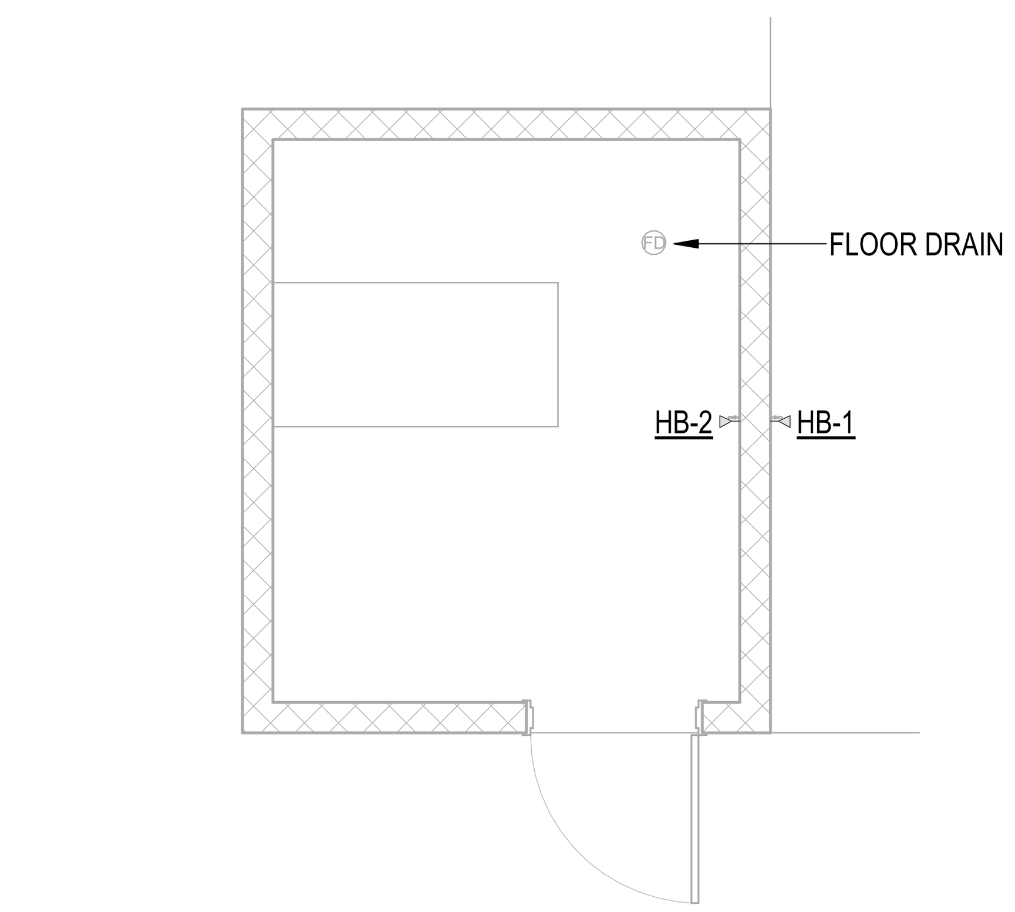
MECHANCIAL SPECS

Drawn By: AC
Checked By: MA
Scale:
Date: 01/21/2026

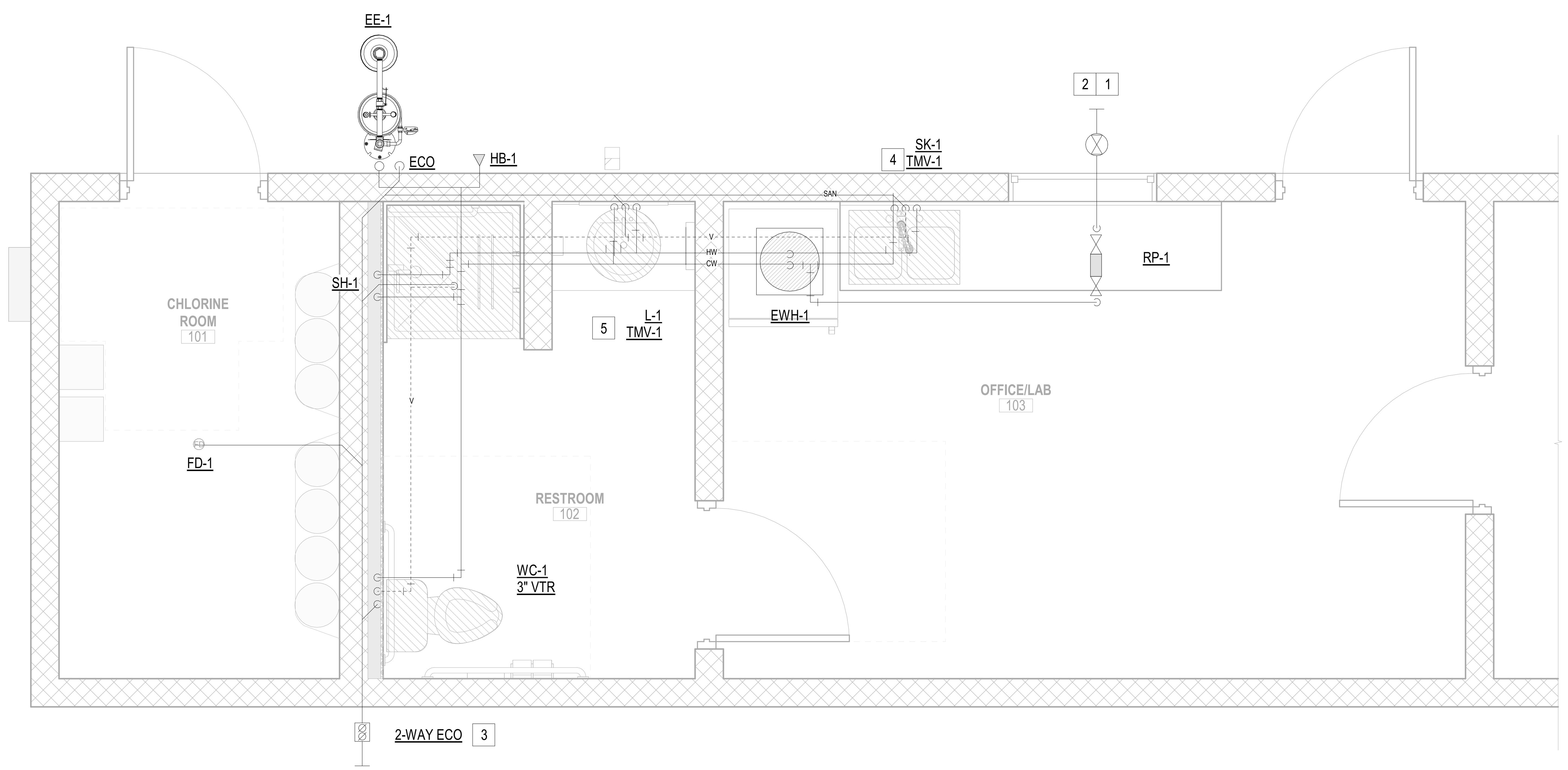
REGISTERED ARCHITECT · STATE OF TEXAS · 31224
01/21/2026

MRB Group

Sheet No. AM-102
48 of 89
Project No. 1397.21002



2 PLUMBING PLAN - SOLIDS HANDLING BUILDING
1/4" = 1'-0"



1 PLUMBING PLAN - PLANT OPERATIONS BUILDING
1/2" = 1'-0"

PLUMBING GENERAL NOTES:

1. COORDINATE CONNECTION OF BUILDING DOMESTIC WATER AND SANITARY WASTE UTILITIES WITH LOCAL UTILITY PROVIDERS AND PROVIDE CONNECTIONS IN ACCORDANCE WITH THEIR REQUIREMENTS.
2. COORDINATE SIZE, TYPE, AND LOCATION OF DOMESTIC WATER METER ON SITE WITH LOCAL UTILITY PROVIDER. PROVIDE IN ACCORDANCE WITH THEIR REQUIREMENTS.
3. REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING FINISHED FLOOR ELEVATION.
4. FIELD VERIFY EXACT LOCATION, SIZE, DEPTH, DIRECTION OF FLOW, CAPACITY, PIPE MATERIAL AND CONDITION OF SITE DOMESTIC WATER AND SANITARY WASTE PIPING PRIOR TO BEGINNING CONSTRUCTION TO ENSURE THAT PROPER CONNECTIONS TO AND EXTENSION OF SUCH UTILITIES CAN BE MADE.
5. COORDINATE FINAL INVERT ELEVATIONS OF BUILDING SANITARY OUTFALLS AND SITE PIPING WITH SITE UTILITY CONTRACTOR PRIOR TO CONSTRUCTION AND MAKE ADJUSTMENTS AS REQUIRED TO ENSURE PROPER CONNECTIONS TO SITE UTILITIES.
6. PRIOR TO BEGINNING CONSTRUCTION, COORDINATE PLUMBING BACKFLOW PREVENTION REQUIREMENTS WITH THE LOCAL CODE AUTHORITY AND PROVIDE AS DIRECTED.
7. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING BELOW SLAB WITH COLUMN FOOTINGS, GRADE BEAMS, UNDERGROUND PLUMBING AND ELECTRICAL UTILITIES, AND OTHER SUB-SURFACE BUILDING ELEMENTS.
8. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING IN CEILING SPACES WITH MECHANICAL AND ELECTRICAL EQUIPMENT, DUCTWORK AND CONDUIT. SHOULD A CONFLICT OCCUR THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO INSTALLING AN ALTERNATE PIPING PLAN.
9. MAINTAIN MINIMUM 10'-0" DISTANCE BETWEEN VENT TERMINALS THROUGH ROOF AND ALL FRESH AIR INTAKES.
10. COORDINATE ALL FIXTURE AND EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS WITH LATEST ARCHITECTURAL DRAWINGS, SPECIFICATIONS, AND MANUFACTURER RECOMMENDATIONS PRIOR TO ANY ROUGH-INS.
11. DO NOT ROUGH-IN FROM THESE DRAWINGS. REFER TO LATEST ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS.
12. CONTRACTOR TO COORDINATE ALL WORK WITH THE WORK OF OTHER TRADES TO AVOID CONFLICTS AND TO MINIMIZE INTERRUPTION OF SERVICES.
13. ALL WORK, METHODS AND INSTALLATIONS INVOLVED IN THE PLUMBING DESIGN SHALL BE IN ACCORDANCE WITH THE CITY BUILDING CODE AND INSPECTION REGULATIONS AND ALL OTHER OFFICIALS HAVING JURISDICTION.
14. UPON COMPLETION OF WORK, THOROUGHLY ROD OUT AND FLUSH ALL SANITARY PIPING TO ENSURE IT IS FREE FROM BLOCKAGES.
15. CONTRACTOR SHALL PROVIDE SINK TAIL PIECE(S) FOR HVAC CONDENSATE AS REQUIRED BY MECHANICAL CONTRACTOR. COORDINATE REQUIREMENTS WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO CONSTRUCTION.

PLUMBING KEYED NOTES

1 1" DOMESTIC WATER SERVICE. REFER TO CIVIL DRAWINGS FOR FOR CONTINUATION AND LOCATION OF WATER METER. MINIMUM WATER PRESSURE REQUIREMENT: 50 PSI AT 5'-0" MARK FROM BUILDING LIMITS.

2 1" DOMESTIC WATER ENTRY WITH SHUT-OFF VALVE IN VALVE BOX. PROVIDE WALL HYDRANT FOR DRAINING SYSTEM. REFER TO DETAIL.

3 4" SANITARY WASTE LINE WITH EXTERIOR CLEANOUT MINIMUM STARTING I.E. = 4'-0" B.F.F.

4 1" WATTS LF-009 REDUCE PRESSURE BACKFLOW DEVICE. LOCATE ON WALL AT 60" AFF. ROUTE DRAIN TO EXTERIOR OF BUILDING.

5 PROVIDE THERMOSTATIC MIXING VALVE (TMV-1) TO TEMPER HOT WATER SUPPLY TO ALL INDICATED FIXTURES TO A MAXIMUM OF 110°F.

EQUIPMENT PLUMBING NOTE:

CONTRACTOR SHALL CONFIRM ALL EQUIPMENT PLUMBING REQUIREMENTS WITH CITY PRIOR TO BID AND CONSTRUCTION AND SHALL PROVIDE AS REQUIRED.

PROVIDE WALL SIGNAGE IN ENGLISH AND SPANISH FOR ALL NON POTABLE WATER LOCATIONS.

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	MNA	01/21/26

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

PLUMBING PLAN

Drawn By: AC
Checked By: MA
Scale: As indicated
Date: 01/21/2026

REGISTERED ARCHITECT · MARIEU ANZWINO · 31224 · STATE OF TEXAS
01/21/2026

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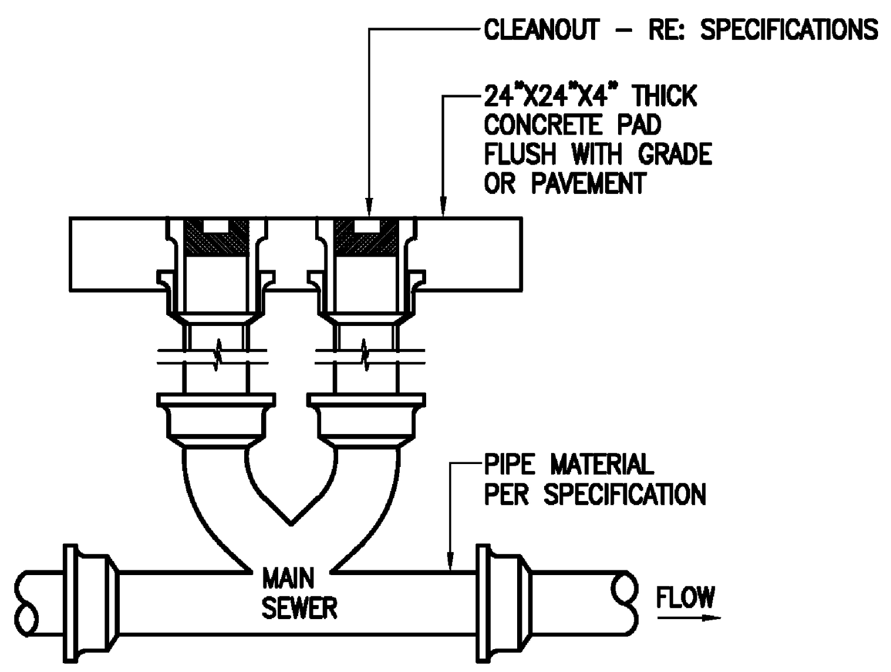
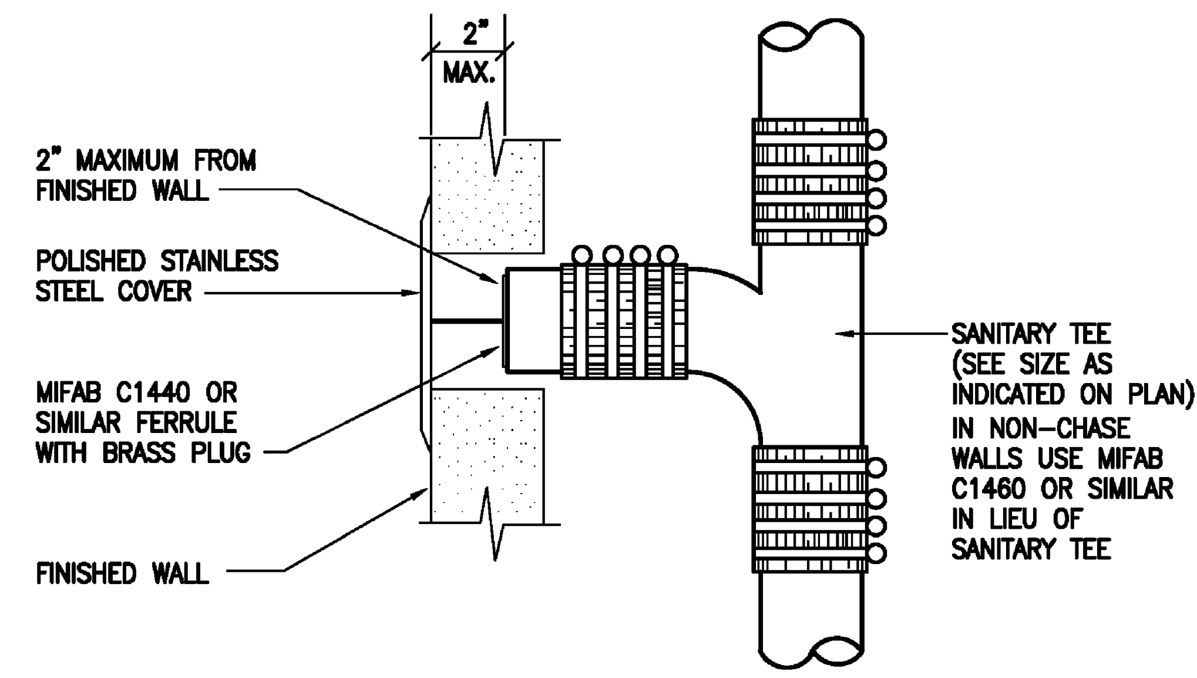
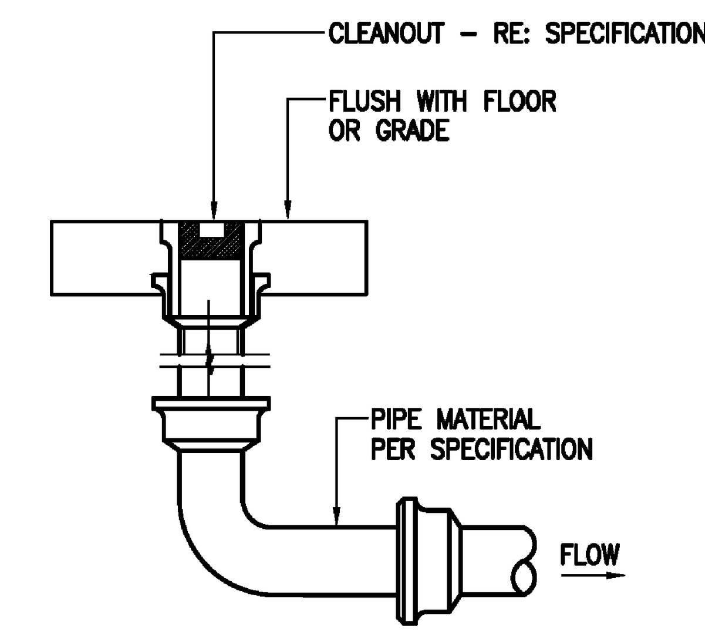
Sheet No. AP-101
49 of 89
Project No. 1397.21002



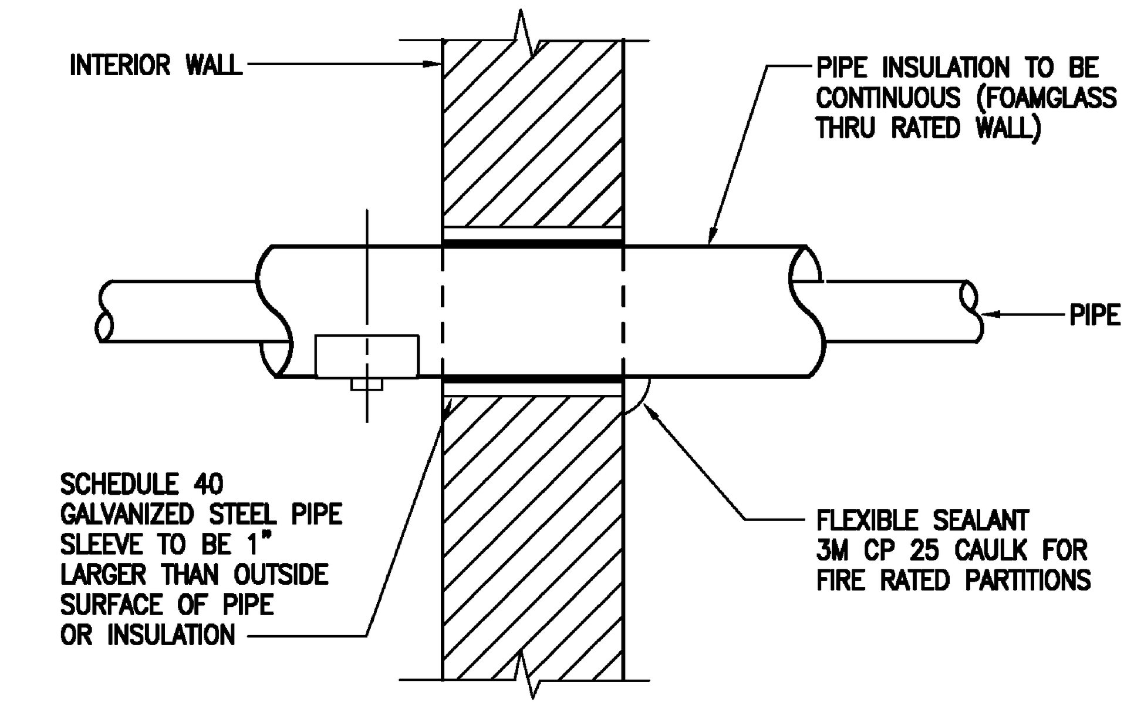
1 TWO-WAY EXTERIOR CLEANOUT
SCALE: NONE



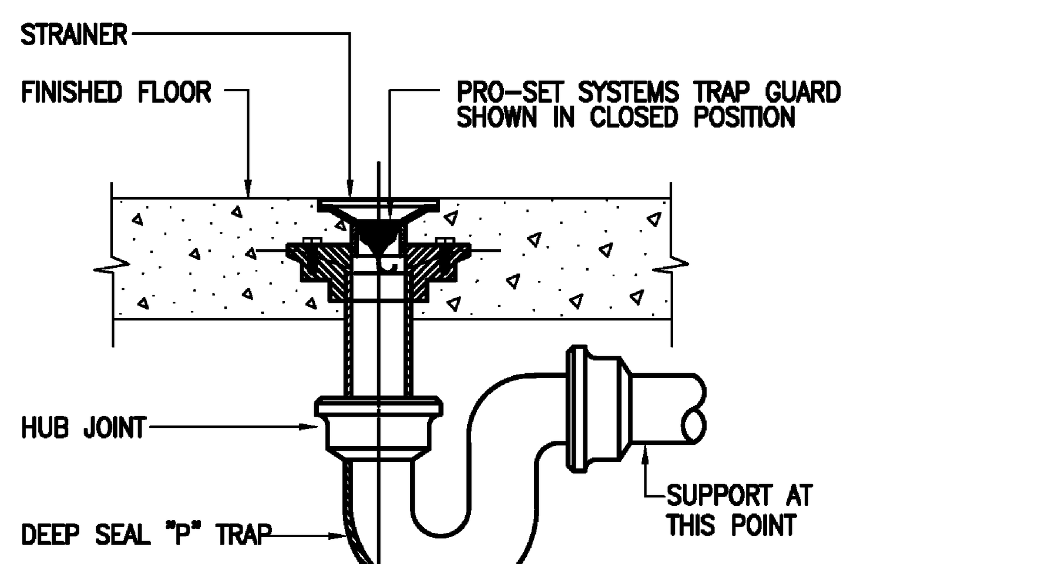
2 WALL CLEANOUT
SCALE: NONE



3 FLOOR CLEANOUT



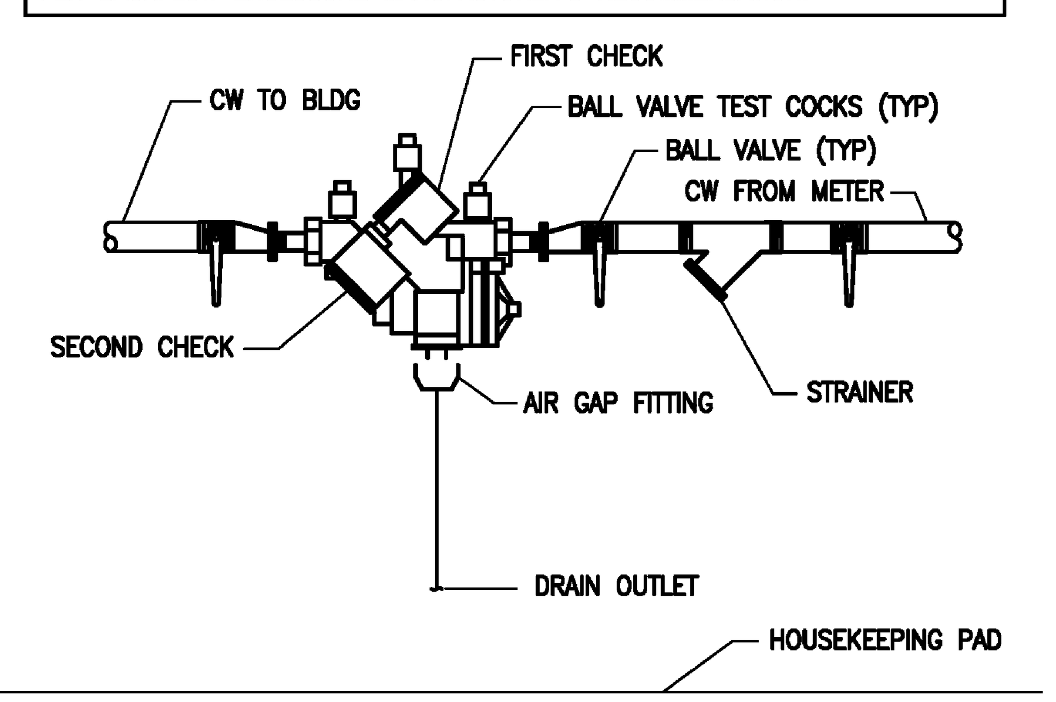
4 INTERIOR WALL PENETRATION
SCALE: NONE



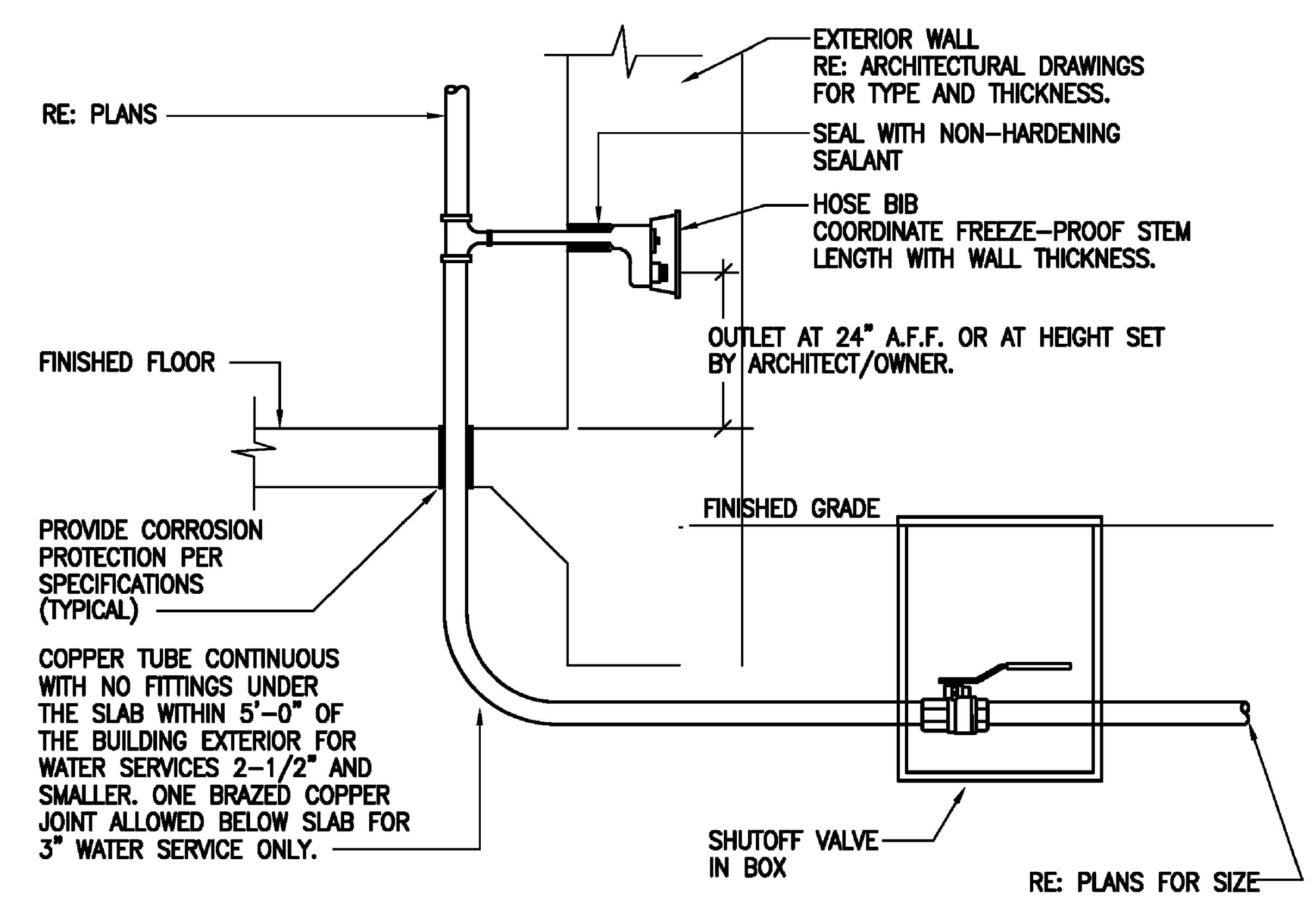
NOTES:
1. TRAP GUARD SHALL BE FACTORY FITTED TO MATCH EACH FLOOR DRAIN (AND FLOOR SINK) BY SIZE, MODEL, AND MANUFACTURER.
2. FLOOR SINK/HUB DRAIN TRAP GUARD INSTALLATION IS SIMILAR.
3. INSTALLATION OF TRAP GUARD TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. INSERT TRAP GUARD ONLY AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS TITE SEAL. FOR DRAIN RODDING AFTER INSTALLATION, INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1–1/2" PVC PIPE TO PROTECT TRAP GUARD.

5 FLOOR DRAIN/SINK WITH TRAP SEAL PROTECTION
SCALE: NONE

PROVIDE WATTS LF–009 REDUCED PRESSURE BACKFLOW DEVICE (RP–1) WITH INLET STRAINER AT WATER METER. INSTALL A MINIMUM OF 12" A.F.F. TO LOWEST POINT OF DEVICE. CONTRACTOR SHALL PROVIDE "SAFE–T–COVER" BACKFLOW ENCLOSURE WITH MANUFACTURER'S HEATING ELEMENT. COORDINATE CIRCUITING OF HEATING ELEMENT WITH ELECTRICAL CONTRACTOR. COORDINATE ALL BACKFLOW REQUIREMENTS WITH THE CITY UTILITY DEPARTMENT PRIOR TO CONSTRUCTION. CONTRACTOR SHALL PROVIDE CONCRETE HOUSEKEEPING PAD PER BACKFLOW ENCLOSURE MANUFACTURER'S RECOMMENDATION.

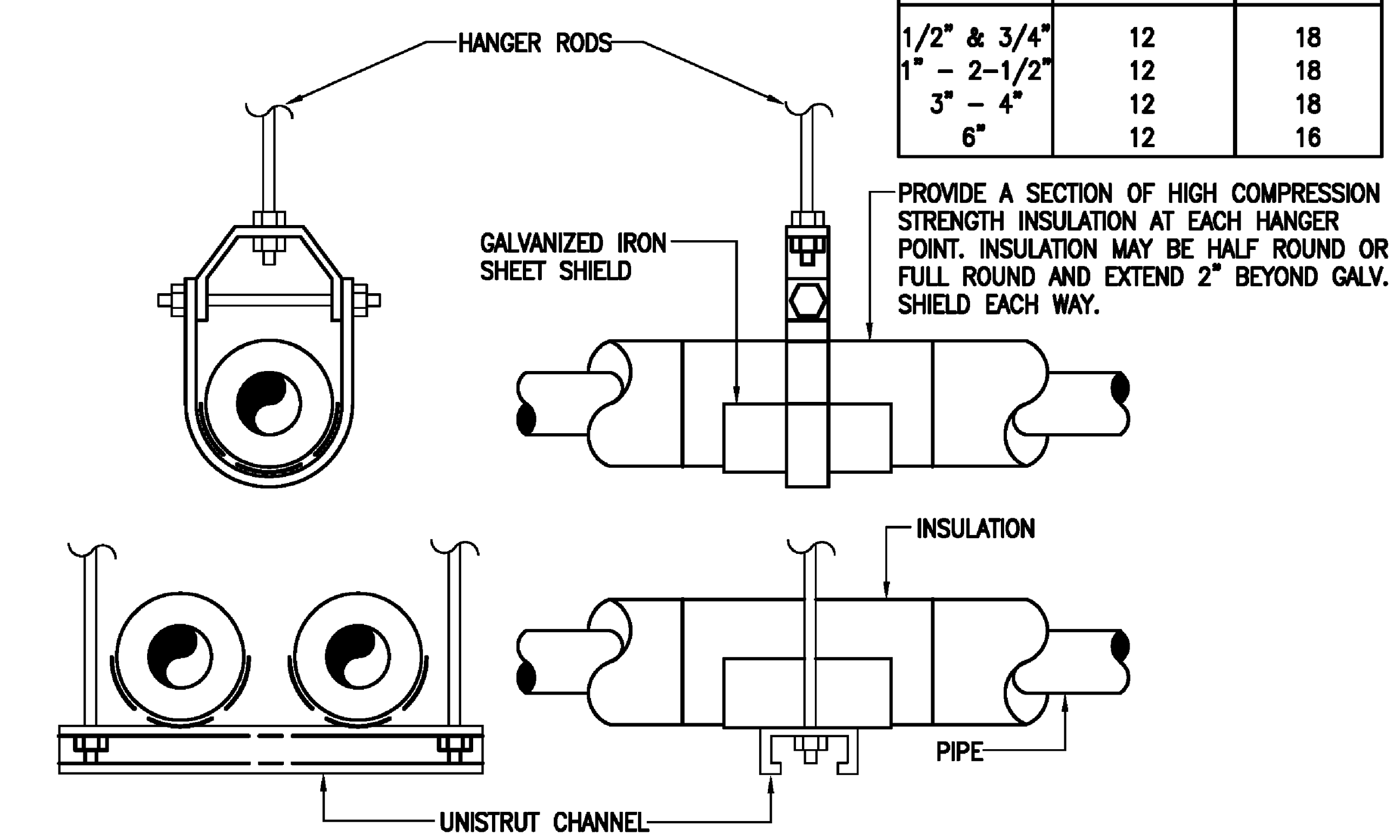


6 BACKFLOW PREVENTER
SCALE: NONE

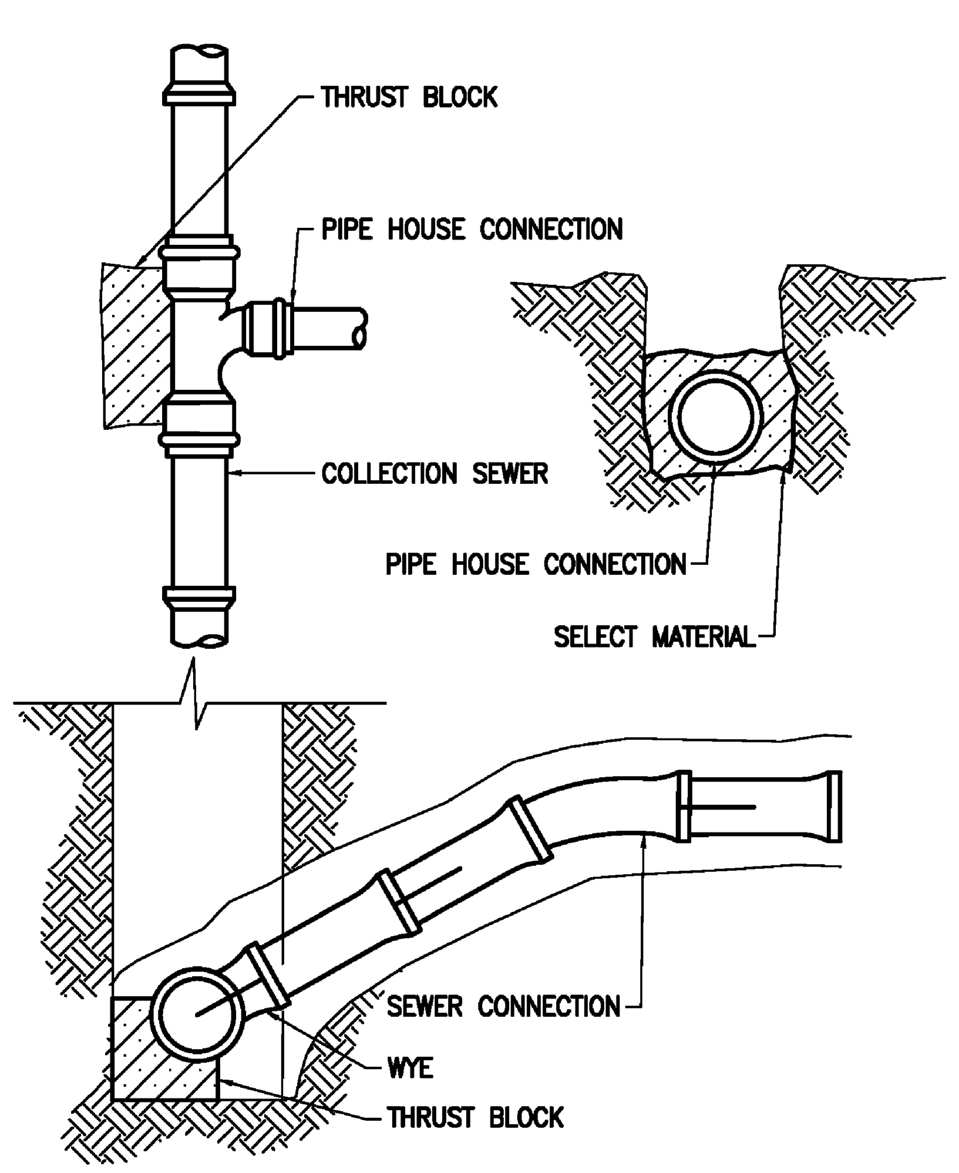


7 DOMESTIC WATER SERVICE ENTRY
SCALE: NONE

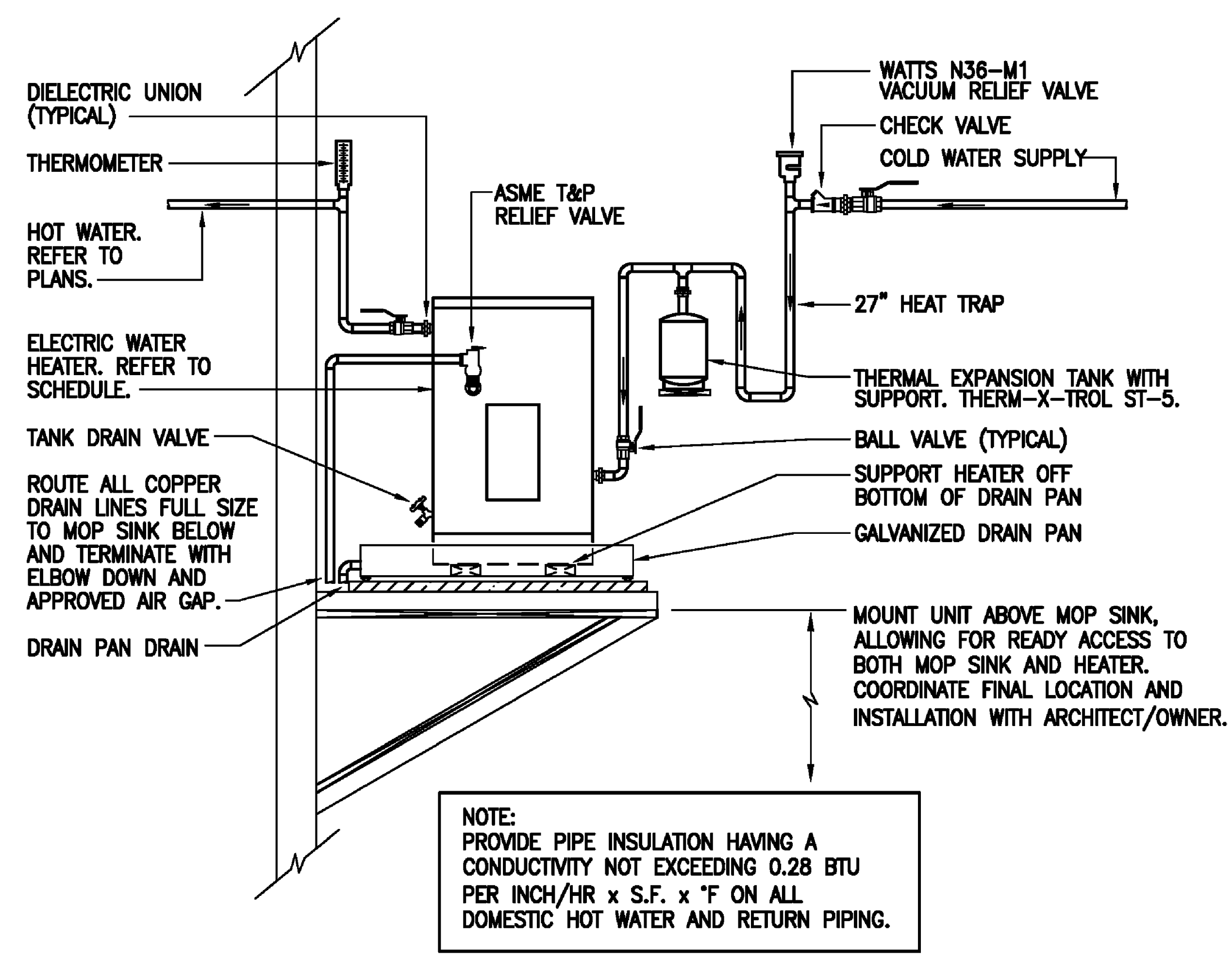
MINIMUM DIMENSIONS OF GALVANIZED SHEETMETAL PROTECTION SHIELDS AT PIPE HANGERS		
NOMINAL SIZE PIPE	SHIELD LENGTH MIN. (IN.)	GAUGE THICKNESS
1/2" & 3/4"	12	18
1" – 2–1/2"	12	18
3" – 4"	12	18
6"	12	16



8 HANGER FOR WATER PIPING
SCALE: NONE



9 SANITARY SEWER CONNECTION
SCALE: NONE



NOTE:
PROVIDE PIPE INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.28 BTU PER INCH/HR x S.F. x °F ON ALL DOMESTIC HOT WATER AND RETURN PIPING.

10 ELECTRIC WATER HEATER PIPING
SCALE: NONE

No.	Revisions and Descriptions	By	Date
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CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

PLUMBING DETAILS

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01/21/2026

MRB Group

Sheet No. AP-102
50 of 89
Project No. 1397.21002

PLUMBING LEGEND

SYMBOL	DESCRIPTION
SAN	SANITARY OR WASTE PIPING ABOVE GRADE (SAN)
SAN	SANITARY OR WASTE PIPING BELOW GRADE (SAN)
V	VENT PIPING ABOVE OR BELOW GRADE (V)
CW	COLD WATER PIPING (CW)
FIRE	FIRE PROTECTION WATER PIPING (FIRE)
HW	HOT WATER PIPING (HW)
HWR	HOT WATER RETURN PIPING (HWR)
GAS	NATURAL GAS PIPING (G)
GV	GAS VENT PIPING (GV)
	FLOW DIRECTIONAL ARROW
	SHUT-OFF VALVE
	BALL VALVE (BV)
	BUTTERFLY VALVE
	GAS PLUG VALVE (GPV)
	HORIZONTAL SWING CHECK
	UNION
	Y-STRAINER
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	REDUCED PRESSURE BACKFLOW PREVENTER (RPZ)
	PIPING DOWN
	RISE OR DROP PIPING
	PIPING UP -OR- PIPING UP & DOWN
	CAP ON END OF PIPE
	CLEANOUT (WALL OR CEILING) (CO)
	FLOOR CLEANOUT (FCO)
	EXTERIOR CLEANOUT WITH 18"x18"x4" CONCRETE PAD (ECO)
	TWO-WAY CLEANOUT (PROVIDE 18"x24"x4" CONCRETE PAD OUTSIDE)
	PRESSURE REDUCING VALVE (PRV)
	BRANCH CONNECTION OUT OF TOP
	BRANCH CONNECTION OUT OF BOTTOM
	BRANCH CONNECTION OUT OF SIDE
	WYE & 1/8TH BEND BRANCH CONNECTION
	WYE BRANCH CONNECTION
	HOSE BIBB
	PRESSURE GAUGE WITH COCK
	THERMOMETER
	GAS PRESSURE REGULATOR
	TEST COCK
	GAS METER
	WALL HYDRANT
	VALVE IN RISE
	ASME TEMPERATURE & PRESSURE RELIEF VALVE
	VACUUM RELIEF VALVE
	ANGLE VALVE
1	REFER TO KEYED NOTE
FS	FLOOR SINK (FS)
FD	FLOOR DRAIN (FD)
FD	FLOOR DRAIN WITH P-TRAP (FD)
FD	FLOOR DRAIN WITH P-TRAP AT 45° ANGLE (FD)
HD	HUB DRAIN (HD)
	ACCESS PANEL FOR TRAP PRIMER
AP	ACCESS PANEL LOCATION SYMBOL
	SHOCK ABSORBER WITH ACCESS PANEL
	AIR CHAMBER
	EXISTING
	CONNECT NEW TO EXISTING
	DELTA CHANGE SYMBOL
	RISER FLAG

NOTE: NOT ALL SYMBOLS MAY APPLY TO THIS PROJECT.

PLUMBING SCOPE & SPECIFICATION

THE WORK OF THIS SECTION SHALL INCLUDE, BUT NOT BE LIMITED TO:

A. A DOMESTIC HOT AND COLD WATER DISTRIBUTION SYSTEM TO SERVE ALL FIXTURES, AND EQUIPMENT.
B. SANITARY SOIL WASTE AND VENT SYSTEMS TO SERVE ALL FIXTURES AND EQUIPMENT.
C. NOT USED.

DRAWINGS ARE DIAGRAMMATIC; CONFIRM DIMENSIONS AND LOCATIONS IN THE FIELD, ADVISE OF MAJOR DISCREPANCIES.
GUARANTEE LABOR AND MATERIALS FOR ONE YEAR.
ADHERE TO ALL APPLICABLE LOCAL CODES AND REGULATIONS.
CONTRACTOR SHALL OBTAIN REQUIRED PERMITS AND PAY ALL FEES.

VALVES

VALVES SHALL BE MANUFACTURED BY NIBCO, HAMMOND, POWELL, STOCKHAM, WATTS OR EQUIVALENT APPROVED BY THE ENGINEER.
BALL VALVES SHALL HAVE CAST BRONZE BODY, BLOWOUT PROOF STEMS, FULL SIZE PORT, 316 STAINLESS STEEL TRIM, TEFLON SEAT AND SEAL AND THRUST WASHERS. VALVES 2" AND SMALLER SHALL BE NIBCO T-585-70-66 OR APPROVED EQUIVALENT.

UNIONS

UNIONS IN COPPER OR BRASS LINES SHALL BE BRASS, THREADED PATTERN UNIONS.

EXCAVATION

EXCAVATE TRENCHES FOR UNDERGROUND PIPING TO THE REQUIRED DEPTH.
CUT THE BOTTOM OF THE TRENCH OR EXCAVATION TO UNIFORM GRADE.
EXCAVATE 6" BELOW GRADE, FILL WITH BEDDING MATERIAL (SAND) AND TAMP WELL.
LAY OUT ALIGNMENT OF PIPE TRENCHES TO AVOID OBSTRUCTIONS. PROVIDE ASSURANCE THAT PROPOSED ROUTE OF PIPE WILL NOT INTERFERE WITH BUILDING FOUNDATION BEFORE ANY CUTTING IS BEGUN. SHOULD INTERFERENCE BE FOUND, CONTACT THE ARCHITECT/ENGINEER BEFORE PROCEEDING.

BACKFILL

BACKFILL SHALL NOT BE PLACED UNTIL THE WORK HAS BEEN INSPECTED, TESTED AND APPROVED. USE SUITABLE FRIABLE SOILS AS BACKFILL MATERIAL. DO NOT USE PEAT, SILT, MUCK, DEBRIS OR OTHER ORGANIC MATERIALS. DEPOSIT BACKFILL IN UNIFORM LAYERS. PLACE BACKFILL MATERIAL IN UNIFORM LAYERS, 8" MAXIMUM LOOSE MEASURE. COMPACT TO NOT LESS THAN 95% OF MAXIMUM SOIL DENSITY AS DETERMINED BY ASTM D698 STANDARD PROCTOR.

PLUMBING PIPING HANGER SPACING

REFER TO PIPING MANUFACTURER AND IPC REQUIREMENTS. MAXIMUM SPACING SHALL BE 10 FOOT.

CLEANING, TESTING AND ADJUSTING

THIS CONTRACTOR SHALL FURNISH ALL LABOR, TOOLS, INSTRUCTIONS, AND SUPERVISION REQUIRED FOR THE PERFORMANCE OF ALL TESTS, CLEANING, AND MAKING NECESSARY ADJUSTMENTS TO OPERATION OF ALL FIXTURES AND EQUIPMENT.

PIPING INSULATION

ALL COLD & HOT WATER PIPING, FITTINGS AND VALVES SHALL BE INSULATED WITH NOMINAL 1" WALL THICKNESS FIBERGLASS PIPE INSULATION, OR AN APPROVED EQUAL HAVING FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DENSITY OF 50 OR LESS WHEN TESTED BY ASTM E-84 METHOD.

PIPE INSULATION SHALL BE INSTALLED ACCORDING TO THE PROCEDURES OUTLINED BY THE MANUFACTURE.

FITTING COVER INSULATION SHALL BE FABRICATED AND INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDED PROCEDURES. SWEAT FITTINGS SHALL BE INSULATED WITH MITER CUT PIECES OF FIBERGLASS PIPE INSULATION THE SAME SIZE AS ON ADJACENT PIPING. THREADED FITTINGS SHALL BE INSULATED WITH SLEEVED FITTING COVERS FABRICATED FROM MITER CUT PIECES OF FIBERGLASS PIPE INSULATION ACCORDING TO THE MANUFACTURER'S SLEEVING SIZE RECOMMENDATIONS AND SHALL BE OVERLAPPED 2" AND SEALED TO THE ADJACENT PIPE INSULATION. ALL VALVES SHALL BE INSULATED WITH CUT PIECES OF FIBERGLASS PIPE INSULATIONS. ALL JOINTS AND MITER CUT PIECES ARE TO BE SEALED PER MANUFACTURER'S RECOMMENDATIONS.

SUPPORTING HANGERS SHALL BE DESIGNED TO RESIST COMPRESSION; SUPPORTING DEVICES SUCH AS SHORT WOOD DOWELS OR WOOD BLOCKS SHALL BE USED IN COMBINATION WITH GALVANIZED SHEET METAL HANGER SHIELDS. THE WOOD SUPPORTING DEVICES SHALL BE THE SAME THICKNESS AS THE INSULATION AND SEALED TO THE INSULATION WITH FACTORY APPROVED CONTACT ADHESIVE.

INSTALL THERMAL INSULATION ON CLEAN, DRY SURFACES AFTER ALL TESTING AND INSPECTION IS COMPLETED. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THESE SPECIFICATIONS AND WITH MANUFACTURER'S INSTRUCTIONS.

PIPE MATERIAL LIST

DOMESTIC WATER PIPING

ABOVE SLAB INSIDE THE BUILDING SHALL BE SEAMLESS ASTM B 88 TYPE L COPPER WATER TUBE WITH WROUGHT COPPER FITTINGS, ANSI B16.22. SOLDER MATERIAL SHALL BE 99.8% LEAD LEAD FREE AND COMPLIANT WITH THE "SAFE WATER DRINKING ACT". THE USE OF DRILLED-T CONNECTIONS IS NOT PERMITTED. PEX TUBING CONFORMING TO ALL STANDARD APPLICABLE CODE REQUIREMENTS FOR COMMERCIAL APPLICATIONS IS APPROVED AS ALTERNATE TO COPPER.

BELOW SLAB SHALL BE ASTM B 88 TYPE K COPPER WATER TUBE WITH WROUGHT COPPER FITTINGS, ANSI B16.22. ALL JOINTS SHALL BE BRAZED.

CONDENSATE AND INDIRECT DRAIN PIPING SHALL BE

TYPE M COPPER TUBING UP TO 1" ID, TYPE DWV TUBING AND COPPER FITTINGS FOR 1-1/4" AND LARGER SIZES, AND 95-5 SOLDER JOINTS. PEX TUBING CONFORMING TO ALL STANDARD APPLICABLE CODE REQUIREMENTS FOR COMMERCIAL APPLICATIONS IS APPROVED AS ALTERNATE.

SANITARY SOIL WASTE AND VENT PIPING SHALL BE

ABOVE SLAB INSIDE BUILDING SHALL BE SCHEDULE 40 DWV POLYVINYL CHLORIDE PIPE AND FITTINGS CONFORMING TO ASTM D-1784-82 WITH SOLVENT WELDED JOINTS.
IN AIR SUPPLY OR RETURN PLENUMS, AND/OR WHERE FIRE RATED WALLS, PARTITIONS, OR FLOORS ARE PENETRATED, CONTRACTOR SHALL PROVIDE NO-HUB CAST IRON SYSTEM CONFORMING TO CISPI STANDARD NO. 301-75. NEOPRENE GASKETS SHALL CONFORM TO ASTM STANDARD C564-75.

BELOW SLAB SHALL BE SCHEDULE 40 DWV POLYVINYL CHLORIDE PIPE AND FITTINGS CONFORMING TO ASTM D-1784-82 WITH SOLVENT WELDED JOINTS.

ELECTRIC WATER HEATER

ITEM NO.	TOTAL KW INPUT	GALS. PER HR. RECOVERY RATE 80°F RISE	STORAGE CAPACITY (GALLONS)	ELECTRICAL REQUIRED	STORED WATER TEMP	MANUFACTURER COMMENT
EWH-1	4.5	23.0	30.0	240V/1ø/60HZ	140°	RHEEM ELDS30

NOTES:
1. PROVIDE HOT WATER EXPANSION TANK DOWNSTREAM OF CHECK VALVE ON COLD WATER SUPPLY. THERM-X-TROL ST-5.

THERMOSTATIC MIXING VALVES

ITEM NO.	INLET HOT WATER TEMP (°F)	OUTLET MIXED WATER TEMP (°F)	MINIMUM FLOW (GPM)	DESIGN FLOW (GPM)	PRESSURE DROP @ DESIGN FLOW (PSI)	VALVE FINISH	MANUFACTURER / MODEL NO.
TMV-1	140°	110°	0.5	0.5-2.5	5.0	ROUGH BRONZE	WATTS USG-B-M1

NOTES:
1. MAKE WATER CONNECTIONS TO THERMOSTATIC MIXING VALVE(S) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE PIPE INCREASERS AND/OR VALVES AS REQUIRED.

SHOCK ARRESTORS

P.D.I. SYMBOL	FIXTURE UNITS	CHAMBER LENGTH	SWEAT CONNECTION
A	1-11	9-5/8"	1/2"
B	12-32	11-3/4"	3/4"
C	33-60	14-11/18"	1"
D	61-113	12-3/8"	1"
E	114-154	15-3/8"	1"
F	155-330	17-3/8"	1"

PLUMBING FIXTURE SCHEDULE

PLAN MARK	WASTE /TRAP	VENT	CW	HW	DESCRIPTION
WC-1	4"	2"	1/2"	--	WATER CLOSET: AMERICAN STANDARD: CADET 3 RIGHT HEIGHT 3378.128ST.020 (T.A.S. COMPLIANT). FLOOR MOUNTED, WHITE VITREOUS CHINA, ELONGATED BOWL, 16-1/2" HIGH, FULLY GLAZED 2-1/8" TRAPWAY, 1.28-GPF, 12" ROUGH-IN. TOILET SEAT: AMERICAN STANDARD OPEN FRONT, LESS COVER, HIGH IMPACT SOLID PLASTIC, SELF SUSTAINING CHECK HINGES.
L-1	2"	2"	1/2"	1/2"	FAUCET: DELTA #2529LF-LGHGMHDF WITH 0.5GPM AERATOR. ROUGH-INS, FAUCET INSTALLATION, AND FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PLUMBING CONTRACTOR TO PROVIDE STRAINER, ESCUTCHEONS AT WALL, SUPPLIES AND STOPS, ETC. AS REQUIRED IN ORDER TO PROPERLY INSTALL FIXTURE. CARRIER: PROVIDE AMERICAN STANDARD WALL HANGER.
SK-1	2"	2"	1/2"	1/2"	
SH-1	2"	2"	1/2"	1/2"	38 5/8" X 38 7/16" FREEDOM ACCESSIBLE TRANSFER SHOWER - MODEL: APF3838BF4P
EE-1	1 1/4"	-	3/4" & 1 1/4"	-	GUARDIAN GFR1902 FREEZE-RESISTANT SAFETY STATION WITH EYEWASH
RVB-1	--	--	1/2"	--	REFRIGERATOR VALVE BOX: OATEY 39149. REFRIGERATOR VALVE BOX, WATER HAMMER ARRESTOR.
RP-1	--	--	2"	--	BUILDING MAIN BACKFLOW DEVICE: 1-1/2" WATTS LF-009 REDUCED PRESSURE ZONE TYPE WITH TWO IN-LINE INDEPENDENT CHECK VALVES WITH AN INTERMEDIATE RELIEF VALVE. COMPLETE WITH TWO FULL PORTED BALL VALVE SHUT-OFFS AND BALL TYPE TEST COCKS. INSTALL BACKFLOW DEVICE IN ACCORDANCE WITH UTILITY DEPARTMENT REQUIREMENTS. PROVIDE WITH INLET STRAINER. INSTALL A MINIMUM OF 12" A.F.F. TO LOWEST POINT OF DEVICE. CONTRACTOR SHALL PROVIDE "SAFE-T-COVER" BACKFLOW ENCLOSURE WITH MANUFACTURER'S HEATING ELEMENT. CONTRACTOR CONTRACTOR SHALL PROVIDE 6" TALL CONCRETE HOUSEKEEPING PAD PER BACKFLOW ENCLOSURE MANUFACTURER'S RECOMMENDATIONS. COORDINATE ELECTRICAL CIRCUITING OF HEATING ELEMENT WITH ELECTRICAL CONTRACTOR PRIOR TO CONSTRUCTION.
FD-1	3"	2"	--	--	FLOOR DRAIN: MI-FAB F1000 BOTTOM OUTLET CAST IRON BODY, ADJUSTABLE 6" DIAMETER NICKEL BRONZE STRAINER WITH VANDAL PROOF SCREWS. PROVIDE PRO-SET SYSTEMS, INC. TRAP GUARD FACTORY FITTED TO MATCH EACH FLOOR DRAIN BY SIZE, MODEL, AND MANUFACTURER.
WCO	REFER TO PLANS	--	--	--	WALL CLEANOUT: MIFAB C1440-RD6. CAST IRON CLEANOUT FERRULE WITH BRONZE RAISED HEAD PLUG AND ROUND STAINLESS STEEL COVER PLATE WITH CENTER SECURING SCREW.
FCO	REFER TO PLANS	--	--	--	FLOOR CLEANOUT: MIFAB C1100-R-1. FOR CARPETED FLOORS PROVIDE MIFAB C1100-RC. CAST IRON BODY WITH SECONDARY O-RING TEST SEAL AND ADJUSTABLE COMBINED ACCESS COVER/ PLUG TOP ASSEMBLY WITH PRIMARY GASKET SEAL, AND ROUND SCORIATED NICKEL BRONZE COVER.
ECO	REFER TO PLANS	--	--	--	EXTERIOR CLEANOUT: MIFAB C1100-XR-4. EXTERIOR CLEANOUT TO GRADE, CAST IRON BODY WITH SECONDARY SECONDARY O-RING TEST SEAL AND ADJUSTABLE COMBINED ACCESS COVER/PLUG TOP ASSEMBLY WITH PRIMARY GASKET SEAL, AND ROUND SCORIATED VANDAL RESISTANT DUCTILE IRON TRACTOR TYPE COVER. PROVIDE 18"X18"X4" CONCRETE PAD FOR SINGLE CLEANOUT AND 24"X18"X4" CONCRETE PAD FOR DOUBLE CLEANOUT.

NOTE:
1. CONTRACTOR SHALL VERIFY ALL PLUMBING FIXTURES SELECTIONS WITH OWNER/ARCHITECT PRIOR TO BID, PURCHASE, AND INSTALLATION. COORDINATE ALL ADA FIXTURE REQUIREMENTS WITH THE ARCHITECT PRIOR TO BID, PURCHASE, AND INSTALLATION.
2. ALL LAVATORIES AND SINKS SHALL BE SUPPLIED WITH HOT AND COLD WATER TO FAUCETS AS INDICATED ON PLANS AND FIXTURE SCHEDULE. PROVIDE CHROME PLATED BRASS SUPPLY STOPS AND WALL ESCUTCHEONS. PROVIDE FLEXIBLE RISERS OF SIZE REQUIRED TO PROPERLY CONNECT FIXTURES. PROVIDE P-TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON.
3. PROVIDE MCGUIRE "PROWRAP" INSULATION KITS ON ALL LAVATORIES AND SINKS REQUIRED TO BE T.A.S. ACCESSIBLE. ALL SUCH FIXTURES AND FINAL INSTALLATIONS SHALL COMPLY WITH THE STATE ACCESSIBILITY STANDARDS REQUIREMENTS.
4. INSERT TRAP GUARDS AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS-TIGHT SEAL. FOR DRAIN RODDING AFTER INSTALLATION. INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	MNA	01/21/26

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

PLUMBING SCHEDULE

Drawn By: AC | Checked By: MA | Scale: | Date: 01/21/2026

REGISTERED ARCHITECT STATE OF TEXAS
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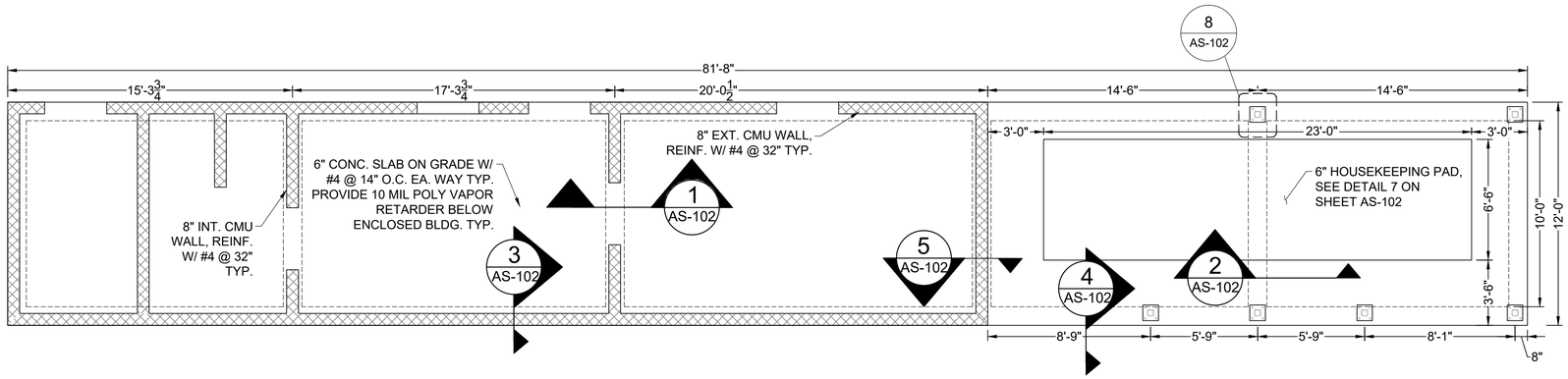
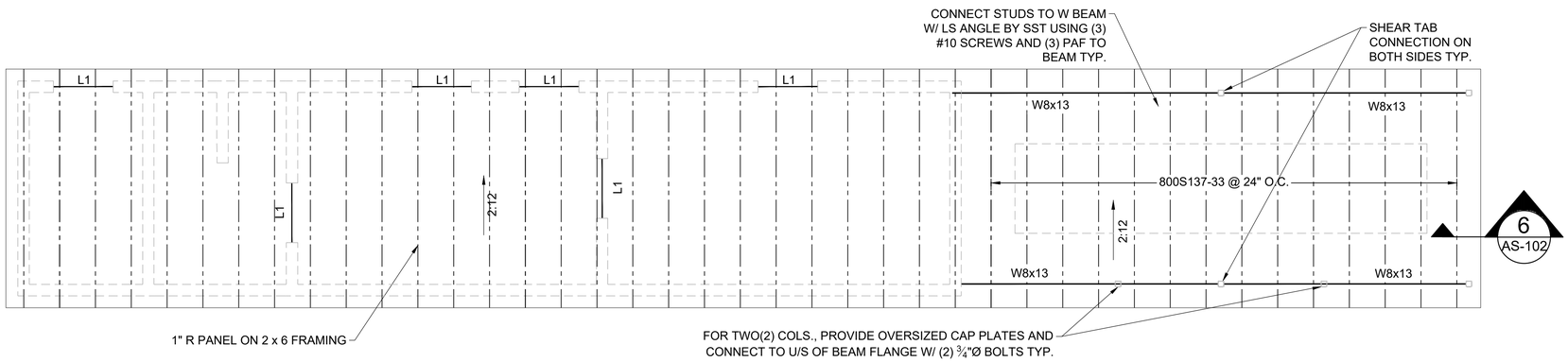
Sheet No. AP-103
51 of 89

Project No. 1397.21002



1 FOUNDATION PLAN - PLANT OPERATIONS BUILDING
SCALE: 1/4" = 1'-0"



2 ROOF PLAN - PLANT OPERATIONS BUILDING
SCALE: 1/4" = 1'-0"

CMU LINTEL SCHEDULE			
MARK	SPAN	SIZE	BEARING
L1	AS SHOWN	8 x 8 BOND BEAM W/ (2) #5	8" EA. END

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	TST	1-21-2026

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

STRUCTURAL PLAN

Drawn By: MJB
Checked By: DAH
Scale: AS SHOWN
Date: 08/28/2025

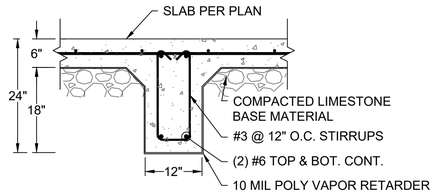
STATE OF TEXAS
TREY S. TAYLOR
94706
LICENSED PROFESSIONAL ENGINEER
08/28/2025

MRB Group

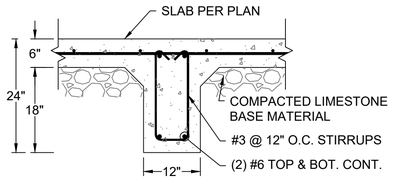
Sheet No. AS-101
52 of 89
Project No. 1397.21002

1

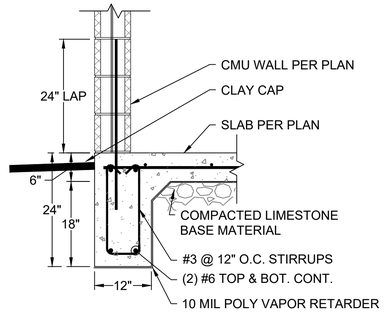
N:\1397.21002.000\dwg\01 Civil - Mart WWTP Improvements\02 Productions\5. ARCHITECTURAL STRUCTURAL\CMU BUILDING STRUCTURAL DETAILS.dwg



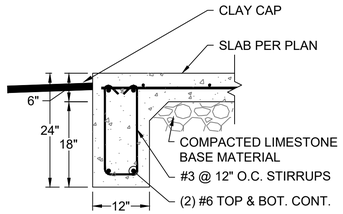
1 INT. FOUNDATION BEAM BLDG
SCALE: 3/4" = 1'-0"



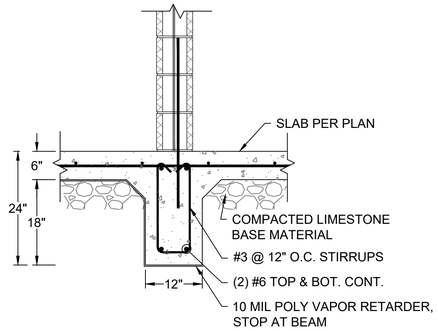
2 INT. FOUNDATION BEAM
SCALE: 3/4" = 1'-0"



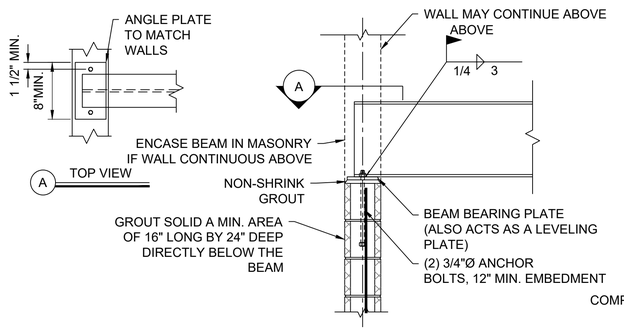
3 EXT. FOUNDATION BEAM BLDG
SCALE: 3/4" = 1'-0"



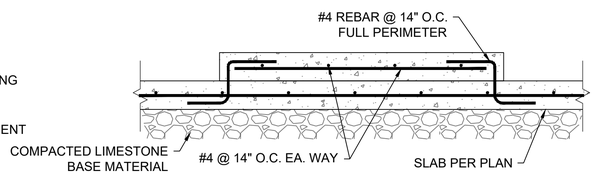
4 EXT. FOUNDATION BEAM
SCALE: 3/4" = 1'-0"



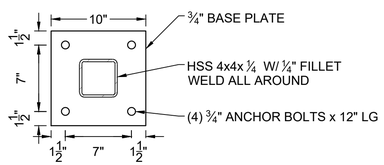
5 FOUNDATION BEAMS BLDG./EXT. INTERFACE
SCALE: 3/4" = 1'-0"

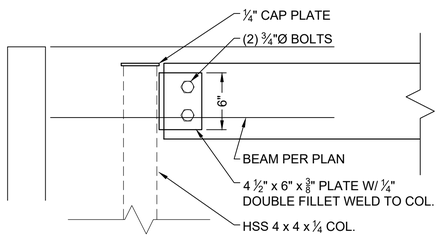


6 STEEL BEAM BEARING ON CMU WALL
SCALE: 3/4" = 1'-0"



7 BLOWER HOUSEKEEPING PAD
SCALE: 3/4" = 1'-0"





8 TYP. COL. BASE PLATE DETAIL
SCALE: 1 1/2" = 1'-0"

No.	Revisions and Descriptions	By	Date
1	Addendum No. 1	TST	1-21-2026

CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

CMU BUILDING STRUCTURAL DETAILS

Drawn By: MJB
Checked By: DAH
Scale: AS SHOWN
Date: 08/28/2025

STATE OF TEXAS
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08/28/2025

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Sheet No. AS-102
53 of 89
Project No. 1397.21002

1

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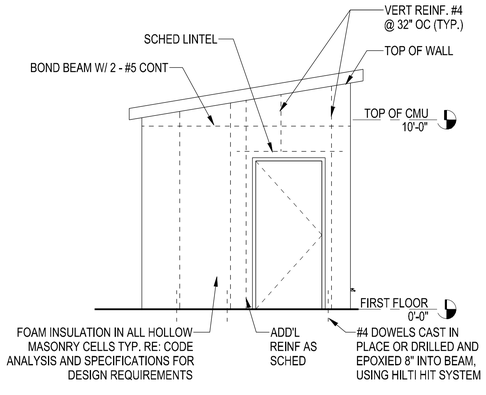
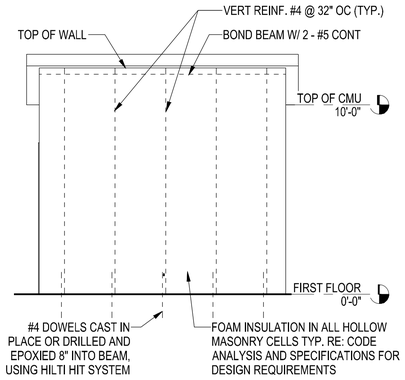
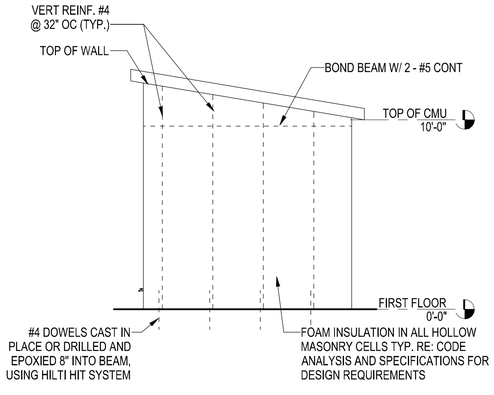


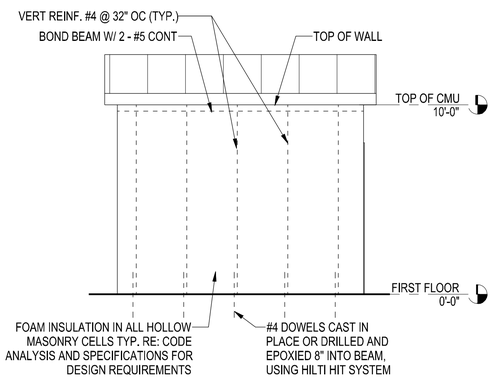
8 SOLIDS HANDLING BUILDING - SOUTH CMU DETAIL
1/4" = 1'-0"



7 SOLIDS HANDLING BUILDING - EAST CMU DETAIL
1/4" = 1'-0"



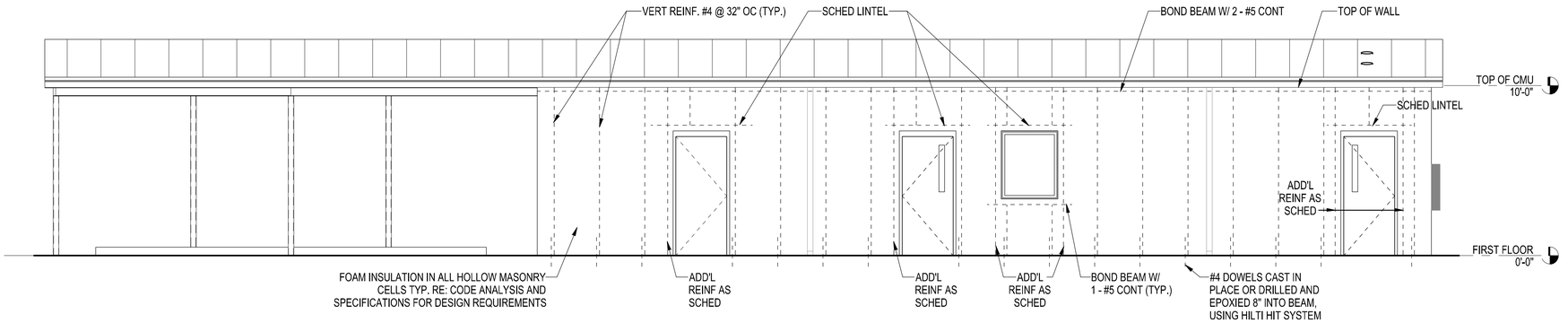
6 SOLIDS HANDLING BUILDING - NORTH CMU DETAIL
1/4" = 1'-0"



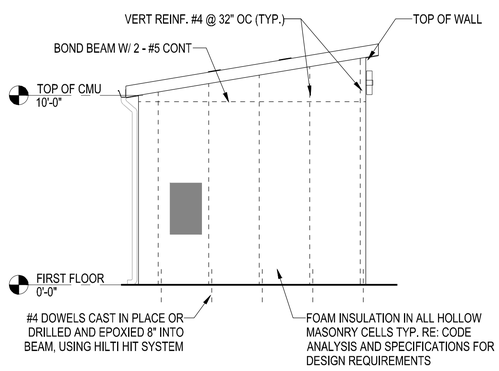
5 SOLIDS HANDLING BUILDING - WEST CMU DETAIL
1/4" = 1'-0"

NOTES

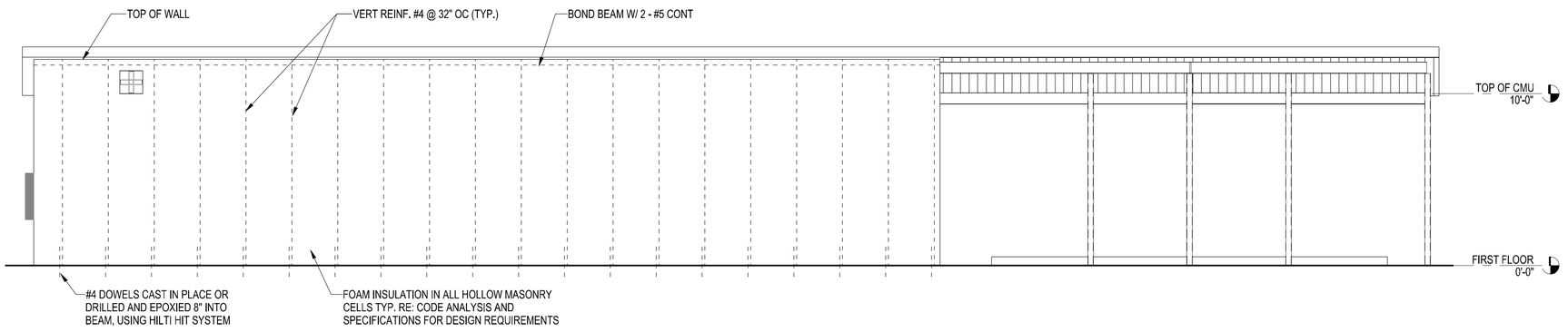
1. UNLESS OTHERWISE NOTED, ALL MASONRY WALLS AND EXTERIOR WALLS SHALL BE REINFORCED WITH 9 GA. MILL GALVANIZED, HORIZONTAL WIRE REINFORCEMENT SHALL CONFIRM TO ASTM DESIGNATION A-82, AND SHALL BE LAPPED AT LEAST 6" WITH AT LEAST ONE CROSS WIRE WITHIN THE LAP.
2. LOW LIFT CONSTRUCTION. MAXIMUM GROUT POUR HEIGHT IS 5 FT.
3. SPLICE WALL VERTICAL REINFORCEMENT 48 BAR DIAMETERS (2'-6" MIN.).
4. 2015 IECC TABLE C402.1.3, NOTE C "R-5.7CI IS ALLOWED TO BE SUBSTITUTED WITH CONCRETE BLOCK WALLS COMPLYING WITH ASTM C 90, UNGROUTED OR PARTIALLY UNGROUTED AT 32 INCHES OR LESS ON CENTER VERTICALLY AND 48 INCHES OF LESS ON CENTER HORIZONTALLY, WITH UNGROUTED CORES FILLED WITH MATERIAL HAVING A MAXIMUM THERMAL CONDUCTIVITY OF 0.44 BTU-IN/H-F2°F.
5. REFER TO S-901, S-902, AND AS-102 FOR STR. DETAILS.
6. REFER TO AS-101 FOR THE CMU LINTEL SCHEDULE.



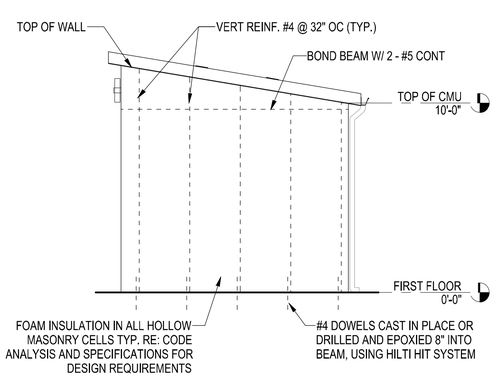
4 PLANT OPERATIONS BUILDING - WEST CMU DETAIL
1/4" = 1'-0"



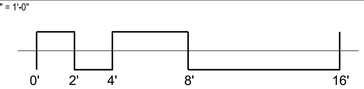
3 PLANT OPERATIONS BUILDING - SOUTH CMU DETAIL
1/4" = 1'-0"



2 PLANT OPERATIONS BUILDING - EAST CMU DETAIL
1/4" = 1'-0"



1 PLANT OPERATIONS BUILDING - NORTH CMU DETAIL
1/4" = 1'-0"



CITY OF MART, TX
WASTEWATER TREATMENT PLANT IMPROVEMENTS

CMU ELEVATION DETAILS

No.	Addendum No. 1	MNA	01/21/26
	Revisions and Descriptions	By	Date

Drawn By: AC
Checked By: MA
Scale: 1/4" = 1'-0"
Date: 01/21/2026

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01/26/2026

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Sheet No. AS-103
Project No. 1397.21002