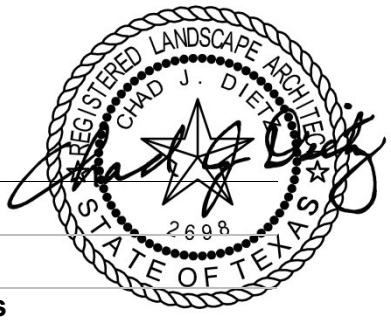
Parkhill



04/11/2024

ADDENDUM NO: 002

TO: All Plan holders

FROM: Parkhill

PROJECT NAME: City of Borger Pool Renovations

PROJECT NO.: 41716.23

DATE: 04/11/2024

Attention of all Prospective Proposers/Plan Holders is directed to the following modifications to the referenced Drawings and Project Manual. This Addendum becomes a part of the Contract Documents and modifies the original Contract Documents dated 03/15/2024 as noted below:

This Addendum consists of 2-page(s) and the attachments:
Project Manuel: Section 04 22 00 CONCRETE UNIT MASONRY, 05 50 00 METAL FABRICATIONS, 07 13 26 SELF ADHERING SHEET WATERPROOFING, 07 41 13.16 STANDING SEAM METAL ROOF PANELS, 07 92 00 JOINT SEALANTS, 08 33 23 OVERHEAD COILING DOORS, 09 91 13 EXTERIOR PAINTING, 10 44 16 FIRE EXTINGUISHERS
Drawing(s) no(s): A-101, A-201, LP101, LP102, LP501, and LP503.

I. CHANGES TO PROJECT MANUAL:
   1. TABLE OF CONTENTS
      a. ADD SECTION 04 22 00 – CONCRETE UNIT MASONRY
      b. ADD SECTION 05 50 00 – METAL FABRICATIONS
      c. ADD SECTION 07 13 26 – SELF ADHERING SHEET WATERPROOFING
      d. ADD SECTION 07 41 13.16 – STANDING SEAM METAL ROOF PANELS
      e. ADD SECTION 07 92 00 – JOINT SEALANTS
      f. ADD SECTION 08 33 23 – OVERHEAD COILING DOORS
      g. ADD SECTION 09 91 13 – EXTERIOR PAINTING
      h. ADD SECTION 10 44 16 – FIRE EXTINGUISHERS
   2. SECTION 04 22 00 – CONCRETE UNIT MASONRY
      a. REPLACE this section in its entirety as attached to this Addendum.
   3. SECTION 05 50 00 – METAL FABRICATIONS
      a. ADD this section in its entirety as attached to this Addendum.
   4. SECTION 07 13 26 – SELF ADHERING SHEET WATERPROOFING
      a. ADD this section in its entirety as attached to this Addendum.
   5. SECTION 07 41 13.16 – STANDING SEAM METAL ROOF PANELS
      a. ADD this section in its entirety as attached to this Addendum.
   6. SECTION 07 92 00 – JOINT SEALANTS
      a. ADD this section in its entirety as attached to this Addendum.
   7. SECTION 08 33 23 – OVERHEAD COILING DOORS
      a. ADD this section in its entirety as attached to this Addendum.
   8. SECTION 09 91 13 – EXTERIOR PAINTING
      a. ADD this section in its entirety as attached to this Addendum.
   9. SECTION 10 44 16 – FIRE EXTINGUISHERS
      a. ADD this section in its entirety as attached to this Addendum.

II. CHANGES TO DRAWINGS:

1. SHEET A-101 FLOOR REFLECTED CEILING AND ROOF PLANS
   a. Keynote 380 CHANGE to “EXPOSED METAL DECKING, GALVANIZED.”
2. SHEET A-201 EXTERIOR ELEVATIONS
   a. Keynote 260 CHANGE to “CONCRETE MASONRY UNIT, COLOR: TO MATCH ADJACENT BUILIDNG – COLOR AND TEXTURE.”
3. SHEET LP101 LEISURE POOL LAYOUT
   a. ADD section cut for segmental wall.
   b. ADD detail reference for Klassikdrain K100
4. SHEET LP102 LEISURE POOL DIMENSION CONTROL PLAN
   a. ADD rock rip rap at storm drain discharge.
5. SHEET LP501 LEISURE POOL DETAILS
   a. ADD details for rock rip rap and Klassikdrain K100
6. SHEET LP503 MISCELLANEOUS DETAILS
   a. ADD detail for section cut of segmental wall.

III. CLARIFICATIONS

1. Can we install conduit on the south side of the building and transition to underground on the East side of the building? *No exception to request recommendation.*
2. Is the pump room considering a damp location? The specs call for rigid to be installed in damp locations. *Yes.*
3. The plans call for a starter/disconnect for the alternate slides Note 10 Page E-111. Please provide more info on them. *The pump starters will be packaged with the pool pumping equipment.*
4. Can you confirm if this project is tax exempt or requires prevailing wage? It is tax exempt and does require prevailing wage.
5. What is the finish of the structural steel in the pump house? *All exposed steel shall be galvanized.*
6. Is there any specific coating required for the tube steel posts at rope barriers (A1/LP503)? *Post shall be galvanized.*
7. Do you want the interior of the pit waterproofed and with what product?
   C3 & C4/A-301 indicate waterproofing on exterior, like Structural. 07 13 26 Self-Adhering Sheet Waterproofing added to Addendum 002.
8. Are the trusses going to require painting or will they be galvanized? *All exposed steel shall be galvanized.*
9. Will the CMU walls be going to be painted, inside or outside? *CMU to match adjacent building, color, and texture. Keynote 260 shall read “CONCRETE MASONRY UNIT, COLOR: TO MATCH ADJACENT BUIDLING – COLOR AND TEXTURE”.*
10. Is the bottom of the metal roof decking going to be painted. *Metal deck finish is galvanized.*
11. Sheet A-101 / Keynote 380 – Exposed Metal Decking, Painted…. However, …. Sheet S-001 Steel Deck Details A. Finished Galvanized. *Keynote 380 shall read “EXPOSED METAL DECKING, GALVANIZED”.*
12. Can you provide a detail or cross section of the install/support/concrete around the trench drains? *Details will be provided.*
13. On the discharge elevation for these pipes, will there be any riprap or end treatments needed? *Pipe at discharge needs mitered end, rip rap is to be added.*
14. Can you provide a detail or cross section? *Cross-section details will be provided.*
15. Will this footing/foundation need any foundation support, if so please detail. *Segmental wall to retain grade at building edge.*

TABLE OF CONTENTS

04/11/2024

DIVISION 05 - WOOD, PLASTICS, AND COMPOSITES

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

DIVISION 08 - OPENINGS

DIVISION 09 - FINISHES

DIVISION 10 – SPECIALTIES

DIVISIONS 11 – 12

Not Used

DIVISION 13 – SPECIAL CONSTRUCTION

DIVISIONS 14 - 25

Not used

04/11/2024

DIVISION 26 - ELECTRICAL

DIVISIONS 27 - 28

Not Used

DIVISION 31 - EARTHWORK

DIVISION 32 - EXTERIOR IMPROVEMENTS

DIVISION 33 - UTILITIES

DIVISIONS 34 – 48

Not Used

APPENDIX

04/11/2024

DESIGN PROFESSIONAL RESPONSIBILITY

The specification sections authenticated by my seal and signature are limited to the following:

DIVISION 04 – MASONRY

04 22 00 Concrete Unit Masonry

DIVISION 05 – METALS

05 50 00 Metal Fabrications

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

07 13 26 Self-Adhering Sheet Waterproofing
07 41 13.16 Standing-Seam Metal Roof Panels
07 42 93 Soffit Panels
07 92 00 Joint Sealants

DIVISION 08 – OPENINGS

08 11 13 Hollow Metal Doors and Frames
08 33 23 Overhead Coiling Doors

DIVISION 09 – FINISHES

09 91 13 Exterior Paintings

DIVISION 10 – SPECIALTIES

10 44 16 Fire Extinguishers

04/11/2024

SECTION 04 22 00 - CONCRETE UNIT MASONRY

04/11/2024

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Concrete masonry units.
   2. Mortar and grout.
   3. Steel reinforcing bars.
   4. Masonry-joint reinforcement.
   5. Embedded flashing.
   6. Miscellaneous masonry accessories.
   7. Masonry-cell fill.

B. Related Requirements:
   1. Division 01 Specification Sections apply to Work of this Section.
   2. Section 03 30 00 "Cast-in-Place Concrete" for installing dovetail slots for masonry anchors.
   3. Section 05 12 00 "Structural Steel Framing" for installing anchor sections of adjustable masonry anchors for connecting to structural steel frame.

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).
B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
B. Shop Drawings: For the following:
   1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
   2. Reinforcing Steel: Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315. Show elevations of reinforced walls.
C. Samples for Initial Selection:
   1. Decorative CMUs, in the form of small-scale units.
   2. Colored mortar.
   3. Weep holes/vents.

1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each type and size of the following:
   1. Masonry units.
      a. Include data on material properties and material test reports substantiating compliance with requirements.
      b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.

2. Integral water repellant used in CMUs.
3. Cementitious materials. Include name of manufacturer, brand name, and type.
4. Mortar admixtures.
5. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
6. Grout mixes. Include description of type and proportions of ingredients.
7. Reinforcing bars.
8. Joint reinforcement.
9. Anchors, ties, and metal accessories.

B. 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 C109 for compressive strength, ASTM C1506 for water retention, and ASTM C91 for air content.
   2. Include test reports, according to ASTM C1019, for grout mixes required to comply with compressive strength requirement.

C. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to TMS 602/ACI 530.1/ASCE 6.

D. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.6 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. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.

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

1.7 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.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 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/ACI 530.1/ASCE 6.
1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 degrees F and higher and will remain so until masonry has dried, but not less than 7 days after completing cleaning.

E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 PERFORMANCE REQUIREMENTS

A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.
1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 602/ACI 530.1/ASCE 6.

2.3 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6 except as modified by requirements in the Contract Documents.

B. Defective Units: Do not use units where such defects are exposed in the completed Work and will be within 20 feet vertically and horizontally of a walking surface.

2.4 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.
2. Provide square-edged units for outside corners unless otherwise indicated.

B. Integral Water Repellent: Provide units made with integral water repellent for exposed units.
   1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested according to ASTM E514 as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24 hours, shall show no visible water or leaks on the back of test specimen.

C. CMUs: ASTM C90.
   1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2,150 psi.
   2. Density Classification: Normal weight.
   3. Size (Width): Manufactured to dimensions 3/8-inch less-than-nominal dimensions.
   4. Exposed Faces: Provide color and texture matching the range represented to match existing facility.

D. Decorative CMUs: ASTM C 90.
   1. Provide product to match existing facility.
   2. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2,150 psi.
   3. Density Classification: Normal weight.
   4. Size (Width): Manufactured to dimensions specified in "CMUs" Paragraph.
   5. Pattern and Texture:
      a. To match existing facility.
   6. Colors: To match existing facility.

2.5 MASONRY LINTELS

A. General: Provide the following:

B. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs matching adjacent CMUs in color, texture, and density classification, with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

2.6 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C150, 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.
   1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C14.

B. Hydrated Lime: ASTM C207, Type S.

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

D. Masonry Cement: ASTM C91.

E. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979. Use only pigments with a record of satisfactory performance in masonry mortar.

F. Aggregate for Mortar: ASTM C 144.
   1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.

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

G. Aggregate for Grout: ASTM C404.

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

I. Water: Potable.

2.7 REINFORCEMENT

A. Uncoated Steel Reinforcing Bars: ASTM A615 or ASTM A996, Grade 60.

B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.

C. Masonry-Joint Reinforcement, General: Ladder type complying with ASTM A951.
1. Interior Walls: Hot-dip galvanized carbon steel.
2. Exterior Walls: Hot-dip galvanized carbon steel.
3. Wire Size for Side Rods: 0.148-inch diameter.
4. Wire Size for Cross Rods: 0.148-inch diameter.
5. Spacing of Cross Rods: Not more than 16 inches on center.
6. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

2.8 EMBEDDED FLASHING MATERIALS

A. Metal Flashing: Provide metal flashing complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:
1. Stainless Steel: ASTM A240 or ASTM A666, Type 304, 0.016-inch thick.
2. Copper: ASTM B370, Temper H00, cold-rolled copper sheet, 16-ounces-per-square-foot weight or 0.0216-inch thick or ASTM B370, Temper H01, high-yield copper sheet, 12-ounces-per-square-foot weight or 0.0162-inch thick.
3. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet. Provide splice plates at joints of formed, smooth metal flashing.
4. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing.
5. Fabricate through-wall flashing with drip edge where indicated. Fabricate by extending flashing 1/2-inch out from wall, with outer edge bent down 30 degrees and hemmed.
6. Fabricate metal drip edges and sealant stops for ribbed metal flashing from plain metal flashing of same metal as ribbed flashing and extending at least 3 inches into wall with hemmed inner edge to receive ribbed flashing and form a hooked seam. Form hem on upper surface of metal so that completed seam sheds water.
7. 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.
8. Fabricate metal sealant stops from stainless steel. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4-inch and down into joint 1/4-inch to form a stop for retaining sealant backer rod.

9. Fabricate metal expansion-joint strips from copper to shapes indicated.
10. Solder metal items at corners.

B. Flexible Flashing: Use one of the following unless otherwise indicated:
1. Copper-Laminated Flashing: Seven-ounces-per-square-foot copper sheet bonded between 2 layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.
2. Asphalt-Coated Copper Flashing: Seven-ounces-per-square-foot copper sheet coated with flexible asphalt. Use only where flashing is fully concealed in masonry.
3. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.030-inch.
4. 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 spunbonded polyolefin to produce an overall thickness of not less than 0.030-inch.
5. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy.
a. Monolithic Sheet: Elastomeric thermoplastic flashing, 0.040-inch thick.
b. Self-Adhesive Sheet: Elastomeric thermoplastic flashing, 0.025-inch thick, with a 0.015-inch-thick coating of adhesive.
c. Self-Adhesive Sheet with Drip Edge: Elastomeric thermoplastic flashing, 0.025-inch thick, with a 0.015-inch-thick coating of rubberized-asphalt adhesive. Where flashing extends to face of masonry, rubberized-asphalt coating is held back approximately 1-1/2 inches from edge.
d. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.

C. Application: Unless otherwise indicated, use the following:
1. Where flashing is indicated to receive counterflashing, use metal flashing.
2. Where flashing is indicated to be turned down at or beyond the wall face, use metal flashing.
3. Where flashing is partly exposed and is indicated to terminate at the wall face, use metal flashing with a drip edge**.**
4. Where flashing is fully concealed, use metal flashing**.**

D. Single-Wythe CMU Flashing System: System of CMU cell flashing pans and interlocking CMU web covers made from UV-resistant, high-density polyethylene. Cell flashing pans have integral weep spouts designed to be built into mortar bed joints and that extend into the cell to prevent clogging with mortar.

2.9 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.

B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D2000, Designation M2AA-805 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 D226, Type I (No. 15 asphalt felt).

2.10 MASONRY-CELL FILL

A. Loose-Fill Insulation: Perlite complying with ASTM C549, Type II (surface treated for water repellency and limited moisture absorption) or Type IV (surface treated for water repellency and to limit dust generation).
B. Lightweight-Aggregate Fill: ASTM C331.

2.11 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. For exterior masonry, use portland cement-lime mortar.
    3. For reinforced masonry, use portland cement-lime mortar.
    4. 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 C270, Property 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 all masonry, use Type S.
D. Pigmented Mortar: Use colored cement product or 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.
    3. To match existing facility.
    4. Application: Use pigmented mortar for exposed mortar joints with the following units:
        a. Decorative CMUs.
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.
    1. Application: Use colored-aggregate mortar for exposed mortar joints with the following units:
        a. Decorative CMUs.
F. Grout for Unit Masonry: Comply with ASTM C476.
    1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
    2. Proportion grout in accordance with ASTM C476, Table 1.
    3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C143.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
   1. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of the Work.
   2. Verify that foundations are within tolerances specified.
   3. Verify that reinforcing dowels are properly placed.
   4. Verify that substrates are free of substances that would impair mortar bond.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping.

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

3.2 INSTALLATION, GENERAL

A. Build chases and recesses to accommodate items specified in this and other Sections.

B. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.

C. 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.

3.3 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.

6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4-inch in 10 feet, or 1/2-inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16-inch.

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

3.4 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 bond pattern indicated on Drawings; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4 inches. Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

D. Stopping and Resuming Work: Stop Work by stepping back units in each course from those in 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.

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

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

G. 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.

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

I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
1. Install compressible filler in joint between top of partition and underside of structure above.
2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches on center unless otherwise indicated.
3. Wedge non-load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
4. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 07 84 43 "Joint Firestopping."

3.5 MORTAR BEDDING AND JOINTING

A. Lay hollow 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. 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.

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

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

E. Cut joints flush where indicated to receive waterproofing unless otherwise indicated.

3.6 MASONRY-CELL FILL

A. Pour loose-fill insulation into cavities to fill void spaces. Maintain inspection ports to show presence of fill at extremities of each pour area. Close the ports after filling has been confirmed. Limit the fall of fill to one story high, but not more than 20 feet.

3.7 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 not more than 16 inches on center.
   2. Space reinforcement not more than 8 inches on center 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 in addition to continuous reinforcement.

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.

E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.8 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 1/2-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 on center vertically and 36 inches on center horizontally.

3.9 CONTROL AND EXPANSION JOINTS

A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
B. Form control joints in concrete masonry as follows:
   1. Install preformed control-joint gaskets designed to fit standard sash block.

3.10 LINTELS

A. Provide masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
B. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

3.11 FLASHING

A. General: Install embedded flashing at ledges and other obstructions to downward flow of water in wall where indicated.
B. Install flashing as follows unless otherwise indicated:
   1. At lintels, 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.
   2. Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Section 07 92 00 "Joint Sealants" for application indicated.
   3. Install metal drip edges and sealant stops with ribbed sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Section 07 92 00 "Joint Sealants" for application indicated.
   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.
C. Install single-wythe CMU flashing system in bed joints of CMU walls where indicated to comply with manufacturer's written instructions. Install CMU cell pans with upturned edges located below face shells and webs of CMUs above and with weep spouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell pans at CMU webs and extend from face shell to face shell.
D. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.

3.12 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 other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

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/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

3.13 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 Level B in TMS 402/ACI 530/ASCE 5.

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 5,000 square feet of wall area or portion thereof.

E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C140 for compressive strength.

F. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C780.

G. Mortar Test (Property Specification): For each mix provided, according to ASTM C780. Test mortar for mortar air content and compressive strength.

H. Grout Test (Compressive Strength): For each mix provided, according to ASTM C1019.

3.14 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

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

D. 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 1/2 of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.

3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.

3.15 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.

END OF SECTION

04/11/2024

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Steel framing and supports for overhead doors.
   2. Steel framing and supports for mechanical and electrical equipment.
   3. Steel framing and supports for applications where framing and supports are not specified in other Sections.
   4. Metal ladders.

B. Products furnished, but not installed, under this Section include the following:
   1. Loose steel lintels.
   2. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
   3. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.

C. Related Requirements:
   1. Division 01 Specifications Section apply to Work of this Section.
   2. Section 05 12 00 "Structural Steel Framing" for steel framing, supports, elevator machine beams, hoist beams, divider beams, door frames, and other steel items attached to the structural-steel framing.

1.2 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturer's written instructions to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
   1. Steel framing and supports for overhead doors.
   2. Steel framing and supports for mechanical and electrical equipment.
   3. Metal ladders.

1.4 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel in accordance with the following:
   1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
   2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
   3. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

1.5 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
B. Steel Plates, Shapes, and Bars: ASTM A36.
C. Stainless Steel Sheet, Strip, and Plate: ASTM A240 or ASTM A666, Type 304.
D. Stainless Steel Bars and Shapes: ASTM A276, Type 304.
E. Steel Tubing: ASTM A500, cold-formed steel tubing.
F. Steel Pipe: ASTM A53, Standard Weight (Schedule 40) unless otherwise indicated.
G. Zinc-Coated Steel Wire Rope: ASTM A741.
   1. Wire Rope Fittings: Hot-dip galvanized-steel connectors with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used.

2.2 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A; with hex nuts, ASTM A563; and, where indicated, flat washers.
C. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563; and, where indicated, flat washers.
   1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
D. Cast-in-Place Anchors in Concrete: Either threaded or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A47 malleable iron or ASTM A27 cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F2329.
E. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
   1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

2.3 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187.
C. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.4 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32-inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing Work.
D. Form exposed work with accurate angles and surfaces and straight edges.
E. Weld corners and seams continuously to comply with the following:
    1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
    2. Obtain fusion without undercut or overlap.
    3. Remove welding flux immediately.
    4. Blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8-inch by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches on center, unless otherwise indicated.

2.5 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
   1. Fabricate units from slotted channel framing where indicated.
   2. Furnish inserts for units installed after concrete is placed.
C. Galvanize miscellaneous framing and supports where indicated.

2.6 METAL LADDERS

A. General:
   1. Comply with ANSI A14.3, except for elevator pit ladders.
   2. For elevator pit ladders, comply with ASME A17.1/CSA B44.
B. Steel Ladders:
   1. Space siderails 18 inches apart unless otherwise indicated.
   2. Siderails: Continuous, 1/2-by-2-1/2-inch-steel flat bars, with eased edges.
   3. Rungs: 3/4-inch-diameter, steel bars.
   4. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
   5. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.
   6. Support each ladder at top and bottom and not more than 60 inches on center with welded or bolted steel brackets.
   7. Prime ladders, including brackets and fasteners, with zinc-rich primer.

2.7 LOOSE STEEL LINTELS

A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span, but not less than 8 inches unless otherwise indicated.
C. Galvanize and prime loose steel lintels located in exterior walls.

2.8 STEEL WELD PLATES AND ANGLES

A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than 2 integrally welded steel strap anchors for embedding in concrete.

2.9 GENERAL FINISH REQUIREMENTS

A. Finish metal fabrications after assembly.
B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.10 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153 for steel and iron hardware and with ASTM A123 for other steel and iron products.
   1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
C. Field Welding: Comply with the following requirements:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
   1. Cast Aluminum: Heavy coat of bituminous paint.
   2. Extruded Aluminum: Two coats of clear lacquer.

3.2 INSTALLATION OF MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
B. Anchor supports for overhead doors securely to, and rigidly brace from, building structure.
C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
   1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installation of Bearing and Leveling Plates" Article.

3.3 INSTALLATION OF BEARING AND LEVELING PLATES

A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.

B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with shrinkage-resistant grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 REPAIRS

A. Touchup Painting:

1. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 09 91 13 "Exterior Painting."

END OF SECTION

SECTION 07 13 26 - SELF-ADHERING SHEET WATERPROOFING

04/11/2024

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Modified sheet waterproofing for sub-grade vertical surfaces.
   2. Molded-sheet drainage panels.
B. Related Requirements:
   1. Division 01 Specification Sections apply to Work of this Section.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.
   1. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.
   2. Include manufacturer's written instructions for evaluating, preparing, and treating substrate.
B. Shop Drawings: Show locations and extent of waterproofing and details of substrate joints and cracks, expansion joints, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.
B. Arrange for manufacturer's representative to perform field inspection of installed product.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended in writing by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.
   1. Do not apply waterproofing in snow, rain, fog, or mist.
B. Maintain adequate ventilation during preparation and application of waterproofing materials.

1.7 WARRANTY

A. Manufacturer's Warranty:
   1. Waterproofing Warranty: Manufacturer agrees to furnish replacement waterproofing material for waterproofing that does not comply with requirements or that fails to remain watertight within specified warranty period.
      a. Warranty Period: Five years from date of Substantial Completion.
B. Installer's Special Warranty: Specified form, signed by Installer, covering Work of this Section, for warranty period of 2 years.
   1. Warranty includes removing and reinstalling protection board and drainage panels.

PART 2 - PRODUCTS

2.1 SHEET WATERPROOFING

A. Modified Bituminous Sheet Waterproofing: Minimum 60-mil nominal thickness, self-adhering sheet consisting of 56 mils of rubberized asphalt laminated on one side to a 4-mil-thick, polyethylene-film reinforcement, and with release liner on adhesive side.
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      a. American Hydrotech, Inc.
      b. GCP Applied Technologies Inc.
      c. Henry Company.
      d. MAPEI Corporation.
      e. W.R. Meadows, Inc.
   2. Physical Properties:
      a. Tensile Strength, Membrane: 250 psi minimum; ASTM D412, Die C, modified.
      b. Ultimate Elongation: 300 percent minimum; ASTM D412, Die C, modified.
      c. Low-Temperature Flexibility: Pass at minus 20 degrees F; ASTM D1970.
      d. Crack Cycling: Unaffected after 100 cycles of 1/8-inch movement; ASTM C836.
      e. Puncture Resistance: 40 pound force minimum; ASTM E154.
      f. Water Absorption: 0.2 percent weight-gain maximum after 48-hour immersion at 70 degrees F; ASTM D570.
      g. Water Vapor Permeance: 0.05 perm maximum; ASTM E96, Water Method.
      h. Hydrostatic-Head Resistance: 200 feet inimum; ASTM D5385.

2.2 AUXILIARY MATERIALS

A. Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with sheet waterproofing.
   1. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.
B. Primer: Liquid primer recommended for substrate by sheet waterproofing material manufacturer.
C. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate by sheet waterproofing material manufacturer.

D. Liquid Membrane: Elastomeric, two-component liquid, cold fluid applied, of trowel grade or low viscosity.
E. Substrate Patching Membrane: Low-viscosity, two-component, modified asphalt coating.
F. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8-inch, predrilled at 9-inch centers.
G. Protection Course, Asphaltic: ASTM D6506, semirigid sheets of fiberglass or mineral-reinforced-asphaltic core, pressure laminated between 2 asphalt-saturated fibrous liners and as follows:
    1. Thickness: Nominal 1/8-inch.
    2. Adhesive: Rubber-based solvent type recommended by waterproofing manufacturer for protection course type.

2.3 MOLDED-SHEET DRAINAGE PANELS

A. Nonwoven-Geotextile-Faced, Molded-Sheet Drainage Panel with Polymeric Film: Composite subsurface drainage panel acceptable to waterproofing manufacturer and consisting of a studded, nonbiodegradable, molded-plastic-sheet drainage core; with a nonwoven, needle-punched geotextile facing with an apparent opening size not exceeding No. 70 sieve laminated to one side of the core and a polymeric film bonded to the other side; and with a vertical flow rate through the core of 9 to 21 gallons per minute per feet.
    1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
        a. American Hydrotech, Inc.
        b. BASF Corporation.
        c. Carlisle Coatings & Waterproofing Inc; Carlisle Construction Materials.
        d. GCP Applied Technologies Inc.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements and other conditions affecting performance of waterproofing.
    1. Verify that concrete has cured and aged for minimum time period recommended in writing by waterproofing manufacturer.
    2. Verify that substrate is visibly dry and within the moisture limits recommended in writing by manufacturer. Test for capillary moisture by plastic sheet method in accordance with ASTM D4263.
    3. Verify that compacted subgrade is dry, smooth, sound, and ready to receive waterproofing sheet.
B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.
B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

D. Remove fins, ridges, mortar, and other projections.
E. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks in accordance with ASTM D4258.
    1. Install sheet strips of width according to manufacturer's written instructions and center over treated construction and contraction joints and cracks exceeding a width of 1/16-inch.
F. Bridge and cover isolation joints, expansion joints, and discontinuous deck-to-wall and deck-to-deck joints with overlapping sheet strips of widths according to manufacturer's written instructions.
    1. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.
G. Corners: Prepare, prime, and treat inside and outside corners in accordance with manufacturer's instructions.
    1. Install membrane strips centered over vertical inside corners. Install 3/4-inch fillets of liquid membrane on horizontal inside corners and as follows:
        a. At footing-to-wall intersections, extend liquid membrane in each direction from corner or install membrane strip centered over corner.
H. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through waterproofing and at drains and protrusions.

3.3 INSTALLATION OF SHEET WATERPROOFING

A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions.
B. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.
C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 2-1/2-inch-minimum lap widths and end laps. Overlap and seal seams, and stagger end laps to ensure watertight installation.
    1. When ambient and substrate temperatures range between 25 and 40 degrees F, install self-adhering, modified bituminous sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 degrees F.
D. Two-Ply Application: Install sheets to form a membrane with lap widths not less than 50 percent of sheet widths, to provide a minimum of 2 thicknesses of sheet membrane over areas to receive waterproofing.
E. Apply continuous sheets over already-installed sheet strips, bridging substrate cracks, construction, and contraction joints.
F. Seal edges of sheet waterproofing terminations with mastic.
G. Install sheet waterproofing and accessory materials to tie into adjacent waterproofing.
H. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending 6 inches beyond repaired areas in all directions.
I. Immediately install protection course with butted joints over waterproofing membrane.
    1. Molded-sheet drainage panels may be used in place of a separate protection course to vertical applications when approved by waterproofing manufacturer and installed immediately.

3.4 INSTALLATION OF MOLDED-SHEET DRAINAGE PANELS

A. Place and secure molded-sheet drainage panels, with geotextile facing away from wall or deck substrate, according to manufacturer's written instructions. Use adhesive or another method that does not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.
   1. For vertical applications, install protection course before installing drainage panels.

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a Site representative qualified by waterproofing membrane manufacturer to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components and to furnish daily reports to Architect.
B. Waterproofing will be considered defective if it does not pass tests and inspections.

3.6 PROTECTION, REPAIR, AND CLEANING

A. Do not permit foot or vehicular traffic on unprotected membrane.
B. Protect waterproofing from damage and wear during remainder of construction period.
C. Protect installed insulation drainage panels from damage due to UV light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.
D. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.
E. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

END OF SECTION

04/11/2024

07 41 13.16 - STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Standing-seam metal roof panels.
B. Related Requirements:
   1. Division 01 Specification Sections apply to Work of this Section.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.
B. Shop Drawings: Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
C. Samples: For each type of metal panel indicated.

1.3 INFORMATIONAL SUBMITTALS

A. Product test reports.
B. Warranties: Sample of special warranties.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 QUALITY ASSURANCE

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

1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: Two years from date of Substantial Completion.
B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
   1. Finish Warranty Period: Twenty years from date of Substantial Completion.
C. Special Weather-Tightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.
   1. Warranty Period: Twenty years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:
   1. Wind Loads: As indicated on Drawings.
   2. Other Design Loads: As indicated on Drawings.
   3. Deflection Limits: For wind loads, no greater than 1/180 of the span.

B. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
   1. Uplift Rating: UL 90.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   1. Temperature Change (Range): 120 degrees F, ambient; 180 degrees F, material surfaces.

2.2 STANDING-SEAM METAL ROOF PANELS

A. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.
   1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.
   2. Aluminum Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1637.

B. Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and a flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under 1 side of panels, engaging opposite edge of adjacent panels, and mechanically seaming panels together.
   1. Manufacturers:
      a. Basis of Design: Petersen Aluminum Corporation - Tite-Loc Plus.
      b. Prior approved equal.
   2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653, G90 coating designation, or aluminum-zinc-alloy-coated steel sheet complying with ASTM A792, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755.
      a. Nominal Thickness: 0.022 inch.
      b. Exterior Finish: Polyvinylidene (Kynar 500) Finish.
      c. Color: Match existing roof color.
   3. Clips: Two-piece floating to accommodate thermal movement.
      a. Material: 0.028-inch-nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.

4. Joint Type: As standard with manufacturer.
5. Panel Coverage: Sixteen inches.
6. Panel Height: 1.5 inches.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils thick, consisting of slip-resistant, polyethylene-film top surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.
   1. Thermal Stability: Stable after testing at 240 degrees F; ASTM D1970.
   2. Low-Temperature Flexibility: Passes after testing at minus 20 degrees F; ASTM D1970.
      a. Tamko - TW Metal and Tile.
      b. Prior approved equal.

2.4 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C645; cold-formed, metallic-coated steel sheet, ASTM A653, G90coating designation or ASTM A792, Class AZ50 (Class AZM150) coating designation unless otherwise indicated. Provide manufacturer's standard sections asrequired for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
   1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
   2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
   3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch-thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

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

D. Gutters and Downspouts: Formed from same material as roof panels according to SMACNA's "Architectural Sheet Metal Manual." Finish to match metal roof panels.

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

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

G. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
   1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing; 1/2-inch wide and 1/8inch thick.

2. Joint Sealant: ASTM C920; as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.5 FABRICATION

A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
B. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
C. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

2.6 FINISHES

A. Panels and Accessories:
1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat.
2. Concealed Finish: White or light-colored acrylic or polyester backer finish.

PART 3 - EXECUTION

3.1 PREPARATION

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

3.2 INSTALLATION OF UNDERLAYMENT

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

B. Felt Underlayment: Apply at locations indicated on Drawings, in shingle fashion to shed water, and with lapped joints of not less than 2 inches.
1. Apply over the entire roof surface.
C. Slip Sheet: Apply slip sheet over underlayment before installing metal roof panels.
D. Flashings: Install flashings to cover underlayment.

3.3 INSTALLATION OF STANDING SEAM METAL ROOF PANELS

A. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.
   1. Install clips to supports with self-tapping fasteners.
   2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
   3. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
   4. Watertight Installation:
      a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
      b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
      c. At panel splices, nest panels with minimum 6-inch end lap, sealed with sealant and fastened together by interlocking clamping plates.

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

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

3.4 CLEANING AND PROTECTION

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

END OF SECTION

04/11/2024

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Silicone joint sealants.
   2. Latex joint sealants.

B. Related Requirements:
   1. Division 01 Specification Sections apply to Work of this Section.

1.2 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

1.3 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:
   1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
   2. When joint substrates are wet.
   3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
   4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.4 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's standard range.

2.2 SILICONE JOINT SEALANTS

A. Silicone, S, NS, 100/50, NT: Single-component, non-sag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 100/50, Use NT.

2.3 NONSTAINING SILICONE JOINT SEALANTS

A. Nonstaining Joint Sealants: No staining of substrates when tested according to ASTM C248.
B. Silicone, Nonstaining, S, NS, 100/50, NT: Nonstaining, single-component, non-sag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 100/50, Use NT.
C. Silicone, Nonstaining, S, NS, 50, NT: Nonstaining, single-component, non-sag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.
D. Silicone, Nonstaining, S, NS, 100/50, T, NT: Nonstaining, single-component, non-sag, plus 100 percent and minus 50 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 100/50, Uses T and NT.
E. Silicone, Nonstaining, M, NS, 50, NT: Nonstaining, multicomponent, non-sag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type M, Grade NS, Class 50, Use NT.

2.4 URETHANE JOINT SEALANTS

A. Urethane, S, NS, 25, NT: Single-component, non-sag, nontraffic-use, plus 25 percent and minus 25 percent movement capability, urethane joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT.
B. Urethane, S, NS, 100/50, T, NT: Single-component, non-sag, plus 100 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade NS, Class 100/50, Uses T and NT.
C. Urethane, S, NS, 25, T, NT: Single-component, non-sag, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C20, Type S, Grade NS, Class 25, Uses T and NT.
D. Urethane, S, P, 35, T, NT: Single-component, pourable, plus 35 percent and minus 35 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C20, Type S, Grade P, Class 35, Uses T and NT.
E. Urethane, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C20, Type S, Grade P, Class 25, Uses T and NT.
F. Urethane, M, NS, 50, NT: Multicomponent, non-sag, plus 50 percent and minus 50 percent movement capability nontraffic-use, urethane joint sealant; ASTM C920, Type M, Grade NS, Class 50, Use NT.
G. Urethane, M, NS, 25, NT: Multicomponent, non-sag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, urethane joint sealant; ASTM C920, Type M, Grade NS, Class 25, Use NT.
H. Urethane, M, NS, 50, T, NT: Multicomponent, non-sag, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C20, Type M, Grade NS, Class 50, Uses T and NT.

I. Urethane, M, NS, 25, T, NT: Multicomponent, non-sag, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C20, Type M, Grade NS, Class 25, Uses T and NT.
J. Urethane, M, P, 50, T, NT: Multicomponent, pourable, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C20, Type M, Grade P, Class 50, Uses T and NT.
K. Urethane, M, P, 25, T, NT: Multicomponent, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C20, Type M, Grade P, Class 25, Uses T and NT.

2.5 IMMERSIBLE JOINT SEALANTS

A. Immersible Joint Sealants. Suitable for immersion in liquids; ASTM C 1247, Class 2; tested in deionized water unless otherwise indicated
B. Urethane, Immersible, S, NS, 100/50, NT, I: Immersible, single-component, non-sag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, urethane joint sealant; ASTM 920, Type S, Grade NS, Class 100/50, Uses NT, and I.
C. Urethane, Immersible, S, P, 50, T, NT, I: Immersible, single-component, pourable, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade P, Class 50, Uses T, NT, and I.
D. Urethane, Immersible, S, P, 25, T, NT, I: Immersible, single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade P, Class 25, Uses T, NT, and I.
E. Urethane, Immersible, M, P, 25, T, NT, I: Immersible, multicomponent, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type M, Grade P, Class 25, Uses T, NT, and I.

2.6 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.
B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, non-sag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT.
C. STPE, Mildew Resistant, S, NS, 50, NT: Mildew-resistant, single-component, non-sag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, silyl-terminated polyether joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.

2.7 BUTYL JOINT SEALANTS

A. Butyl-Rubber-Based Joint Sealants: ASTM C1311.

2.8 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.

2.9 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

2.10 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
    1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
    2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
        a. Concrete.
        b. Masonry.
        c. Unglazed surfaces of ceramic tile.
        d. Exterior insulation and finish systems.
    3. Remove laitance and form-release agents from concrete.

4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    a. Metal.
    b. Glass.
    c. Porcelain enamel.
    d. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
    1. Do not leave gaps between ends of sealant backings.
    2. Do not stretch, twist, puncture, or tear sealant backings.
    3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
    1. Place sealants so they directly contact and fully wet joint substrates.
    2. Completely fill recesses in each joint configuration.
    3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
    1. Remove excess sealant from surfaces adjacent to joints.
    2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
    3. Provide concave joint profile per Figure 8A in ASTM C1193 unless otherwise indicated.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces JS01.
   1. Joint Locations:
      a. Control and expansion joints in brick pavers.
      b. Isolation and contraction joints in cast-in-place concrete slabs.
      c. Joints between plant-precast architectural concrete paving units.
      d. Joints in stone paving units[, including steps].
      e. Tile control and expansion joints.
      f. Joints between different materials listed above.
      g. Other joints as indicated on Drawings.
   2. Joint Sealant:
      a. Urethane, S, P, 35, T, NT.
      b. Urethane, S, P, 25, T, NT.
      c. Urethane, M, P, 50, T, NT.
      d. Urethane, M, P, 25, T, NT.
      e. STPE, S, P, 25, T, NT.
      f. Polysulfide, M, P, 25, T, NT.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces subject to water immersion JS02.
   1. Joint Locations:
      a. Joints in pedestrian plazas.
      b. Joints in swimming pool decks.
      c. Other joints as indicated on Drawings.
   2. Joint Sealant:
      a. Urethane, immersible, S, P, 50, T, NT, I.
      b. Urethane, immersible, S, P, 25, T, NT, I.
      c. Urethane, immersible, M, P, 25, T, NT, I.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces JS03.
   1. Joint Locations:
      a. Construction joints in cast-in-place concrete.
      b. Joints between plant-precast architectural concrete units.
      c. Control and expansion joints in unit masonry.
      d. Joints in dimension stone cladding.
      e. Joints in glass unit masonry assemblies.
      f. Joints in exterior insulation and finish systems.
      g. Joints between metal panels.

h. Perimeter joints between materials listed above and frames of doors,windows, and louvers**.**
i. Control and expansion joints in ceilings and other overhead surfaces.
j. Other joints as indicated on Drawings.

2. Joint Sealant:
a. Silicone, nonstaining, S, NS, 100/50, NT.
b. Silicone, nonstaining, S, NS, 50, NT.
c. Silicone, nonstaining, S, NS, 100/50, T, NT.
d. Silicone, nonstaining, M, NS, 50, NT.
e. Urethane, S, NS, 25, NT.
f. Urethane, S, NS, 100/50, T, NT.
g. Urethane, S, NS, 25, T, NT.
h. Urethane, M, NS, 50, NT.
i. Urethane, M, NS, 25, NT.
j. Urethane, M, NS, 50, T, NT.
k. Urethane, M, NS, 25, T, NT.
l. STPE, S, NS, 50, NT.
m. STPE, S, NS, 35, NT.
n. STPE, S, NS, 25, NT.
o. STPE, S, NS, 100/50, T, NT.
p. STPE, S, NS, 50, T, NT.
q. STPE, S, NS, 35, T, NT.
r. STPE, S, NS, 25, T, NT.
s. Polysulfide, S, NS, 25, NT.
t. Polysulfide, M, NS, 25, T, NT.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Interior joints in horizontal traffic surfaces JS04.
1. Joint Locations:
a. Isolation joints in cast-in-place concrete slabs.
b. Control and expansion joints in stone flooring.
c. Control and expansion joints in brick flooring.
d. Control and expansion joints in tile flooring.
e. Other joints as indicated on Drawings.

2. Joint Sealant:
a. Urethane, S, P, 35, T, NT.
b. Urethane, S, P, 25, T, NT.
c. Urethane, M, P, 50, T, NT.
d. Urethane, M, P, 25, T, NT.
e. Polysulfide, M, P, 25, T, NT.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces JS05.
1. Joint Locations:
a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Tile control and expansion joints.
c. Vertical joints on exposed surfaces of unit masonry, concrete, walls, and partitions**.**
d. Other joints as indicated on Drawings.

2. Joint Sealant:
    a. Silicone, nonstaining, S, NS, 100/50, NT.
    b. Silicone, nonstaining, S, NS, 50, NT.
    c. Silicone, nonstaining, S, NS, 100/50, T, NT.
    d. Silicone, nonstaining, M, NS, 50, NT.
    e. Urethane, S, NS, 25, NT.
    f. Urethane, S, NS, 100/50, T, NT.
    g. Urethane, S, NS, 25, T, NT.
    h. Urethane, M, NS, 50, NT.
    i. Urethane, M, NS, 25, NT.
    j. Urethane, M, NS, 50, T, NT.
    k. Urethane, M, NS, 25, T, NT.
    l. STPE, S, NS, 50, NT.
    m. STPE, S, NS, 35, NT.
    n. STPE, S, NS, 25, NT.
    o. STPE, S, NS, 100/50, T, NT.
    p. STPE, S, NS, 50, T, NT.
    q. STPE, S, NS, 35, T, NT.
    r. STPE, S, NS, 25, T, NT.
    s. Polysulfide, S, NS, 25, NT.
    t. Polysulfide, M, NS, 25, T, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

F. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement[JS06].
1. Joint Locations:
    a. Control joints on exposed interior surfaces of exterior walls.
    b. Other joints as indicated on Drawings.
2. Joint Sealant: Acrylic latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

G. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces JS07.
1. Joint Locations:
    a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
    b. Tile control and expansion joints where indicated.
    c. Other joints as indicated on Drawings.
2. Joint Sealant:
    a. Silicone, mildew resistant, acid curing, S, NS, 25, NT.
    b. STPE, mildew resistant, S, NS, 50, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

H. Joint-Sealant Application: Concealed mastics JS08.
   1. Joint Locations:
      a. Thresholds.
      b. Sill plates.
      c. Other joints as indicated on Drawings.
   2. Joint Sealant: Butyl-rubber based.
   3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION

04/11/2024

SECTION 08 33 23 - OVERHEAD COILING DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Overhead coiling doors.
2. Wiring from electric circuit disconnect to door operator to control station.

B. Related Requirements:
1. Division 01 Specification Sections apply to Work of this Section.
2. Section 05 50 00 "Metal Fabrications" for support framing.
3. Section 07 92 00" "Joint Sealants" for sealants and backing materials.
4. Section 09 91 13 "Exterior Painting" for field paint finishes.

1.2 REFERENCE STANDARDS

A. ASTM International:
1. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
3. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
4. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
5. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

B. Intertek Testing Services (Warnock Hersey Listed):
1. WH - Certification Listings.

C. National Electrical Manufacturers Association:
1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
2. NEMA ICS 2 - Controllers, Contactors and Overload Relays Rated 600 V.
3. NEMA MG 1 - Motors and Generators.

D. National Fire Protection Association:
1. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
2. NFPA 105 - Standard for the Installation of Smoke Door Assemblies and Other Opening Protectives.

E. UL:
1. UL - Building Materials Directory.
2. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
3. UL 1784 - Standard for Air Leakage Tests of Door Assemblies and Other Opening Protectives.

1.3 SUBMITTALS

A. Section 01 33 00 "Submittal Procedures" for requirements for submittals.
B. Product Data: Submit general construction details, component connections, wiring diagrams and electrical equipment details.
C. Shop Drawings: Indicate relevant dimensioning, anchorage methods, hardware locations, and installation details for applicable supporting wall construction.

1.4 QUALITY ASSURANCE

A. Labels:
   1. Identification: Attach label from agency approved by authority having jurisdiction to identify each fire-rated door.
   2. Oversize Door Certification: Furnish UL Certificate of Inspection, or comparable certification acceptable to authority having jurisdiction, in lieu of label for oversize door assemblies exceeding 120 square feetor 24 feet in any dimension.
B. Fire-Rated Door Assemblies: Comply with NFPA 80 for fire-rated class as indicated on Drawings.
C. Smoke Protected Door Assemblies: Comply with UL label for "Leakage Rated Assembly" or "S" label.
   1. Comply with NFPA 105 air leakage requirements.
   2. Pass UL test procedure 1784.
D. Products Requiring Electrical Connection: Listed and classified by UL or another testing firm acceptable to authority having jurisdiction.
E. Surface-Burning Characteristics:
   1. Foam Insulation: Maximum 75/450 flame-spread/smoke-developed index when tested according to ASTM E84.
F. Ozone Depletion Potential (ODP):
   1. Foam Insulation: ODP of zero; chlorofluorcarbon free.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 "Product Requirements" for requirements for transporting, handling, storing, and protecting products.
B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
C. Store materials according to manufacturer instructions.
D. Protection:
   1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
   2. Provide additional protection according to manufacturer instructions.

1.6 EXISTING CONDITIONS

A. Field Measurements:
   1. Verify field measurements prior to fabrication.
   2. Indicate field measurements on Shop Drawings.

1.7 WARRANTY

A. Section 01 70 00 "Execution and Closeout Requirements" for requirements for warranties.
B. Furnish 2-year manufacturer's warranty for overhead coiling doors.

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

A. Door Assembly:
   1. Wind/Suction Load: 20 pounds per square foot.
   2. Maximum Deflection: 1/120 of span without damage to door or assembly components.
B. Operation of Door Assembly: Minimum 20,000.

2.2 OVERHEAD COILING DOORS

A. Manufacturers:
   1. ACME Rolling Doors.
   2. Alpine Overhead Doors, Inc.
   3. Alumatec Pacific Products.
   4. ASTA Door Corporation.
   5. C.H.I. Overhead Doors, Inc.
   6. City-Gates.
   7. Clopay Building Products.
   8. Cookson Company.
   9. Cornell.
   10. ENTREMATIC.
   11. Janus International Corporation.
   12. Lawrence Roll-Up Doors, Inc.
   13. McKeon Rolling Steel Door Company, Inc.
   14. Metro Door.
   15. Overhead Door Corporation.
   16. QMI Security Solutions.
   17. Raynor.
   18. Southwestern Rolling Steel Door Co.
   19. Trac-Rite.
   20. Wayne-Dalton Corp.
B. Description:
   1. Electric Operation:
      a. Operator: Electric motor.
      b. Furnish manual override in case of power failure.
C. Curtain:
   1. Fire rated: As scheduled.
   2. Slats:
      a. Type:
         1) Interlocking.
         2) Single-thickness; flat; S-configuration.
         3) Sandwich slat construction with manufacturer's standard insulated core.
      b. Material: Steel, ASTM A653.

c. Minimum Thickness: 22 gauge.
d. Minimum Exterior Face Thickness: 22 gauge.
e. Minimum Interior Face Thickness: 24 gauge.
f. Ends: Each slat fitted with end locks to act as wearing surface in guides and to prevent lateral movement.

3. Guides:
a. Material:
1) Galvanized steel, ASTM A653.
2) Minimum Galvanized Coating Class Designation: G90.

D. Hood Enclosure and Fascia:
1. Shape: Round.
2. Material:
a. Galvanized steel.
b. Minimum Thickness: 24 gauge.

E. Hardware:
1. Handle:
a. Mounting: Inside center.
b. Keeper: Adjustable.
c. Latch Bar: Spring activated, with feature to keep in locked or retracted position.
d. Handle: Interiorand exterior.

2. Weatherstripping of Exterior Assemblies:
a. Moistureproof, rot-proof, and resilient.
b. Air Infiltration Rate:
1) 0.66 cubic feet per minute per square feet.
2) Comply with ASTM E283.
c. Bottom Bar: Replaceable, bulb-style, compressible EDPM gasket extending into guides with safety edge as specified.
d. Guides: Vinyl strip sealing against fascia side of curtain.
e. Hood: Neoprene/rayon baffle to impede air flow above coil.
f. Lintel Seal: Nylon brush seal fitted at door header to impede air flow.

2.3 FINISHES

A. Curtain Slats and Bottom Bar:
1. Steel:
a. Finish: Galvanized, G90.
b. Color: As indicated on Drawings.

B. Steel Guides and Hood Enclosure: Match finish of door.

2.4 SOURCE QUALITY CONTROL

A. Section 01 40 00 "Quality Requirements" for requirements for testing, inspection, and analysis.
B. Provide shop inspection and testing of completed assembly.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 70 00 "Execution and Closeout Requirements" for requirements for installation examination.
B. Verify that opening sizes, tolerances, and conditions are acceptable.
C. Verify that supplementary support framing installed under other Sections is ready to receive doors.

3.2 INSTALLATION

A. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
B. Securement:
    1. Securely and rigidly brace components suspended from structure.
C. Fit and align assembly, including hardware, level and plumb to provide smooth operation.
D. Install fire-rated door assemblies according to NFPA 80 and requirements for fire listing.
E. Sealants and Backing Materials: As specified in Section 07 92 00 "Joint Sealants."
F. Install perimeter trim and closures.

3.3 TOLERANCES

A. Section 01 40 00 "Quality Requirements" for requirements for tolerances.
B. Maintain dimensional tolerances and alignment with adjacent Work.
C. Maximum Variation from Plumb: 1/16-inch.
D. Maximum Variation from Level: 1/16-inch.
E. Longitudinal or Diagonal Warp: Plus or minus 1/8-inch per 10 feet straight edge.

3.4 ADJUSTING

A. Section 01 70 00 "Execution and Closeout Requirements" for requirements for starting and adjusting.
B. Adjust door, hardware, and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

A. Section 01 70 00 "Execution and Closeout Requirements" for requirements for cleaning.
B. Clean door and components.
C. Remove labels and visible markings.

3.6 DEMONSTRATION

A. Section 01 70 00 "Execution and Closeout Requirements" for requirements for demonstration and training.
B. Demonstrate equipment startup, shutdown, routine maintenance, and emergency repair procedures to Owner's personnel.

END OF SECTION

04/11/2024

SECTION 09 91 13 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
   1. Concrete.
   2. Concrete masonry units (CMU).
   3. Steel.
   4. Stainless-steel flashing.

B. Related Requirements:
   1. Division 01 Specification Sections apply to Work of this Section.
   2. Section 05 12 00 "Structural Steel Framing" for shop priming of metal substrates with primers specified in this Section.

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D523, a matte flat finish.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523, a high-side sheen flat, velvet-like finish.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523, an eggshell finish.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523, a satin-like finish.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523, a semi-gloss finish.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523, a gloss finish.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
   1. Submit samples on rigid backing, 8 inches square.
   2. Step coats on samples to show each coat required for system.
   3. Label each coat of each sample.
   4. Label each sample for location and application area.

D. Product List: For each product indicated, include the following:
   1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacture's label with the following information:
   1. Product name and type (description).
   2. Batch date.
   3. Color number.
   4. VOC content.
   5. Environmental handling requirements.
   6. Surface preparation requirements.
   7. Application instructions.

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 degrees F.
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

1.5 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 degrees F.

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or too damp or wet surfaces.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
   1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company products indicated or comparable product from one of the following:
   1. Benjamin Moore & Co.
   2. Kwal, Division of Sherwin-Williams.
   3. Glidden Professional, Division of PPG Architectural Finishes, Inc.
   4. PPG Architectural Finishes, Inc.
   5. Kelly Moore.
   6. Dunn Edwards.

B. Source Limitations: Obtain paint materials from single source from single listed manufacturer.
   1. Manufacturer's designations listed on a separate color schedule are for color reference only and do not indicate prior approval.

2.2 PAINT, GENERAL

A. Standards: Provide products that comply with manufacture's premium first quality standards indicated and like VOC limits.
B. Material Compatibility:
   1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.
D. Colors: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.
   1. Report, in writing, conditions that may affect application, appearance, or performance of paint.
B. Substrate Conditions:
   1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
      a. Concrete: 12 percent.
      b. Masonry (Clay and CMU): 12 percent.
C. Proceed with coating application only after unsatisfactory conditions have been corrected; application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.
B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
   1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

F. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
   1. SSPC-SP 3, "Power Tool Cleaning."
   2. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
   3. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."

G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."
   1. Use applicators and techniques suited for paint and substrate indicated.
   2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
   3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
   4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
   5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

D. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
   1. Paint the following Work where exposed to view:
      a. Equipment, including panelboards and switch gear.
      b. Uninsulated metal piping.
      c. Uninsulated plastic piping.
      d. Pipe hangers and supports.
      e. Metal conduit.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
   1. Contractor shall touch up and restore painted surfaces damaged by testing.
   2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. Concrete, Nontraffic Surfaces:
    1. Latex System:
        a. Prime Coat: Primer sealer, latex, exterior:
            1) S-W Loxon Concrete & Masonry Primer Sealer, A24W8300, at 8.0 mils wet, 3.2 mils dry.
        b. Prime Coat: Latex, exterior, matching topcoat.
        c. Topcoat: Latex, exterior, low-sheen (Gloss Level 3-4):
            1) S-W A-100 Exterior Latex Low Sheen, A12 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
B. Concrete Substrates, Pedestrian Traffic Surfaces:
    1. Latex Floor Paint System:
        a. First Coat: Floor paint, latex, slip-resistant, matching topcoat.
        b. Topcoat: Floor paint, latex, slip-resistant, low gloss (maximum Gloss Level 3):
            1) S-W ArmorSeal Tread-Plex, B90 Series, at 1.5 to 2.0 mils dry per coat.
C. CMU Substrates:
    1. Latex System:
        a. Block Filler: Block filler, latex, interior/exterior:
            1) S-W PrepRite Block Filler, B25W25, at 75 to 125 square feet per gallon.
        b. Topcoat: Latex, exterior, satin (Gloss Level 3-4):
            1) S-W A-100 Exterior Latex Satin, A82 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
D. Ferrous Metal, Galvanized-Metal, and Aluminum Substrates:
    1. Water-Based Light Industrial Coating System:
        a. Prime Coat: Primer, water-based, anti-corrosive for metal:
            1) S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, 5.0 to 10.0 mils wet, 2.0 to 4.0 mils dry.
        b. Prime Coat: Shop primer specified in Section where substrate is specified.
        c. Topcoat: Light industrial coating, exterior, water based, eggshell (Gloss Level 3):
            1) S-W Pro Industrial Eg-Shel Acrylic B66-660 Series, at 2.5 to 4.0 mils dry, per coat.

END OF SECTION

04/11/2024

SECTION 10 44 16 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.
B. Related Requirements:
   1. Divisions 01 Specification Sections apply to Work of this Section.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.
B. Product Schedule: For fire extinguishers. Coordinate final fire-extinguisher schedule with fire-protection cabinet schedule to ensure proper fit and function. Use same designations indicated on Drawings.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

1.4 COORDINATION

A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Failure of hydrostatic test according to NFPA 10.
      b. Faulty operation of valves or release levers.
   2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
   1. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each mounting bracket (FEB) indicated.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. JL Industries, Inc.; a division of the Activar Construction Products Group.
      b. Larsens Manufacturing Company.
      c. Potter Roemer LLC.
   2. Valves: Manufacturer's standard.
   3. Handles and Levers: Manufacturer's standard.
   4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B, and bar coding for documenting fire-extinguisher location, inspections, maintenance, and recharging.

B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 3-A:40-B:C, 5-pound nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

2.3 MOUNTING BRACKETS (FEB)

A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Guardian Fire Equipment, Inc.
      b. JL Industries, Inc.; a division of the Activar Construction Products Group.
      c. Larsens Manufacturing Company.

B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
   1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.
      a. Orientation: Vertical.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fire extinguishers for proper charging and tagging.
   1. Remove and replace damaged, defective, or undercharged fire extinguishers.

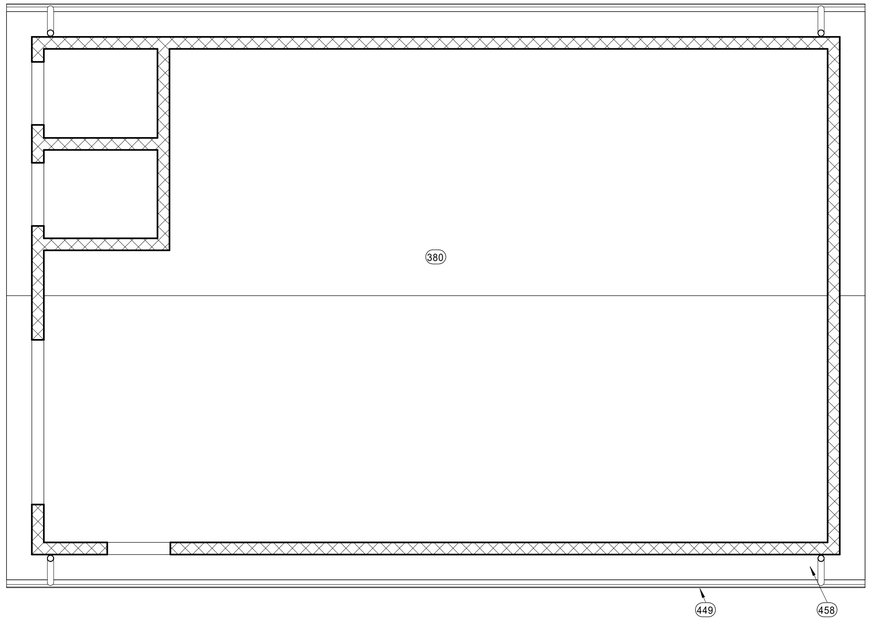
B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
   1. Mounting Brackets:
      a. Fire Extinguishers Weighing 40 Pounds or Less: 54 inches above finished floor to top of cabinet.
      b. Fire Extinguishers Weighing More Than 40 Pounds: 42 inches above finished floor to top of cabinet.

B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION



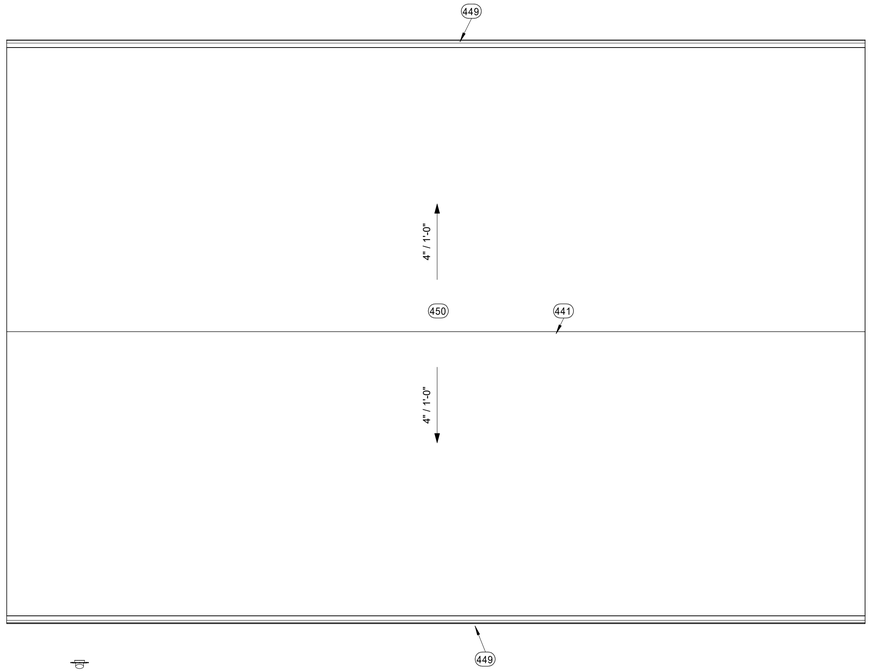
C1 REFLECTED CEILING PLAN
1/4" = 1'-0"

RCP NOTES

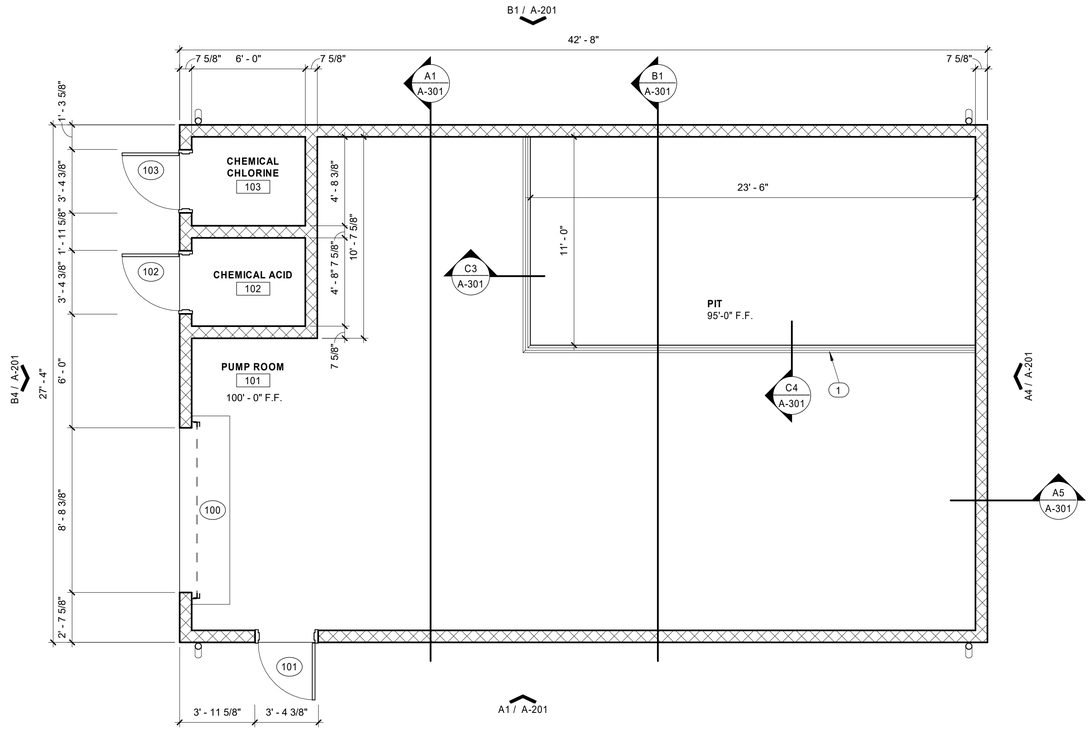
A. DIMENSIONS ARE TO FACE OF STUD, CMU, OR CENTERLINE OF STRUCTURE UNO.
B. COORDINATE WITH MEP DRAWINGS FOR LOCATIONS OF FIXTURES. LOCATE AS SHOWN ON ARCHITECTURAL PLANS AND DETAILS. NOTIFY ARCHITECT OF CONFLICTS PRIOR TO CONSTRUCTION.
C. REFER TO STRUCTURAL FOR ALL TRUSS INFORMATION. EXPOSED STEEL TRUSS SHALL BE PAINTED, COLOR: AS SELECTED BY OWNER.
D. REFER TO STRUCTURAL FOR METAL DECKING. EXPOSED METAL DECKING SHALL BE PAINTED, COLOR: AS SELECTED BY OWNER.
E. PAINT ALL EXPOSED STEEL LINTELS TO MATCH MASONRY.
F. REFER TO ELECTRICAL FOR LIGHTING FIXTURES.

ROOF NOTES

A. ALL ROOF PENETRATIONS NOT SHOWN FOR CLARITY. ROOF PENETRATIONS SHALL BE FLASHED TO A POSITIVE SLOPE AWAY FROM PENETRATION. COORDINATE WITH TRADES.
B. ALL ROOF SLOPES ARE 4:12, UNLESS OTHERWISE NOTED.



C4 ROOF PLAN
1/4" = 1'-0"



A1 FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES

A. ALL DIMENSIONS ARE TO FACE OF CMU, UNLESS OTHERWISE NOTED.
B. ALL INTERIOR WALLS ARE G1g UNLESS NOTED OTHERWISE. REFER TO SHEET A-002 AND A-003 FOR INTERIOR PARTITION SCHEDULE.
C. REFER TO STRUCTURAL FOR MASONRY CONTROL JOINT LOCATIONS.
D. REFER TO CIVIL FOR EQUIPMENT LAYOUT.

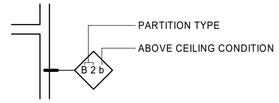
KEY NOTES

AS INDICATED BY: (#)

380	1 1/2" OD GALVANIZED STEEL PIPE RAILING, REFER TO DETAILS EXPOSED METAL DECKING, GALVANIZED.
441	PRE-FINISHED METAL ROOF RIDGE TRIM, COLOR: TO MATCH ROOF
449	METAL GUTTER AND DOWNSPOUT, COLOR: TO MATCH METAL ROOFING
450	METAL ROOFING, COLOR: AS SELECTED BY OWNER
458	PRE-FINISHED METAL SOFFIT PANELS, COLOR: TO MATCH ROOF.

PARTITION GENERAL NOTES

THE FOLLOWING PARTITION GRAPHIC SYMBOL AND THREE PART NOTATION SYSTEM IS USED IN THE CONSTRUCTION DOCUMENTS FOR THIS PROJECT. NOTE: THE PARTITION CONSTRUCTION WILL MAINTAIN ITS DESIGNATION TO THE POINT OF AN INTERSECTING PARTITION. IF NO CHANGE IN DESIGNATION IS SHOWN BEYOND THE INTERSECTION, THE PREVIOUS PARTITION CONSTRUCTION DESIGNATION APPLIES. REFER TO CODE PLAN G-101 FOR RATED WALLS.



Parkhill

REGISTERED ARCHITECT
PARKHILL
19104
STATE OF TEXAS

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CITY OF BORGER
POOL RENOVATIONS

BORGER
TEXAS
WHERE OPPORTUNITY BOOMS

CLIENT

Borger Youth Center
1201 Bulldog Blvd.
Borger, Texas 79007

PROJECT NO.
41716.23

#	DATE	DESCRIPTION
1	04/11/24	ADD 002
-	12/21/23	50% PLANS

FLOOR, REFLECTED CEILING AND ROOF PLANS

A-101

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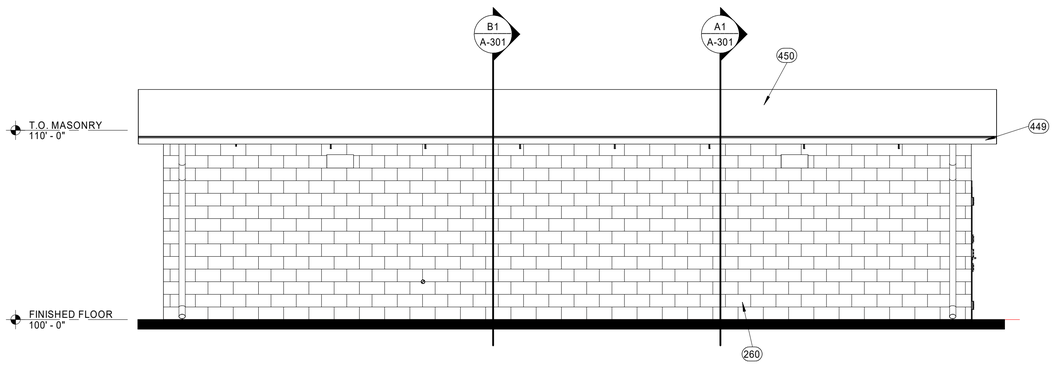
GENERAL NOTES

A. COORDINATE FLASHING APPLICATION AND LOCATIONS WITH ARCHITECTURAL ELEMENTS LOCATED AND IDENTIFIED IN ARCHITECTURAL DETAILS.
B. CONTRACTOR SHALL COORDINATE LOCATION OF DOOR IN OPENING AS REQUIRED TO PROVIDE AND MAINTAIN PROPER FLASHING COVERAGE TO ACHIEVE AND MAINTAIN THE SPECIFIED WARRANTY.
C. CONTRACTOR SHALL COORDINATE AND CONFIRM COMPATIBILITY OF ALL ENVELOPE PRODUCTS THAT WILL COME INTO CONTACT WITH ADJACENT MATERIALS. PROVIDE COMPATIBILITY MATRIX FOR REVIEW FOR ALL PARTIES PRIOR TO INSTALLATION OF WATERPROOFING MATERIAL.

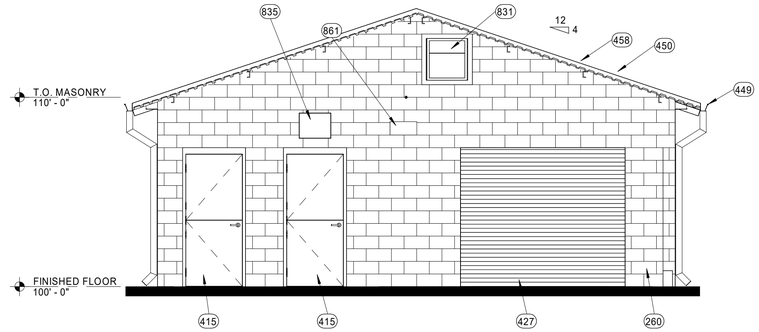
KEY NOTES

AS INDICATED BY: (#)

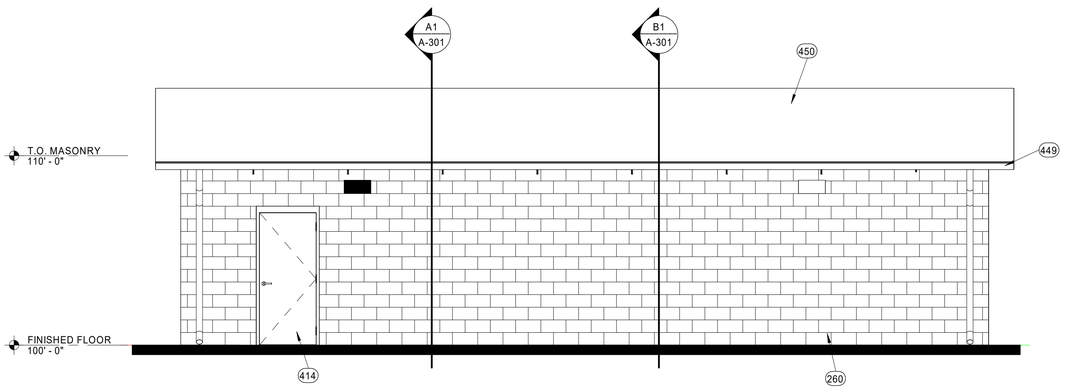
1 260 CONCRETE MASONRY UNIT, COLOR: TO MATCH ADJACENT BUILDING - COLOR AND TEXTURE
414 HOLLOW METAL DOOR, AND FRAME AS SCHEDULED, PAINT TO MATCH MASONRY
415 FRP DOOR AND FRAME, AS SCHEDULED, COLOR TO MATCH MASONRY
427 COILING OVERHEAD DOOR AS SCHEDULED, COLOR TO MATCH MASONRY
449 METAL GUTTER AND DOWNSPOUT, COLOR: TO MATCH METAL ROOFING
450 METAL ROOFING, COLOR: AS SELECTED BY OWNER
458 PRE-FINISHED METAL SOFFIT PANELS, COLOR: TO MATCH ROOF.
831 MECHANICAL EQUIPMENT, REFER TO MECHANICAL, COLOR: TO MATCH CMU
835 MECHANICAL GRILLE, REFER TO MECHANICAL, COLOR: TO MATCH CMU
861 LIGHT FIXTURE, REFER TO ELECTRICAL



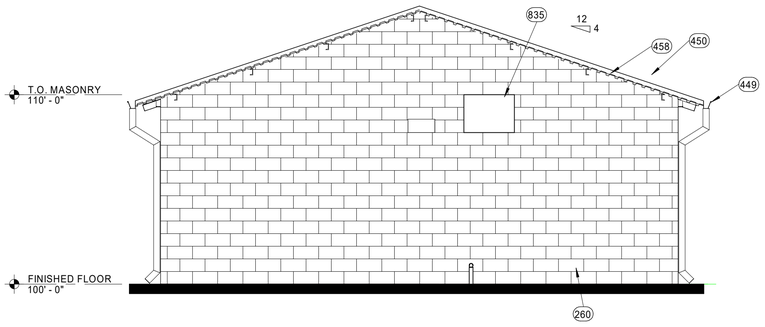
B1 EXTERIOR ELEVATION
1/4" = 1'-0"



B4 EXTERIOR ELEVATION
1/4" = 1'-0"



A1 EXTERIOR ELEVATION
1/4" = 1'-0"



A4 EXTERIOR ELEVATION
1/4" = 1'-0"

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Parkhill

REGISTERED ARCHITECT
PARKHILL
19104
STATE OF TEXAS

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CITY OF BORGER
POOL RENOVATIONS

BORGER
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WHERE OPPORTUNITY BOOMS

CLIENT

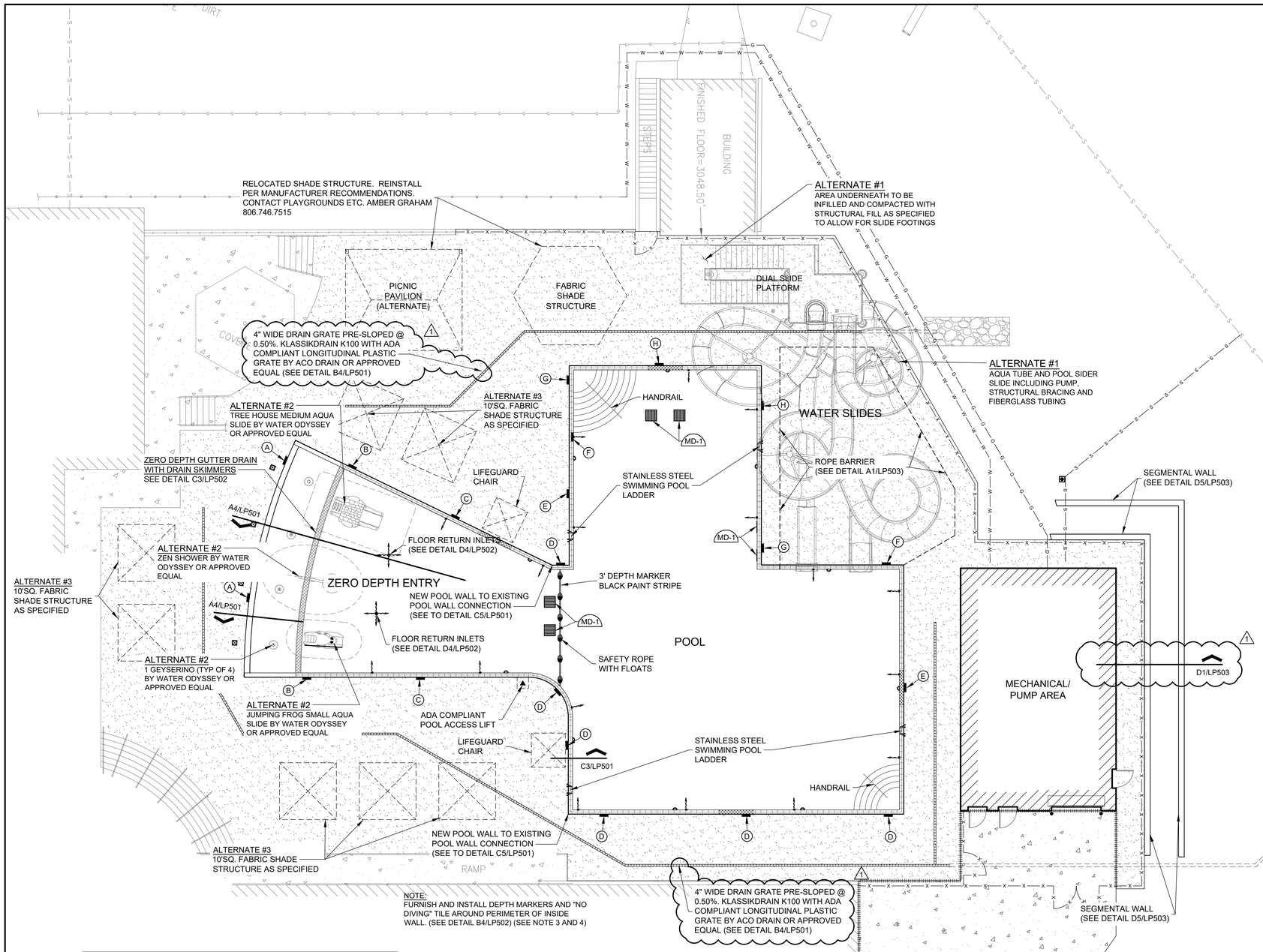
Borger Youth Center
1201 Bulldog Blvd.
Borger, Texas 79007

PROJECT NO.
41716.23

#	DATE	DESCRIPTION
1	04/11/24	ADD 002
-	12/21/23	50% PLANS

EXTERIOR ELEVATIONS

A-201



GENERAL NOTES

1. ALL WATER FEATURE ALTERNATES ARE TO INCLUDE FEATURE AND ASSOCIATED PUMP. ALL PLUMBING SHALL BE INCLUDED IN BASE BID.
2. ALL WALL-TO-WALL, WALL-TO-FLOOR, AND FLOOR-TO-FLOOR CONNECTIONS SHALL BE COVED. RADIUS AS INDICATED ON DETAILS.
3. DEPTH MARKERS SHALL NOT EXCEED 25'-0" IN DISTANCE FROM CENTER TO CENTER AROUND DECK OF NEW AND EXISTING POOL DECK.
4. DEPTH MARKERS INSIDE THE POOL SHELL SHALL CORRESPOND WITH DEPTH MARKER LOCATIONS ON THE DECK.
5. ALL POOL SURFACE TO BE RE-FINISHED / RE-PLASTERED AS SPECIFIED. UNLESS OTHERWISE NOTED IN THE PLANS.
6. FOR DIMENSIONS AND COORDINATE CONTROL. SEE SHEET LP102
7. FOR VERTICAL CONTROL OF DECK. SEE SHEET LP106
8. DESIGN OF FOOTINGS, PIERS, ANCHORS AND SPACING FOR WATER PLAY FEATURE TO BE PROVIDED BY MANUFACTURER. DESIGN TO BE SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS.
9. POOL CONTRACTOR TO OBTAIN A DESIGN FOR THE POOL SHELL. CONTRACTOR SHALL PROVIDE ALL SHOP DRAWINGS AND DESIGN CALCULATIONS PREPARED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS WITH EXPERIENCE IN POOL DESIGN. GEOTECHNICAL REPORT PROVIDED IN THE PROJECT MANUAL.
10. COORDINATE WITH MECHANICAL CONTRACTOR AND ELECTRICAL CONTRACTOR FOR SWIMMING POOL EQUIPMENT, PIPING AND STRUCTURES GROUNDING REQUIREMENTS TO COMPLY WITH LATEST VERSION NEC .

DEPTH MARKER SCHEDULE	
ID	SIGNAGE
A	0'-0"
B	0'-6"
C	1'-6"
D	3'-0"
E	3'-6"
F	4'-0"
G	4'-6"
H	5'-0"

POOL DATA		
DESCRIPTION	QUANTITY	UNITS
SURFACE AREA	5,260	(SQUARE FEET)
POOL VOLUME	135,700	(GALLONS)
CIRCULATION RATE	400	(GPM)
TURN OVER	6	(HOURS)
FILTRATION RATE	18	(GPM/SF)

FEATURES DATA			
DESCRIPTION	QUANTITY	GPM (EA)	TOTAL (GPM)
WATER ODYSSEY GEYSERINO	4	58	232
WATER ODYSSEY TREE HOUSE MEDIUM AQUA SLIDE MODEL F1131	1	8	8
WATER ODYSSEY ZEN SHOWER MODEL C015	1	40	40
WATER ODYSSEY JUMPING FROG SMALL AQUA SLIDE MODEL F1008	1	8	8
WHITE WATER AQUA TUBE AND POOLSIDER BODY SLIDE	1	1200	1200

LEISURE POOL EQUIPMENT SCHEDULE

SYMBOL	QTY.	EQUIPMENT	MANUFACTURER	DESCRIPTION	DETAIL
	2	FLOOR RETURN INLET	PENTAIR/ STA-RITE	SWIMQUIP, ADJUSTABLE FLOW MOLDED ABS, WHITE	D4/LP502
	17	WALL RETURN INLET	PENTAIR/ STA-RITE	SWIMQUIP ADJUSTABLE FLOW MOLDED ABS, WHITE	D3/LP502
	4	MAIN DRAIN (FLOOR OUTLET)	LAWSON AQUATICS	ASME / ANSI STD. AMZ.19,18 APPROVED	A4/LP502
	10	UNDERWATER POOL LIGHT	PENTAIR	INTELLIBRITE 300w, 120V W/ STAINLESS STEEL FACE RING. PROVIDE WITH LARGE SS NICHE W/ 1" REAR AUB	C5/LP502
	1	NATARE GUTTERS	NATARE GUTTERS	STAINLESS STEEL PERIMETER RECIRCULATION SYSTEMS	C2/LP502

MAIN DRAIN SCHEDULE / DESIGN INFORMATION

I.D.	MANUFACTURER	QTY.	WIDTH (FT)	LENGTH (FT)	DESIGN FLOW PER GRATE (GPM)	MAX. ALLOWABLE FLOW PER GRATE (GPM)
MD-1	LAWSON AQUATICS MLD-FG-2424	6	2.0'	2.0'	810	810

Parkhill

PARKHILL SMITH & COOPER INC. F-560
STATE OF TEXAS
OSCAR D. PEREZ
133346
LICENSED PROFESSIONAL ENGINEER
04/11/2024

Parkhill.com

City of Borger
Pool Renovations

BORGER
TEXAS
WHERE OPPORTUNITY BOOMS

CLIENT
City of Borger

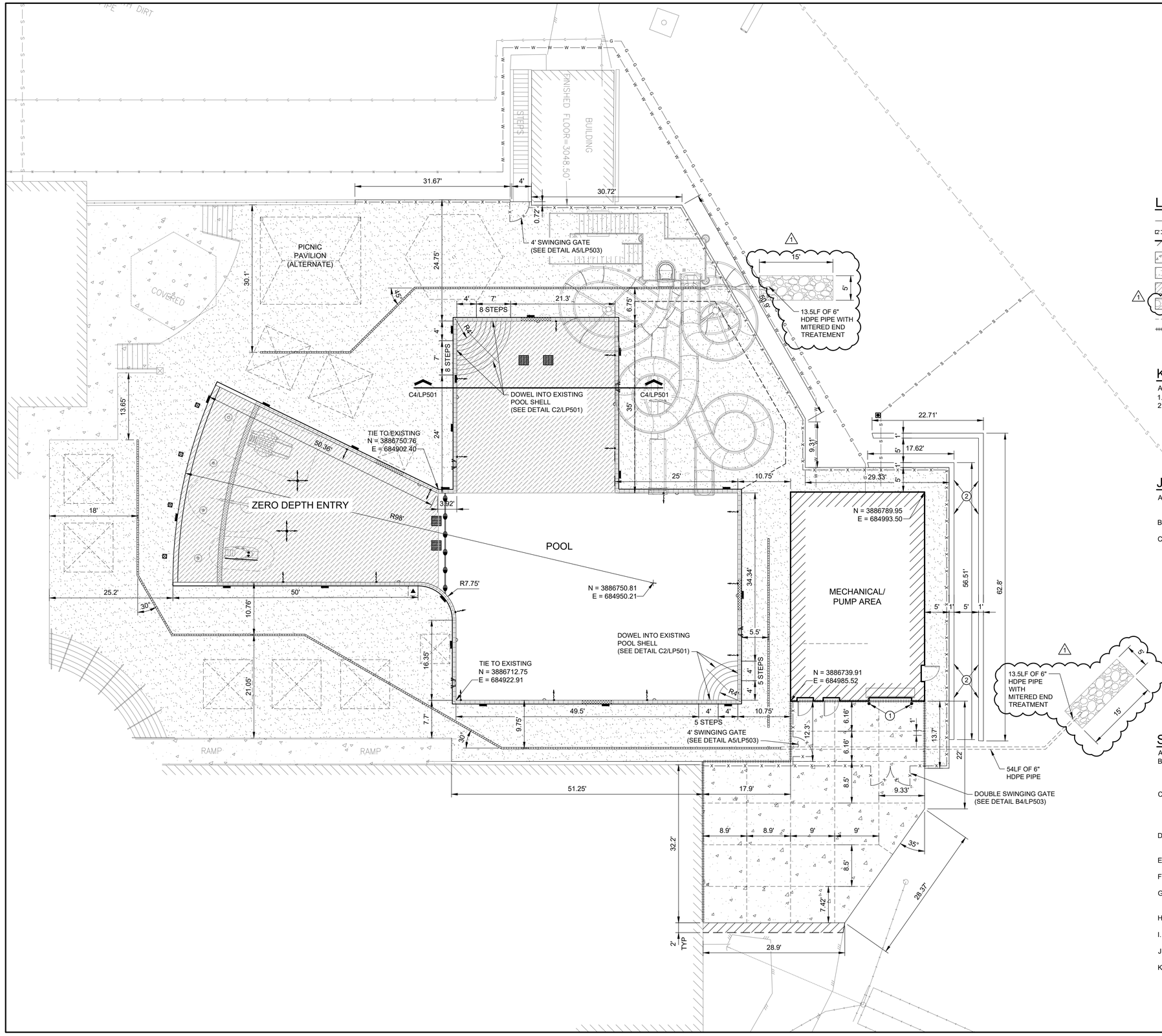
1201 Bulldog Boulevard
Borger, TX 79007

PROJECT NO.
41716.23

#	DATE	DESCRIPTION
1	04/11/2024	ADDENDUM - 002
-	03/15/2024	Bid Set

Leisure Pool Layout

LP101



N

0 10 20 Feet

LEGEND

- CHAINLINK FENCE (SEE DETAIL B2/LP503)
- ASPHALT REPAIR
- NEW BUILDING
- CONCRETE PAVEMENT (SEE DETAIL D2/LP503)
- CONCRETE WALK (SEE DETAIL C1/LP503)
- POOL SHELL
- (1) ROCK RIP RAP (SEE DETAIL C1/LP501)
- CONTRACTION JOINT (SEE DETAIL C5/LP503)
- EXPANSION JOINT (SEE DETAIL C3/LP503)

KEY NOTES

AS INDICATED BY: (##)

1. BOLLARD (SEE DETAIL B1/LP503)
2. SEGMENTAL WALL (SEE DETAIL D5/LP503)

JOINTING NOTES

A. JOINT CONCRETE SIDEWALK IN CONFORMANCE WITH SPECIFICATIONS AND DETAIL SHEET C2/LP503. SIDEWALK JOINTS NOT SHOWN FOR CLARITY.
B. JOINT SPACING TO BE LESS THAN 30 TIMES THE CONCRETE SLAB THICKNESS IN FEET. E.G. 4"=0.33*30=10'.
C. CONCRETE PANELS SHOULD BE SQUARE OR NEARLY SQUARE. THE LENGTH SHOULD NOT EXCEED 1.5 TIMES THE WIDTH. L-SHAPED PANELS SHOULD BE AVOIDED.

SITE NOTES

A. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
B. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND GRADES, NEW OR EXISTING, PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER OF ANY DISCREPANCIES WITH EXISTING OR NEW CONDITIONS.
C. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. EXCAVATION OR TRENCHING. UTILITIES DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
D. MANHOLES, CLEANOUTS, VALVE BOXES AND OTHER IMPROVEMENTS IN AFFECTED PAVED AREAS, SHALL BE RAISED/LOWERED TO MEET NEW FINISH GRADES.
E. FULL-DEPTH SAWCUT ALL EXISTING PAVEMENT SECTIONS WHERE PROPOSED PAVEMENT IS TO TIE INTO EXISTING PAVEMENT.
F. CONTRACTOR SHALL COORDINATE WITH OWNER PRIOR TO REMOVING ANY EXISTING FEATURES.
G. ALL VALVE BOXES WITHIN THE PROPOSED PAVED AREA SHALL BE REPLACED WITH CAST IRON RISERS AND LIDS, AND ADJUSTED TO FINISH GRADE.
H. CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE PERSONNEL FOR EXISTING UTILITY INFORMATION.
I. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY EXISTING UTILITY LINES DAMAGED AS A RESULT OF THIS PROJECT.
J. CONTRACTOR SHALL VISIT PROJECT SITE TO FAMILIARIZE THEMSELVES WITH PROJECT.
K. VERIFY ALL BUILDING DIMENSIONS WITH ARCHITECTURAL PLANS.

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PARKHILL SMITH & COOPER INC. F-560
STATE OF TEXAS
OSCAR D. PEREZ
133346
LICENSED PROFESSIONAL ENGINEER
04/11/2024

Parkhill.com

City of Borger
Pool Renovations

BORGER TEXAS
WHERE OPPORTUNITY BOOMS

CLIENT
City of Borger

1201 Bulldog Boulevard
Borger, TX 79007

PROJECT NO.
41716.23

#	DATE	DESCRIPTION
1	04/11/2024	ADDENDUM - 002
-	03/15/2024	Bid Set

Leisure Pool Dimension Control Plan

LP102

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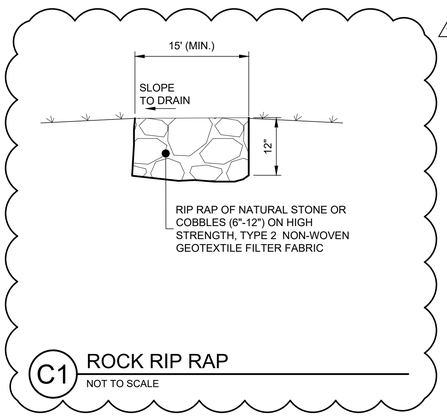
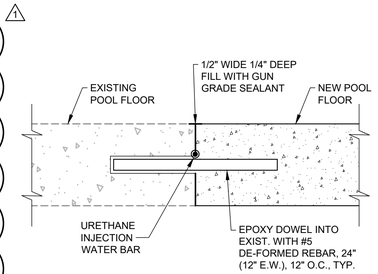
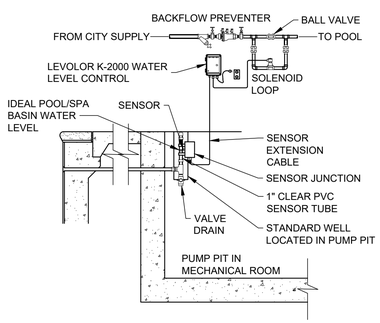


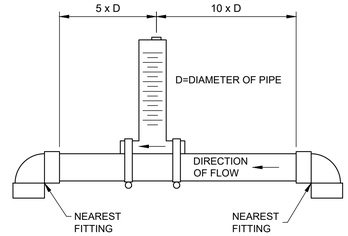
C1 ROCK RIP RAP
NOT TO SCALE



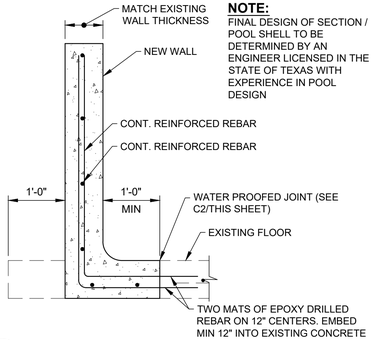
C2 "NO - LEAK" COLD JOINT - FLOOR
NOT TO SCALE



D2 AUTO LEVEL CONTROL
NOT TO SCALE

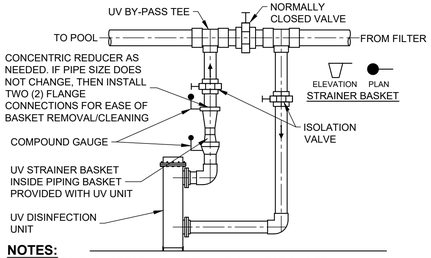


D3 FLOW MASTER
NOT TO SCALE



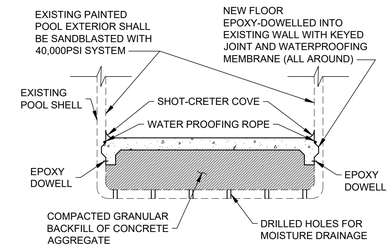
NOTE:
FINAL DESIGN OF SECTION / POOL SHELL TO BE DETERMINED BY AN ENGINEER LICENSED IN THE STATE OF TEXAS WITH EXPERIENCE IN POOL DESIGN

C3 WALL SECTION
3/4"=1'-0"

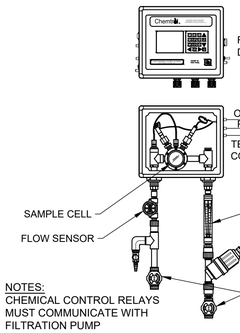


NOTES:
1 SEE EQUIPMENT LIST FOR UV UNIT FLANGE CONNECTION SIZE
2 ALL PIPING AND FITTINGS TO AND FROM UV UNIT TO THE "UV BY -PASS TEES" SHALL BE SCHEDULE 80 PVC
3 SEE PIPING ISOMETRIC DETAILS FOR PIPE DIAMETER REQUIREMENTS
4 ALL PIE REDUCTION SHALL BE WITH A CONCENTRIC REDUCER AS SHOWN. NO BUSHINGS ALLOWED
5 COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR. CONTROL BOX SHALL BE INSTALLED WITH 10 FEET OF UNIT
6 PROVIDE CLEARANCE AS REQUIRED ADJACENT TO UV UNIT FOR REMOVAL AND REPLACEMENT OF UV LAMPS
7 BRACE PIPING PER PIPE SUPPORT DETAILS

D4 ECF UV DISINFECTION UNIT
NOT TO SCALE

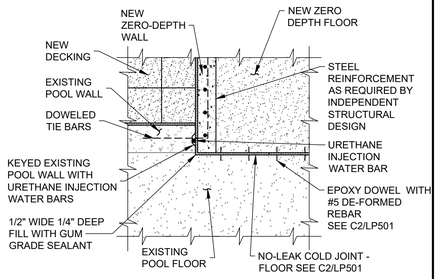


NOTE:
FINAL DESIGN OF SECTION / POOL SHELL TO BE DETERMINED BY AN ENGINEER LICENSED IN THE STATE OF TEXAS WITH EXPERIENCE IN POOL DESIGN



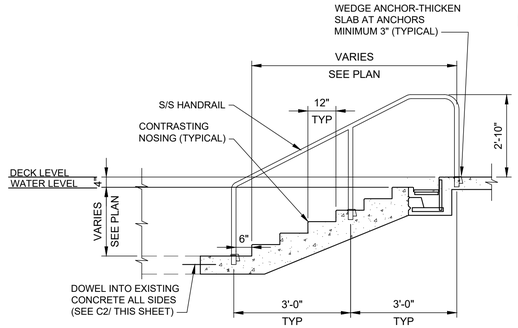
NOTES:
CHEMICAL CONTROL RELAYS MUST COMMUNICATE WITH FILTRATION PUMP

D5 CHEMTROL PC 3000 CONTROLLER
NOT TO SCALE

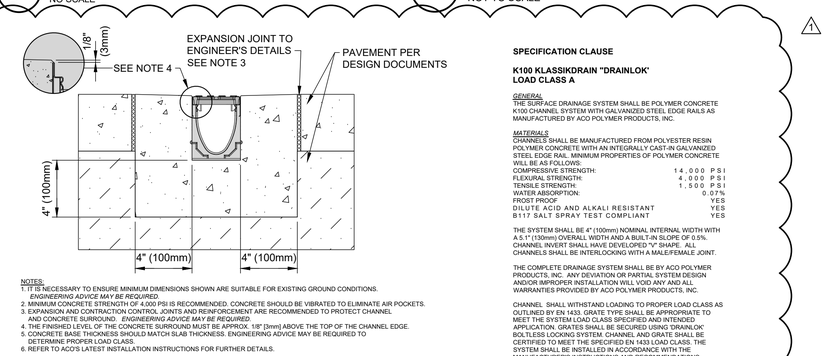


NOTE:
ALL CONSTRUCTION JOINTS TO RECEIVE ELASTOMERIC SEALANT

C5 NEW POOL WALL TO EXISTING POOL WALL LEAK PROOF CONNECTION
NOT TO SCALE



B3 STAIR SECTION
NOT TO SCALE



NOTES:
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SPECIFICATION CLAUSE

K100 KLASSIKDRAIN "DRAINLOK' LOAD CLASS A

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE K100 CHANNEL SYSTEM WITH GALVANIZED STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN GALVANIZED STEEL EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

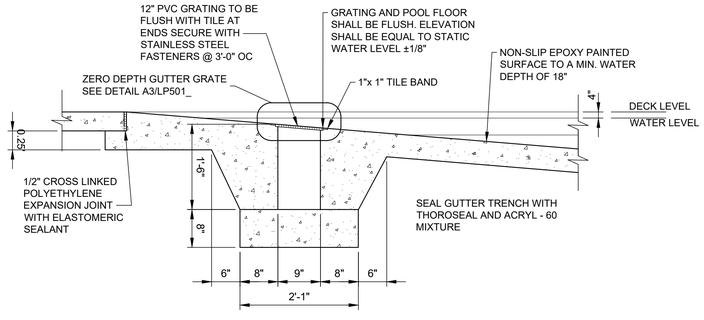
COMPRESSIVE STRENGTH:	14,000 PSI
FLEXURAL STRENGTH:	4,000 PSI
TENSILE STRENGTH:	1,500 PSI
WATER ABSORPTION:	0.07%
FROST PROOF	YES
DILUTE ACID AND ALKALI RESISTANT	YES
B117 SALT SPRAY TEST COMPLIANT	YES

THE SYSTEM SHALL BE 4" (100mm) NOMINAL INTERNAL WIDTH WITH A 0.1" (150mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

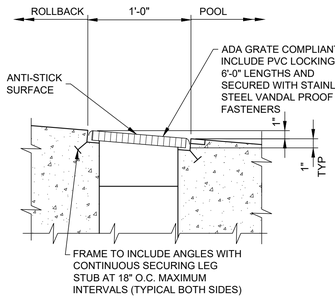
THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'DRAINLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

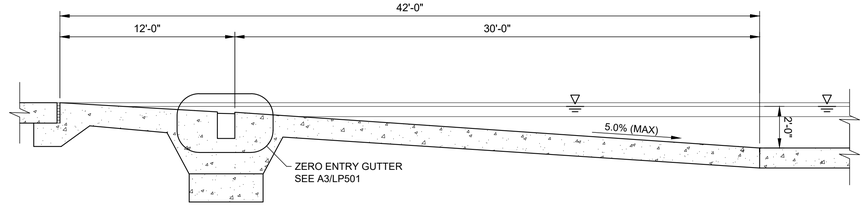
B4 4" WIDE DRAIN GRATE
NOT TO SCALE



A1 ZERO ENTRY GUTTER
NOT TO SCALE



A3 ZERO DEPTH GUTTER GRATE
NOT TO SCALE



A4 ZERO DEPTH ENTRY
NOT TO SCALE

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OSCAR D. PEREZ
133346
LICENSED PROFESSIONAL ENGINEER
04/11/2024

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City of Borger
Pool Renovations

BORGER
TEXAS
WHERE OPPORTUNITY BOOMS

CLIENT
City of Borger

1201 Bulldog Boulevard
Borger, TX 79007

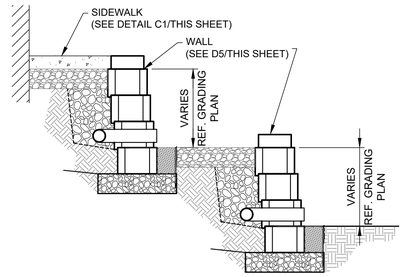
PROJECT NO.
41716.23

#	DATE	DESCRIPTION
1	04/11/2024	ADDENDUM - 002
-	03/15/2024	Bid Set

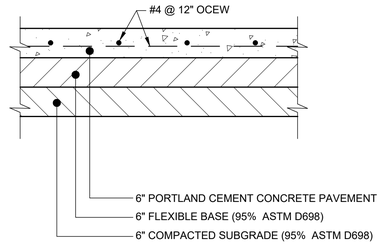
Leisure Pool Details

LP501

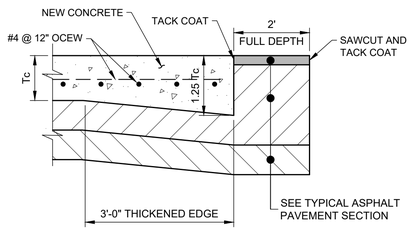
A:\2023\41716.23\03_DSGN\01_DWG\050_CIVIL\LP-501-41716.DWG, 4/11/2024 10:25 AM, acastro



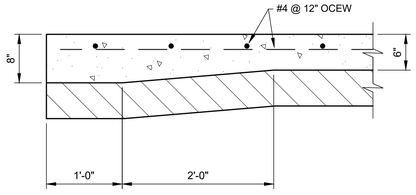
D1 SEGMENTAL WALL SECTION
NO SCALE



D2 TYP CONCRETE PAVEMENT SECTION
NOT TO SCALE

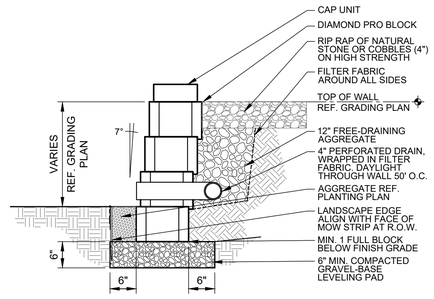


D3 JUNCTURE OF NEW RIGID AND EXISTING FLEXIBLE PAVEMENT
NOT TO SCALE



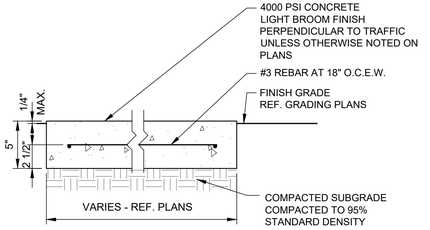
NOTES:
CONSTRUCT THICKENED EDGE AT ALL EDGES OF CONCRETE PAVEMENT

D4 THICKENED EDGE
NOT TO SCALE

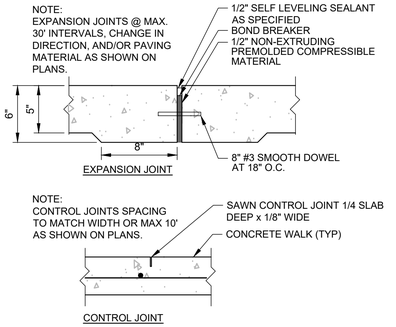


NOTE:
CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS SPECIFIED.

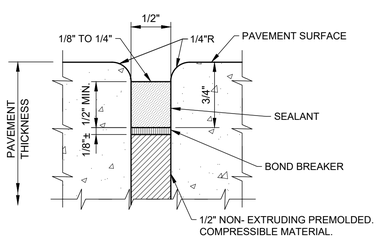
D5 SEGMENTAL WALL (TYP.)
NO SCALE



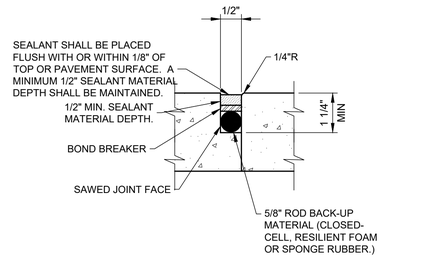
C1 CONCRETE WALK (TYP)
NOT TO SCALE



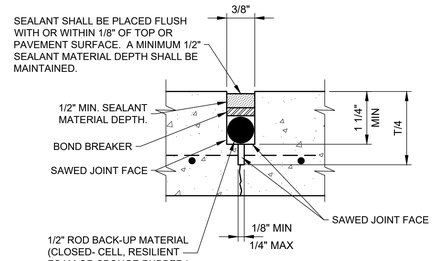
C2 CONCRETE JOINTING
NOT TO SCALE



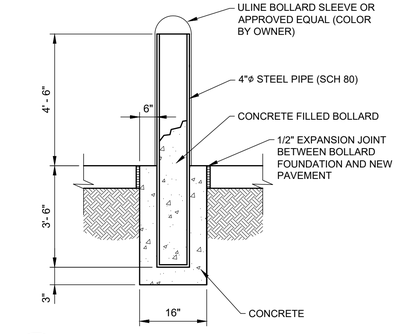
C3 EXPANSION JOINT (PAVEMENT)
NOT TO SCALE



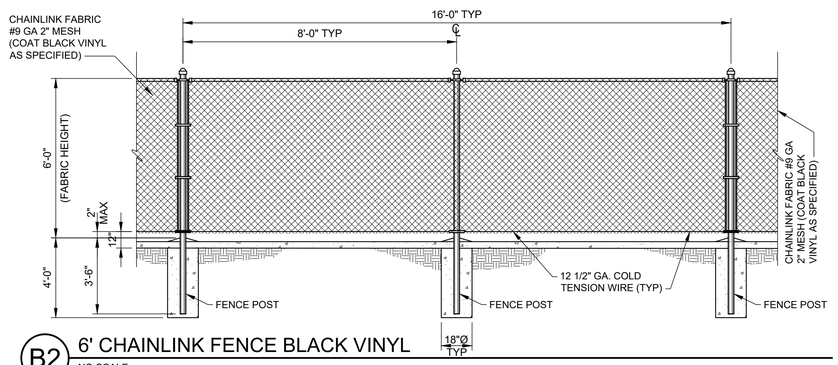
C4 CONSTRUCTION JOINT (PAVEMENT)
NOT TO SCALE



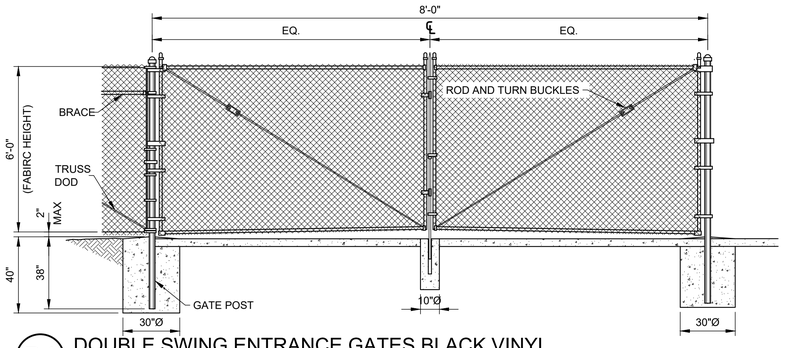
C5 SAWED CONTRACTION JOINT (PAVEMENT)
NOT TO SCALE



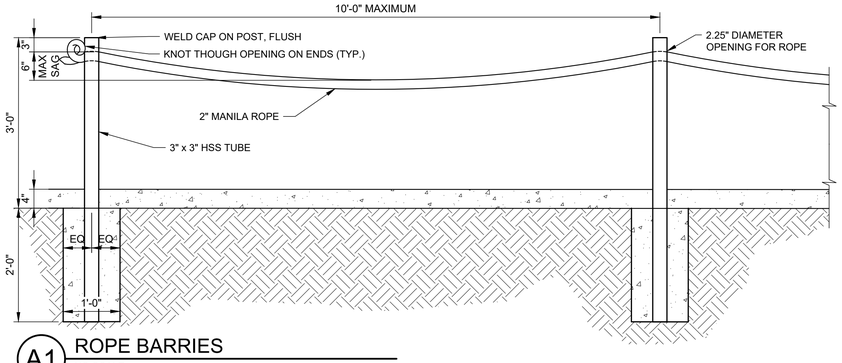
B1 BOLLARD DETAIL
NOT TO SCALE



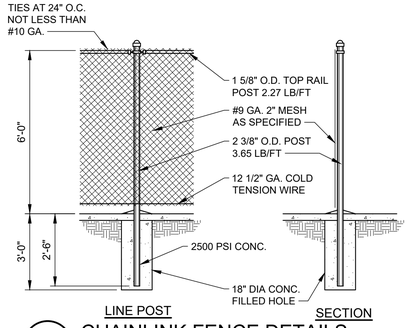
B2 6' CHAINLINK FENCE BLACK VINYL
NO SCALE



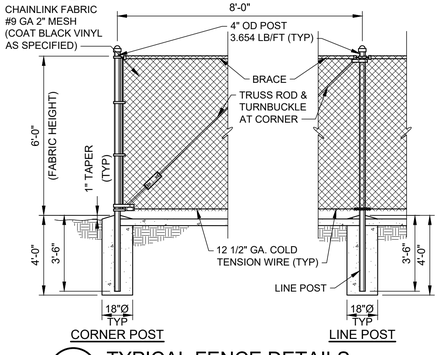
B4 DOUBLE SWING ENTRANCE GATES BLACK VINYL
NO SCALE



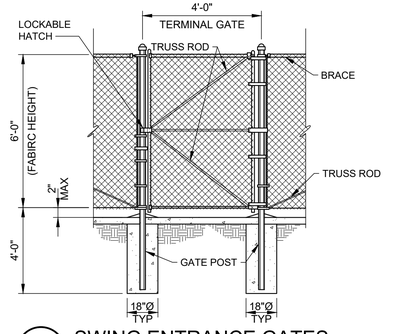
A1 ROPE BARRIES
NO SCALE



A3 CHAINLINK FENCE DETAILS
NO SCALE



A4 TYPICAL FENCE DETAILS
NO SCALE



A5 SWING ENTRANCE GATES
NO SCALE

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Miscellaneous Details

LP503