

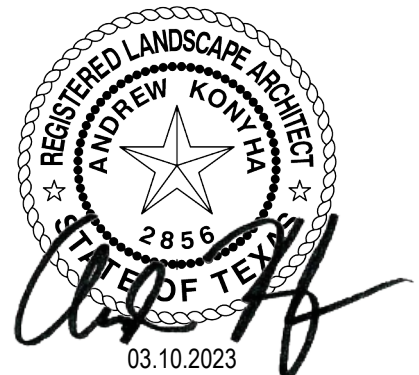


**Date:** 3/9/2023  
**To:** Prospective Bidders  
**Subject:** Addendum No. 2  
Sandhill Crane Soccer Complex

**This addendum forms part of the bidding and contract documents and modifies the original bidding documents dated 1/17/2023. Acknowledge receipt of this addendum in the space provided below. FAILURE TO DO SO MAY SUBJECT BIDDER TO DISQUALIFICATION.**

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- Item No. 1**      **Revision – S3.01**  
Remove and replace S3.01. Added gate post detail.
- Item No. 2**      **Revision – Section 07410- Standing Seam Metal Roof**  
Remove and replace spec documents 07410-1, 07410-2, 07410-3, 07410-4, 07410-5, 07410-6, 07410-7, 07410-8, 07410-9.
- Item No. 3**      **Addition – Section 09970- High-Performance Coatings**  
Add spec documents 09970-1, 09970-2, 09970-3, 09970-4, 09970-5.
- Item No. 4**      **Addition – Section 06160- Sheathing**  
Add spec documents 061600-1, 061600-2.
- Item No. 5**      **Addition – Section 05520- Metal Fences and Gates**  
Add spec documents 05520-1, 05520-2 05520-3, 05520-4, 05520-5, 05520-6.
- Item No. 6**      **Clarification**  
***What are the specifications for the restroom gates and fences?***  
See revised sheet S3.01 and added specifications section 05520.





CITY OF GALVESTON – BID # 23-06  
ADDENDUM No. 2  
Sandhill Crane Soccer Complex

**I hereby certify receipt of this addendum and have incorporated its information or changes  
in preparation of my submittal.**

\_\_\_\_\_  
**Authorized Signature**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Printed Name**

\_\_\_\_\_  
**Company Name**

**A COPY OF THE ADDENDUM MUST BE RETURNED WITH YOUR BID!**



1	Issue For Bid	1.17.2023
2	ADDENDUM 2	03.09.2023



**PLAN NOTES FOR RAMP STRUCTURE**

TREX DECK ..... 2x6 TREX TRANSCEND DECK OVER FLOOR FRAMING. CONNECT WITH (2)- SIMPSON STRONG-TIE #10 x 3" DCU STAINLESS COMPOSITE SCREWS AT EACH SUPPORT 1" FROM ENDS AND EACH EDGE.

○ DENOTES TIMBER PILES SEE 1/S3.02 FOR DETAILS. TOP OF PILE IS TO BE CUT OFF BELOW BOTTOM OF TREX DECK.

■ DENOTES 4x4 HANDRAIL POST SEE DETAILS 7 & 8/57.02 FOR ATTACHMENT. SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND OTHER DETAILS.

SEE S3.05 FOR BRACING LOCATION AND S7.01 FOR DETAILS.

**PLAN NOTES FOR RESTROOM BUILDING**

TREX DECK..... 2x6 TREX TRANSCEND DECK OVER FLOOR FRAMING. CONNECT WITH (2)- SIMPSON STRONG-TIE #10 x 3" DCU STAINLESS COMPOSITE SCREWS AT EACH SUPPORT 1" FROM ENDS AND EACH EDGE.

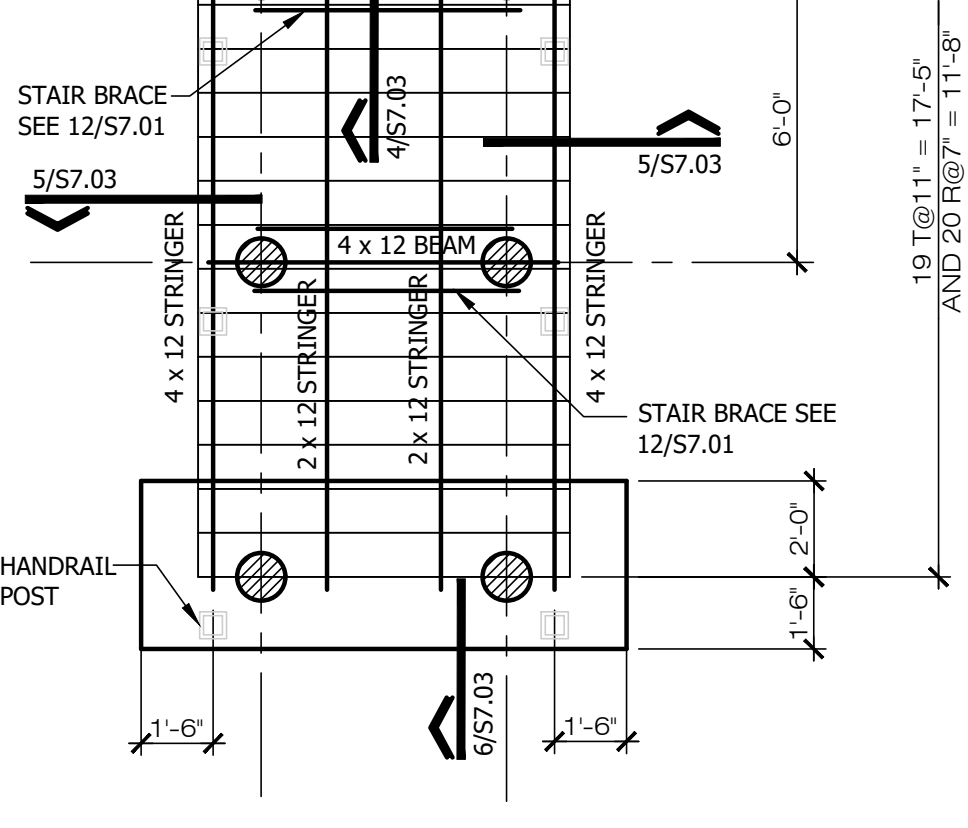
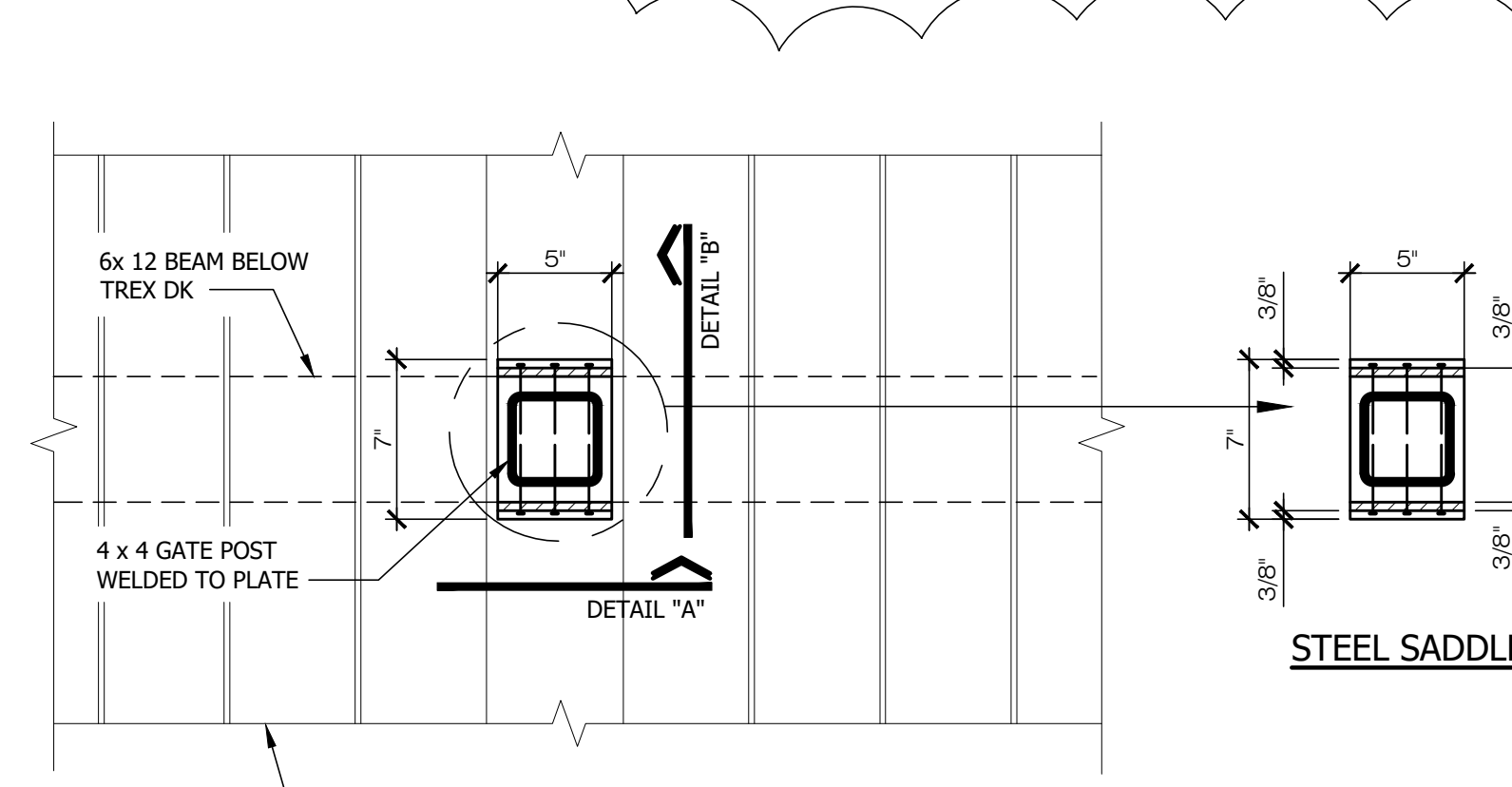
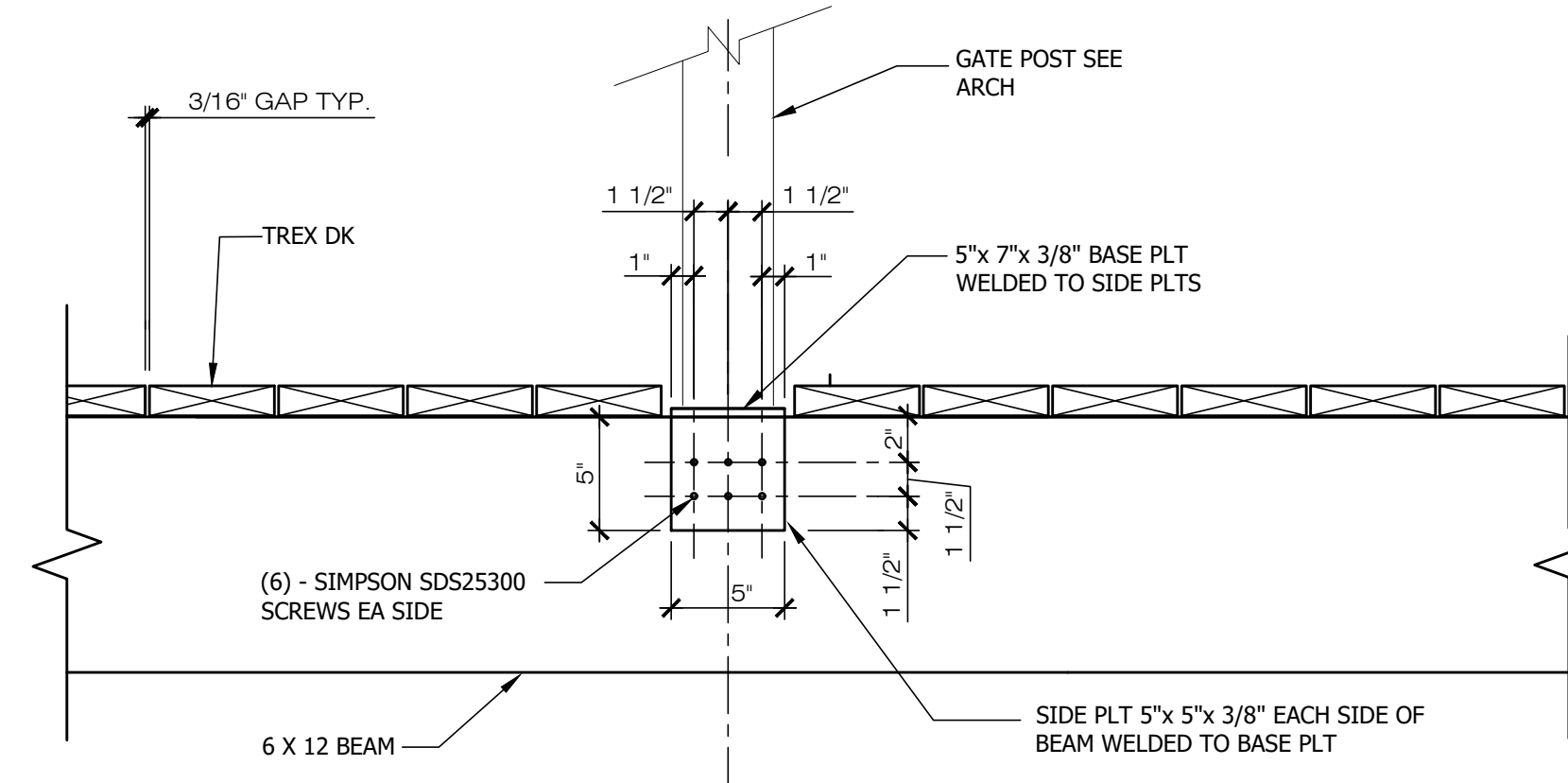
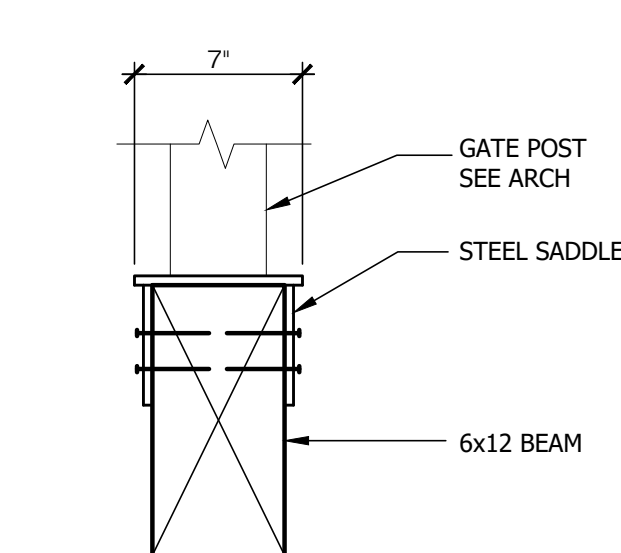
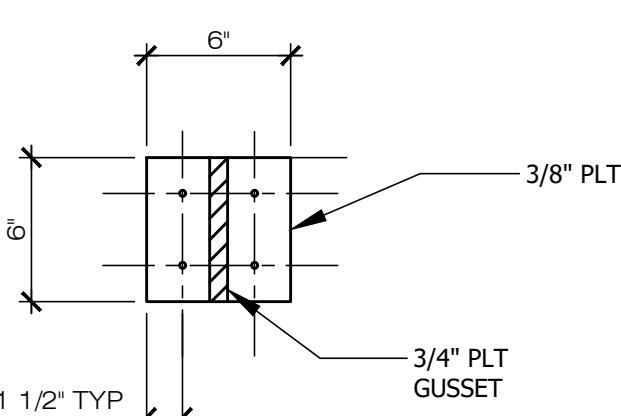
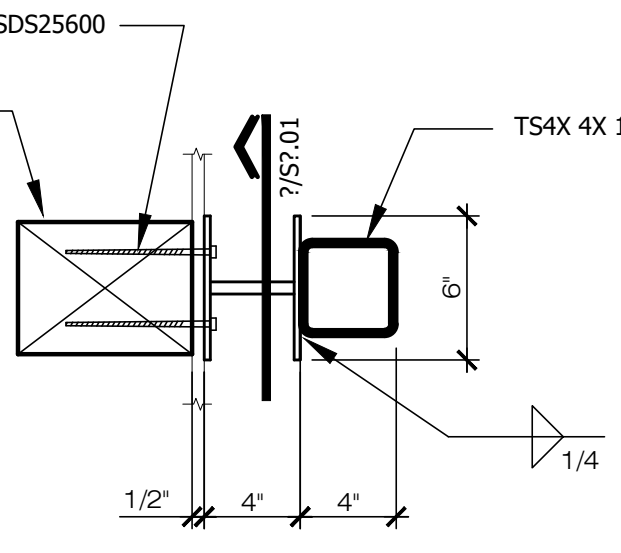
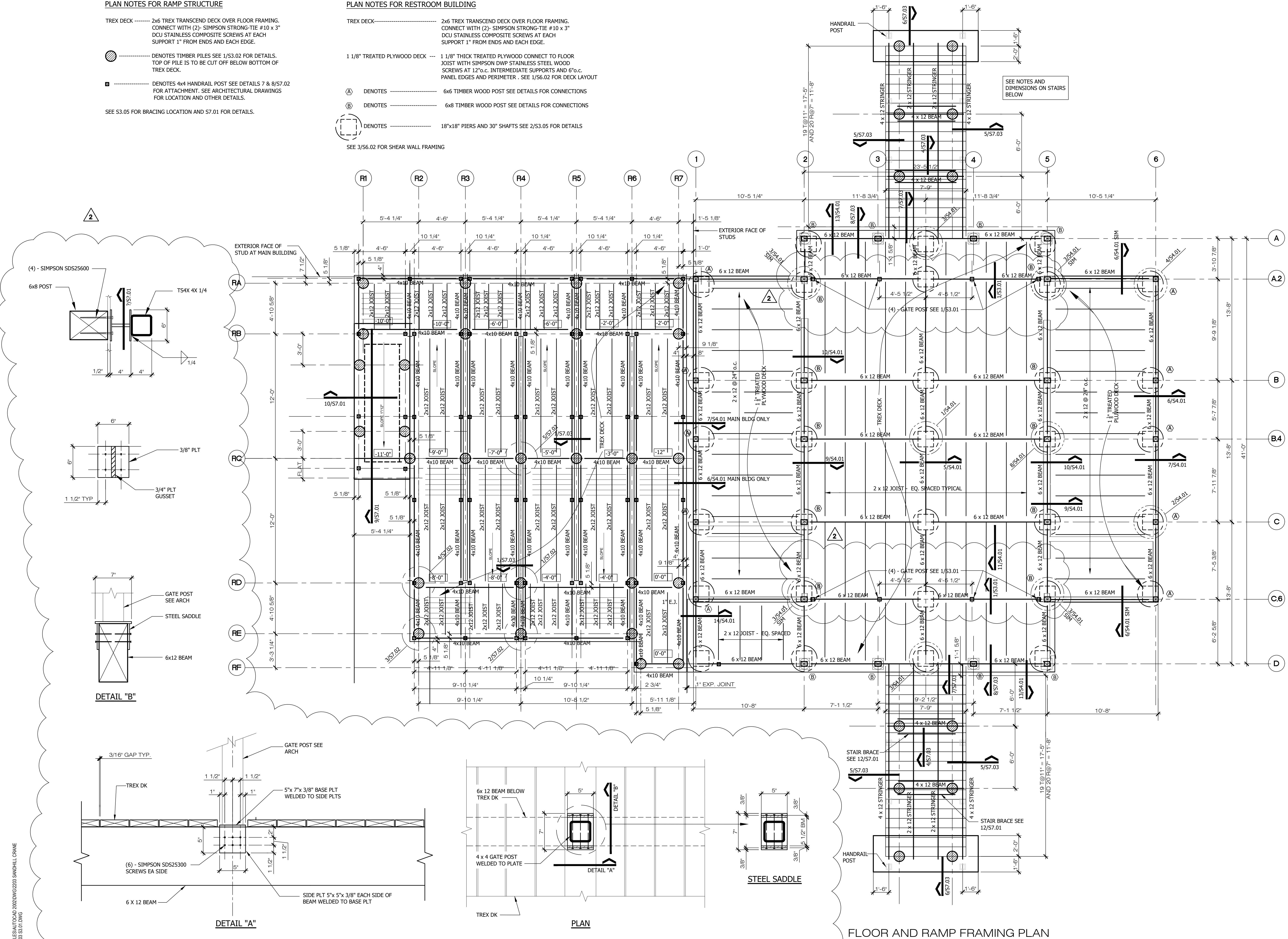
1 1/8" TREATED PLYWOOD DECK --- 1 1/8" THICK TREATED PLYWOOD CONNECT TO FLOOR JOIST WITH SIMPSON DWIP STAINLESS STEEL WOOD SCREWS AT 12" O.C. INTERMEDIATE SUPPORTS AND 6" O.C. PANEL EDGES AND PERIMETER. SEE 1/S6.02 FOR DECK LAYOUT

Ⓐ DENOTES ..... 6x6 TIMBER WOOD POST SEE DETAILS FOR CONNECTIONS

Ⓑ DENOTES ..... 6x8 TIMBER WOOD POST SEE DETAILS FOR CONNECTIONS

Ⓒ DENOTES ..... 18"x18" PIERS AND 30" SHAFTS SEE 2/S3.05 FOR DETAILS

SEE 3/S6.02 FOR SHEAR WALL FRAMING



1 TYPICAL GATE POST CONNECTION

FLOOR AND RAMP FRAMING PLAN  
SCALE: 1/4" = 1'-0"

Z:\PROGRAM FILES\AUTOCAD 2002\DWG\2023 SANDHILL CRANE SOCCER RRC\2023 S3.01.DWG

SECTION 07410 – STANDING SEAM METAL ROOF (Rev March 3, 2023)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 through Division 26 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Basis of Design: Galvanized steel, 22 gauge standing seam metal roofing w/ a 3-coat Kynar finish for marine environments; continuous, high temperature underlayment over structural wood deck.
- 2. Alternate: Overly 0.050 aluminum roof: OMC Batten B roof system w/ a 4-coat Kynar finish for marine environments; continuous, high temperature underlayment over structural wood deck.  
Contact: Mike Perowski [pmp@overly.com](mailto:pmp@overly.com).

B. Related Sections

- 1. Section 07411 - Roofing Installer's Warranty
- 2. Section 07620 - Flashing and Sheet Metal

1.3 REFERENCES

- A. American Society of Civil Engineers: ASCE-7 - Minimum Design Loads for Buildings and Other Structures, version adopted by local Building Code authority having jurisdiction. Reference structural drawings for roof pressures.
- B. ASTM A792 - Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- C. ASTM E1592-01 Standard Test Method for Structural Performance of Sheet Metal Roof and Siding System by Uniform Static Air Pressure Difference
- D. ASTM E1680-95 (Reapproved for 2003) - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.
- E. ASTM E1646-95 (Reapproved for 2003) Standard Test Method for Rate of Water Penetration Through Exterior Metal Roof Panel Systems By Uniform Static Air Pressure Difference.
- F. Factory Mutual 4471 Appendix G- Susceptibility to Leakage Test Procedure for Class 1 Panel Roofs.
- G. ASTM E2140- Standard Test method for water penetration of metal roof panel systems by static water pressure head.
- H. Building Code – as approved by local authority having jurisdiction.
- I. SMACNA - Architectural Sheet Metal Manual, Latest Edition.
- J. Underwriter's Laboratories:

1. UL 580 - Tests for Uplift Resistance of Roof Assemblies.
2. UL 1897 - Uplift Tests for Roof Covering Systems, latest Edition.

#### 1.4 SUBMITTALS

- A. Product Data: Manufacturer literature indicating product specifications, installation instructions, and standard construction details.
- B. Shop Drawings: To be prepared by metal roof system manufacturer or Engineer licensed in the State of Texas.
  1. Submit roof plan showing panel layout, gutters and downspouts as applicable.
  2. Provide metal roof flashing, gutter and downspout shop drawings.
    - a. Indicate gauge and finish of materials.
    - b. Indicate fastener type, finish and spacing.
    - c. Indicate locations of field applied sealant.
    - d. Indicate location size and gauge of all back up plates.
  3. Roof Panel Attachment:
    - a. Roof plan with wind uplift pressure calculations at field, corner, and perimeter areas according to version of ASCE-7 referenced by locally adopted Building Code and the authority having jurisdiction.
    - b. Roof plan indication roof clip spacing pattern at field, corner, perimeters and where panels are to be fixed from thermal movement.
    - c. Roof panel attachment plan must be stamped by licensed engineer in State in which project is constructed, certifying roof attachment meets local Building Code requirements for wind uplift.
- C. Engineering Calculations: Submit wind uplift pressure calculations according to ASCE 7 Wind Speed for project location with respect to appropriate Importance Factor, Exposure category and Safety Factor. Calculations shall be sealed by a professional engineer licensed to practice structural engineering in the state in which project is located.
- D. **State Certificate: Texas Department of Insurance, Windstorm WPI-8 certificate. Certification cost shall be included in contractor's bid price. Include an allowance of \$8,000. If additional inspections are required due to poor construction quality, PE may charge \$185 / hour for time required. Any allowance money left over shall be refunded to the Owner. Provide minimum UL 90 certification for roof system. Windstorm inspection and certification shall be performed by Structural Engineer of Record.**
- E. Roof system shall be designed, warranted, and insured for PE calculated wind pressures and wind speed (equivalent to an **FM 1-160**) 2 x calculated roof pressures, minimum. **Reference Structural Sheet S3.04.**
- F. Samples:
  1. Submit two samples, 12" long, full width panel, showing metal gage, seam and required finish.
  2. Two samples each for roof panel clip, bearing plate and clip fastener.
  3. Submit sample warranties:
    - a. Coating Warranty.
    - b. Manufacturer's Single Source Watertightness Warranty complying with this Specification.
    - c. Installer Warranty.
- G. Certification:
  1. Submit roof panel manufacturer's certification that fasteners, clips, backup plates, closures, roof panels and finishes meet specification requirements, wind uplift requirements.

2. Submit roof panel manufacturer's certification that installer meets requirements to install roof system and is qualified to obtain required warranties and has been certified for 3-years prior to proposal due date. Test Reports –Certified test results that indicate roof system meets or exceeds design and performance criteria. Testing to include:
  - a. Static Water Testing Certification: The panel system shall be tested in accordance with FM4471 Appendix G and pass with no leakage. The test specimen must successfully withstand being submerged under 6" of water for a minimum period of 7 days.
  - b. UL 580 – Submit UL 580/1897 test results for full assembly metal roof panel system as specified substantiating that the full assembly will meet the wind pressures with a safety factor of 2.0.
  - c. ASTM E1680 – Manufacturer's test data for air infiltration rates up to 20 pounds per square inch differential pressure.
  - d. ASTM E1646- Manufacturer's test data for water infiltration rates up to 20 pounds per square inch differential pressure.
  - e. ASTM E 1592. Submit ASTM E 1592 Test reports prepared by independent test laboratory substantiating that roof system will meet the allowable wind pressures with a safety factor of 2.0.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver panels to jobsite properly packaged to provide protection against transportation damage.
- B. Exercise care in unloading, storing and erecting panels to prevent bending, warping, twisting, and surface damage.
- C. Store all material and accessories above ground on well skidded platforms. Store under waterproof covering. Provide proper ventilation to panels to prevent condensation build-up between each panel.
- D. Remove from site panels which are damaged or become water-stained during storage and handling. Remove, and replace materials, which are installed damage, or stained.

#### 1.6 WARRANTIES

- A. The installer shall warrant all materials and installation of roof system for two (2) years against leaks and defects in materials and workmanship. Submit on form found in Section 075220.
- B. Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal roof panels that show evidence of deterioration of factory-applied finishes within specified warranty period. Reference item 2.1 D. for additional information.
  1. Finish Warranty Period: 20 years from date of Substantial Completion.
- C. Single Source NDL Roof Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace metal roof panel assemblies that fail to remain weather-tight, including leaks, and roof penetrations within specified warranty period.
  1. Warranty Period: 20 years from date of Substantial Completion.

#### 1.7 DESIGN AND PERFORMANCE CRITERIA

- A. Thermal Movement: Metal Roofing system, including flashing, shall accommodate un-limited thermal movement without buckling or excess stress on the structure.
- B. Roof panel and trim attachments will be designed to satisfy the requirements of the roof design (shown in shop drawings).
- C. Maximum wind uplift capacity of roof system shall be determined ASTM E 1592, Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference. Testing shall be reported by an independent ASTM accredited testing laboratory.
- D. Maximum wind uplift capacity of roof system shall be determined using certified results from UL 1897-98, Uplift Tests for Roof Covering Systems. Testing of the entire roof assembly shall be conducted in a UL-580 test chamber.
- E. Panel system installation shall be in accordance with ASCE 7 Wind Speeds for project location with respect to appropriate Exposure category, Building Importance Factor and a Safety Factor of 2.0.

#### 1.8 COORDINATION

- A. Coordinate Work, with installation of other associated Work, to ensure quality application.
- B. Coordinate Work with installation of associated metal flashings and building walls.
- C. Coordinate Work to minimize foot traffic and construction activity on installed finished surfaces.
- D. Coordinate location of pipe penetrations to allow centering of pipe in panel.
- E. Coordinate location of roof curbs, to allow proper integration with roof panel seams.

#### 1.9 PRE-ROOFING CONFERENCE

- A. Schedule meeting to discuss roof Work before start of work onsite.
- B. Comply with requirements of roof Specification Section(s).
- C. Required attendees: Contractor, metal deck & roof installer, metal roof system manufacturer's representative, and any other subcontractors who have equipment penetrating the roof or Work that requires roof access or traffic.

#### 1.10 QUALITY ASSURANCE

- A. Installer Qualifications: Installer ("roofer") to perform the Work of this Section, which firm has no fewer than 5 years of successful experience with installation metal roof systems similar to those required for this Project, and is qualified by the roof panel manufacturer, for installation of manufacturer-warranted systems and has been certified by the manufacturer for a minimum of 3-years prior to proposal due date.

- B. Field Measurements: Prior to fabrication of panels, take field measurements of structure or substrates to receive panel system. Allow for trimming panel units, where final dimensions cannot be established prior to fabrication.
- C. Install a 30-foot wide, quality control area of metal roofing, for review by the Architect, to establish the quality of installation for the roof, and have approved prior to installing additional metal panels.

## PART 2 - PRODUCTS

### 2.1 ROOF PANELS

- A. Metal Roof Panels:
  - 1. McElroy Metal; "MasterLok-90/FS"
  - 2. MBCI; "Ultra-Dek"
  - 3. Prior approved equal.
- B. Construction: 22-gauge pre-finished Galvalume® sheet steel, treated, primed and finished under precision conditions.
  - 1. Panel Finish: 22-gauge Galvalume® sheet steel with a bare Galvalume Plus® finish.
  - 2. Panel Width: 22-inches.
  - 3. Surface: Smooth with minor ribs in pan.
  - 4. Seam Ht.: 3-inches.
  - 5. Panel Sealants: Sealant as recommended by manufacturer for installation; low modulus; of type, grade, class, and use classifications required to seal joints in metal roofing and remain watertight.
- C. Finishes: High-Performance Organic Finish (Three-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coatings; Organic Coating: manufacturer's standard three-coat, thermos-cured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions. Color and Gloss: Reference Finish Schedule for Architect's selection.
- D. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period. Deterioration includes, but is not limited to, the following:
  - 1. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
  - 2. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
  - 3. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
- E. Panel Clips: Provide panel clip of type specified, at spacing indicated on approved shop drawings.
  - 1. Two-piece Floating: ASTM C 645, with ASTM A 653/A 653M, G90 hot-dip galvanized zinc coating, configured for concealment in panel joints, and identical to clips utilized in tests demonstrating compliance with performance requirements.
- F. Fasteners: Stainless steel per PE design and manufacturer's requirements. No exposed fasteners are allowed.



- G. Underlayment Materials: Self-Adhering, High-Temperature Sheet: Minimum 40 mils (0.76 to 1.0 mm) thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer. Underlayment shall be chemically and adhesively compatible with other products they come in contact with, including air barrier and roofing membrane.
1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F (116 deg C).
  2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F (29 deg C).
  3. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle Coatings & Waterproofing Inc.; CCW WIP 300HT.
    - b. Grace Construction Products, a unit of W. R. Grace & Co.; Ice and Water Shield HT. Provide alternate price for Grace "Ultra".
    - c. Henry Company; Blueskin PE200 HT.

## 2.2 THERMAL INSULATION

- A. Insulation will be installed on underside of structural roof deck.

## 2.3 ACCESSORIES

- A. Flashings shall not compromise the integrity of the roof system by constricting movement due to thermal expansion and contraction.
- B. All trim and flashing shall be manufactured from minimum 22-gauge sheet metal to match that specified in Section 076200.
- C. Neoprene Boot Flashings: Aluminum color flexible rubber-type compound flashing with stainless steel flanges, in at least 3 sizes (if required) to accommodate varying sizes and materials of pipe penetrations. Secure flanges to roof panels in full beds of sealant, with neoprene-head screws at 2 inches on centers. Provide high-temperature boots where required.
- D. Metal Roof Curbs: Welded aluminum, or stainless steel, factory-insulated, with integral cricket, and designed to fit roof panel module, sized to meet application, by L.M. Curbs, or approved substitute.
- E. Ridge Ventilator: Ridge Ventilators as manufactured by Metallic Products or approved equal.
1. Construction: 22-gauge galvalume exterior.
  2. Size: Match existing.
  3. Throat Size: Match existing.
  4. Integral dampers with operable method to match existing.
  5. Bird Screen: 4x4 bird screen mesh galvanized hardware cloth.
  6. Skirts: Flat to match slope of roof.

## 2.4 FABRICATION

- A. Form and fabricate sheets, seams, cleats, valleys, ridges, edge flashing, and all other components of metal roofing to profiles, patterns and drainage arrangements as shown on Drawings and as required for leak-proof construction.
- B. Form exposed sheet metal work to fit substrates without excessive oil canning, buckling and tool marks; true to line and levels indicated and with exposed edges folded back to form hems.

- C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel. Provide full panel lengths from eave to ridge. Transverse panel lap seams are not allowed.

### PART 3 - EXECUTION

#### 3.1 EXMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal roof panel supports, and other conditions affecting performance of the Work.
- B. Examine primary and secondary roof framing to verify that purlins and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Miscellaneous Framing: Install eave angles, furring, and other miscellaneous roof panel support members and anchorage according to metal roof panel manufacturer's written instructions.

#### 3.3 METAL ROOF PANEL INSTALLATION, GENERAL

- A. Provide metal roof panels of full length from eave to ridge.
- B. Thermal Movement. Rigidly fasten metal roof panels to structure at one and only one location for each panel. Allow remainder of panel to move freely for thermal expansion and contraction.
  - 1. Avoid attaching accessories through roof panels in a manner that will inhibit thermal movement.
- C. Anchor metal roofing and other components of the Work securely in place, with provisions for thermal and structural movement. Install fasteners, separators, sealants, and other miscellaneous items as required for a complete roofing system and as recommended by the manufacturer of the metal roofing. Comply with the following provisions:
  - 1. Field cutting of metal panels by torch is not permitted.
  - 2. Install panels perpendicular to purlins.
  - 3. Locate and space fastenings in uniform vertical and horizontal alignment.
  - 4. Provide metal closures at rake edges, rake walls, eaves, perimeter of all openings and each side of ridge and hip caps.
  - 5. Install ridge, hip and high eave flashings as metal roof panel work proceeds.
  - 6. Install metal flashing to allow moisture to run over and off metal roof panels.
- D. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.
- E. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by SMACNA.
- F. Handle panels at seams only to prevent buckling. Limit traffic on installed panel to prevent damage to the panel finish.

- G. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage.

### 3.4 METAL ROOF PANEL INSTALLATION

- A. General: Install metal roofing fabricated from UL-Certified equipment to comply with equipment manufacturer's written instructions for UL wind-uplift resistance class indicated.
  - 1. Install continuous length panels plumb, level and straight with seams and ribs parallel.
  - 2. Install panels without excessive waves, warps or buckles.
- B. Standing Seam Metal Roofing: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended 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. Before panels are joined, apply continuous bead of sealant to top flange of lower panel.
  - 4. Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
  - 5. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so cleat, metal roof panel, and factory-applied sealant are completely engaged.
  - 6. All panels shall be panned at ridge and headwall conditions.
- C. Seal joints as shown in approved shop drawings and as required for watertight construction. Do not allow sealant to migrate onto exposed surfaces during the panel installation.

### 3.5 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
  - 1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
- B. 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.
- C. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.
- D. Pipe Penetration Flashings: Flexible boot type, with stainless steel compression ring, and stainless-steel pipe strap, Dektite by Buildex, or approved substitute. Use silicone type at hot pipes.

### 3.6 ERECTION TOLERANCES

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

### 3.7 FIELD QUALITY CONTROL

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

- B. Remove and replace applications of metal roof panels where inspections indicate that they do not comply with specified requirements.
- C. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 3.8 CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer. Maintain in a clean condition during construction. Replace metal roof panels and roofing components that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074113

SECTION 09970 - HIGH-PERFORMANCE COATINGS (added March 3, 2023)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes surface preparation and application of high-performance coating systems on the following substrates:
  - 1. Exterior Substrates:
    - a. Hot dipped galvanized steel gates and fences. Prime in shop per manufacturer's requirements.
- B. Related Requirements:
  - 1. Division 05 Sections for shop priming of metal substrates with primers specified in this Section.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of coating system and in each color and gloss of topcoat indicated.
  - 1. Submit Samples on rigid backing, 8 inches (200 mm) 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.
  - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.
  - 3. VOC content.

#### 1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Coatings: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

#### 1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each coating system indicated to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Architect will select one surface to represent surfaces and conditions for application of the coating system specified in Part 3.
  - 2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

#### 1.7 FIELD CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply coatings when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
- C. Do not apply exterior coatings in snow, rain, fog, or mist.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Tnemec Company

### 2.2 HIGH-PERFORMANCE COATINGS, GENERAL

- A. MPI Standards: Provide products that comply with MPI standards indicated and are listed in "MPI Approved Products List."
- B. Material Compatibility:
  - 1. Provide materials for use within each coating 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 coating system, provide products recommended in writing by manufacturers of topcoat for use in coating system and on substrate indicated.
  - 3. Provide products of same manufacturer for each coat in a coating system.
- C. Colors: As selected by Architect from manufacturer's full range.

### 2.3 METAL PRIMERS

- A. Primer: "Series 90-97 Tnemec-Zinc Primer" 2.5 to 3.5 dry mils. Apply primer at shop.

### 2.4 INTERMEDIATE EPOXY COATING

- A. Intermediate Coat: "Series 66 – Hi-Build Epoxoline 4 to 6 dry mils

### 2.5 TOP COAT

- A. Series 740 – UVX (POLYURETHANE) 3 to 5 dry mils

### 2.6 SOURCE QUALITY CONTROL

- A. Testing of Coating Materials: Owner reserves the right to invoke the following procedure:
  - 1. Owner may engage the services of a qualified testing agency to sample coating materials. Contractor will be notified in advance and may be present when samples are taken. If coating materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
  - 2. Testing agency will perform tests for compliance with product requirements.

3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. Contractor will be required to remove rejected materials from previously coated surfaces if, on recoating with complying materials, the two coatings are incompatible.

### 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.
- B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
  1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

#### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates 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 coatings, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  1. Remove incompatible primers and re-prime substrate with compatible primers or apply tie coat as required to produce coating systems indicated.
- D. 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.
- E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied coatings.



### 3.3 APPLICATION

- A. Apply high-performance coatings according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
  - 1. Use applicators and techniques suited for coating and substrate indicated.
  - 2. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. Do not apply coatings over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- D. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner will engage the services of a qualified testing and inspecting agency to inspect and test coatings for dry film thickness.
  - 1. Contractor shall touch up and restore coated surfaces damaged by testing.
  - 2. If test results show that dry film thickness of applied coating does not comply with coating manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with coating 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. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- B. Protect work of other trades against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- C. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

END OF SECTION 09970

SECTION 06160 - SHEATHING (added March 3, 2023)

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Subflooring: 1-1/8" T&G Sheathing Plywood, APA performance rated sheathing (Exposure 1) (Alternate – Exterior grade) at restroom flooring.
2. Reference Structural Drawings for all other wood framing and rough carpentry materials on this project.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.

1.3 INFORMATIONAL SUBMITTALS

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

1. Wood-preserved-treated plywood.

PART 2 - PRODUCTS

2.1 PRESERVATIVE-TREATED PLYWOOD

- A. Preservative Treatment by Pressure Process: AWPA UC3b for exterior construction.
- B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
- C. Application: Treat all plywood unless otherwise indicated.
- D. Kiln-dry material after treatment to a maximum moisture content of 15 percent.

2.2 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
1. Type 304 stainless steel.

### 2.3 MISCELLANEOUS MATERIALS

- A. Adhesives for Field Gluing Panels to Wood Framing: Formulation complying with ASTM D3498 that is approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
  - 1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
  - 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in the ICC's International Residential Code for One- and Two-Family Dwellings.
  - 3. ICC-ES evaluation report for fastener.
- D. Coordinate floor sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

### 3.2 WOOD DECKING INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated. Reference Structural Drawings for installation requirements.

END OF SECTION 06160

SECTION 05520 – METAL FENCES AND GATES (added March 3, 2023)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Restroom Gates and Fences: Hot dipped galvanized steel; 4" posts, 2" rails, and 1" slats at 4" o.c. Paint with high performance paint. Ref. Section 09970.
2. Provide gate with lock as noted on drawings.

1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for railings. 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.
- C. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

1.4 ACTION SUBMITTALS

A. Product Data: For the following:

1. Manufacturer's product lines of mechanically connected railings.
2. Anchoring and paint products.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each type of exposed finish required.

1. Sections of each gate and fence members, including top rails, posts, and slats, including finish.
2. Fittings and brackets.
3. Assembled Sample made from full-size components, including top rail, post, and infill. Sample need not be full height.

a. Show method of connecting and finishing members at intersections.

D. Delegated-Design Submittal: For gate and fence, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

#### 1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Welding certificates.

C. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.

D. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

E. Product Test Reports: For pipe and tube components, for tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.

F. Evaluation Reports: For post-installed anchors, from ICC-ES.

#### 1.6 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to 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."

#### 1.7 DELIVERY, STORAGE, AND HANDLING

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

#### 1.8 FIELD CONDITIONS

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

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01400 "Quality Requirements," to design gate and fence, including attachment to building construction.

- B. Structural Performance: Gate and fence, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
1. Gate and Fence Top and Bottom Rails:
    - a. Uniform load of 50 lbf/ft. (0.73 kN/m) applied in any direction.
    - b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
    - c. Uniform and concentrated loads need not be assumed to act concurrently.
  2. Infill of slats:
    - a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m).
    - b. Infill load and other loads need not be assumed to act concurrently.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces

## 2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.
1. Provide type of bracket with [flange tapped for concealed anchorage to threaded hanger bolt] [predrilled hole for exposed bolt anchorage] and that provides 1-1/2-inch (38-mm) clearance from inside face of gate and fence to finished wall surface.

## 2.3 STEEL

- A. Tubing: ASTM A 500 (cold formed).
- B. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
1. Provide galvanized finish for all exterior installations.
- C. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- D. Woven-Wire Mesh (if required): Intermediate-crimp, diamond pattern, 2-inch (50-mm) woven-wire mesh, made from 0.134-inch- (3.42-mm-) diameter wire complying with ASTM A 510 (ASTM A 510M), galvanized.

## 2.4 FASTENERS

- A. General: Provide the following:

1. Hot-Dip Galvanized Railings: Hot-dip zinc-coated steel fasteners complying with ASTM A 153/A 153M or ASTM F 2329 for zinc coating.
2. Provide exposed stainless-steel fasteners with finish matching appearance, including color and texture, of railings.

B. Fasteners for Anchoring Gate and Fence to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring gate and fence to other types of construction indicated and capable of withstanding design loads.

C. Fasteners for Interconnecting Components:

1. Provide tamper-resistant flat-head machine screws for exposed fasteners unless otherwise indicated.

## 2.5 MISCELLANEOUS MATERIALS

A. Etching Cleaner for Galvanized Metal: Complying with MPI#25.

B. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it. (Ref. high-performance coating spec).

## 2.6 FABRICATION

A. General: Fabricate gate and fence to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

B. Shop-assemble gate and fence to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately **1/32 inch (1 mm)** unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

D. Form work true to line and level with accurate angles and surfaces.

E. Fabricate connections that are exposed to weather in a manner that excludes water. Provide weep holes where water may accumulate.

F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.

G. Connections: Fabricate railings with nonwelded connections unless otherwise indicated.

H. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

1. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.

- I. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- J. Close exposed ends of gate and fence members with prefabricated end fittings.
- K. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect gate and fence members to other work unless otherwise indicated.
- L. Provide inserts and other anchorage devices for connecting gate and fence to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- M. Woven-Wire Mesh Infill Panels (if required): Fabricate infill panels from woven-wire mesh crimped into **1-by-1/2-by-1/8-inch (25-by-13-by-3-mm)** metal channel frames. Make wire mesh and frames from same metal as railings in which they are installed.
  - 1. Orient wire mesh with diamonds vertical.

## 2.7 STEEL FINISHES

- A. Galvanized Gate and Fence:
  - 1. Hot-dip galvanize exterior steel gate and fence, including hardware, after fabrication.
  - 2. Comply with ASTM A 123/A 123M for hot-dip galvanized components.
  - 3. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
  - 4. Fill vent and drain holes that are exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- B. For galvanized gate and fence, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates where reinforced to receive anchors, to verify that locations of concealed reinforcements are clearly marked for Installer. Locate reinforcements and mark locations if not already done.

### 3.2 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.



1. Do not weld, cut, or abrade surfaces of components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
  2. Set vertical components plumb within a tolerance of **1/16 inch in 3 feet (2 mm in 1 m)**.
  3. Align components so variations from level for horizontal members and variations from parallel with floor do not exceed **1/4 inch in 12 feet (6 mm in 3.5 m)**.
- C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
- D. Adjust gate and fence before anchoring to ensure matching alignment at abutting joints.
- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing gate and fence for properly transferring loads to in-place construction.

### 3.3 CONNECTIONS

- A. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.
- B. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending **2 inches (50 mm)** beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within **6 inches (150 mm)** of post.

### 3.4 ATTACHING GATE AND FENCE

- A. Anchor gate and fence ends at walls with round flanges anchored to wall construction and connected to gate and fence ends using nonwelded connections.

### 3.5 ADJUSTING AND CLEANING

- A. Clean by washing thoroughly with clean water and soap and rinsing with clean water.

### 3.6 PROTECTION

- A. Protect finishes of gate and fence from damage during construction period with temporary protective coverings approved by fabricator. Remove protective coverings at time of Substantial Completion.

END OF SECTION 05520