

### **BULLETIN 3**

This Bulletin is being issued for the purpose of modifying and/or clarifying the original RFP Documents and shall take precedence over them.

All work included herein shall be in accordance with the general requirements of the original RFP documents, except as specifically noted herein.

#### **CIVIL :**

- Item No. 1: The ramp has been reduced to 10' wide.  
The sidewalk along the track has been reduced to 4.75' wide.  
The sidewalk along practice field has been reduced to 6' wide.  
One row of bleachers has been removed to accommodate the walk.  
The bleachers have been lowered 8" so that there is a step down from the deck.

#### **ARCHITECTURAL:**

- Item No. 1: Sheet A102 and A108 supersede C100 with regard to the following:
- a. 10' ramp width
  - b. Accessible ramps and retaining walls to the bleachers
  - c. The retaining wall scope of work has been reduced further.
  - d. The handrail has been redesigned.
- Item No. 2: Please add two (2) bike racks as specified in Spec. Section 02871 Bike Rack (See Attached).
- Item No. 3: Please add one (1) flagpole as specified in Spec. Section 10350 Flagpoles (See Attached).
- Item No. 4: Please add 1,800 sq. ft. of fabric as specified in Spec. Section 11650 Bleacher Wrap (See Attached).
- Item No. 5: Please add handrails to both sides of the ramp as shown on sheet A102. Please see Spec. Section 05520.

#### **ELECTRICAL:**

- Item No. 1: Reference Sheet E-100 and disregard the field lighting layout shown and indicated in the quantities listed in the lighting fixture schedule. Please provide an allowance in your bid to relight the field. The field lighting is currently into the manufacture for layout of the field lights and should be available around March 23<sup>rd</sup>. For the purposes of your bid an estimation of 82 Lights (indicated as type 'K') with 6 new 60' steel poles, should be used. The pole location will be outside of the perimeter of the track in order to light the track.

#### **PLUMBING:**

Item No. 1: Add one (1) Myers SR1830-23-2 (4HP, 115V, 12A Thermally Protected) 46Y7 floor recessed Sewage Pump to the EMS restroom. Feed sewage to the existing septic field.

Item No. 2: Feed sewage from the Concession Restrooms to the existing septic field.

**Questions & Answers for Bulletin 3:**

1. Q: Is a bid bond required to be turned in with our bid?  
A: A Bid Bond is not required (A Performance Bond is required).
2. Q: Are there any requirements for submission format/other documents needed?  
A: Yes. Please refer to Section 00200, Part 4, 4.01 FORM AND STYLE OF BIDS in the specifications. You may use a word processor instead of a typewriter!
3. Q: Flagpole - Desired exposed height, and if they have any special requirements color, wind ratings, internal or external halyard.  
A: Please see the attached flagpole specifications Division 10, Section 10350. Please provide a brushed aluminum finish with an internal halyard.
4. Q: Can you please provide me with an approximate square footage for the CertainTeed metal plank ceiling and walls?  
A: 2,600 sq. ft. ceiling area, 721 sq. ft. gables. Please add 10% for waste or replacement material.  
Q: Detail 2/A116 for the 6" and 8" wall show the same number of mats of rebar. Should I assume only one mat of rebar?
5. A: Yes. Also, the 16' tall retaining wall has been replaced by a sloped berm. The ramp has been reduced to 10' width. The ADA ramps to the bleachers have been eliminated.

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PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Ground mounted bicycle racks.
- B. Related Sections include the following:
  - 1. Division 3 Section "Cast-in-Place Concrete" for concrete mounting pads.
  - 2. Division 5 Section "Metal Fabrications" for pipe bollards to protect bicycle racks.

1.03 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Provide bicycle racks that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, finishes, field-assembly requirements, and installation details.
- B. Shop Drawings: Show fabrication and installation details, and attachments to other work. Include parking area plans and bicycle rack elevations.
- C. Samples for Initial Selection: For units with factory-applied color finishes for each type of finish indicated.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples in manufacturer's standard size.
  - 1. Full size bicycle rack, including ring.
- E. Warranties: Special warranties specified in this Section.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual with sufficient trained staff to install manufacturer's products according to specified requirements.
- B. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this Section with minimum five years experience
- C. Source Limitations: Obtain bicycle racks through one source from a single manufacturer.

BICYCLE RACKS

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- D. Product Options: Drawings indicate size, profiles, and dimensional requirements of bicycle racks and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
  - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes on exposed surfaces from damage by applying a temporary protective covering or wrapping before shipping.
- B. Store materials to comply with manufacturer's directions to prevent deterioration from moisture, heat, cold, direct sunlight, or other causes.

### 1.07 PROJECT CONDITIONS

- A. Field Measurements: Indicate measurements on Shop Drawings.

### 1.08 WARRANTY

- A. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes fail within specified warranty period. Warranty does not include normal weathering.
  - 1. Warranty Period: 1 year from date of Substantial Completion.

## PART 2 - PRODUCTS

- A. Basis-of-Design Product: The design for bicycle racks is based on "Ring" by Landscape Forms. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:
  - 1. Creative Pipe, Inc.; Model SU.
  - 2. Dero Bike Rack Co.; Hoop Rack.
  - 3. American Bicycle Security; Model Viper 1000 Series.
  - 4. Madrax, Inc.; Dura-Locker 'U' Rack 'U'-Two.
  - 5. Saris Parking Products, Div. of Graber Products, Inc.; Bike Docks.

### 2.02 MATERIALS

- A. Steel: Free from surface blemishes and complying with the following:
  - 1. Plates: ASTM A 36/A 36M.
  - 2. Steel Pipe: Standard-weight Schedule 40 steel pipe complying with ASTM A 53, or electric-resistance-welded pipe complying with ASTM A 135.
  - 3. Structural Tubing: Cold-formed round steel tubing complying with ASTM A 500.
- B. Stainless Steel: Free from surface blemishes and complying with the following:
  - 1. Plate: ASTM A 666, Type 304.
  - 2. Pipe: Schedule 40 steel pipe complying with ASTM A 312/A 312 M, Grade TP 304.
  - 3. Tubing: ASTM A 554, Grade MT 304.
- C. Anchors, Fasteners, Fittings, and Hardware: Manufacturer's standard, corrosion-resistant-coated materials; commercial quality; tamperproof; concealed, recessed, and capped or plugged. Provide as required for bicycle rack assembly, mounting, and secure attachment.

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1. Tamper-Resistant Concrete Expansion Anchors: Carbon steel mushroom head, 3/8 by 3 inch (10 by 76 mm); provide "Spike" #5550 fasteners as manufactured by Powers Fasteners or approved equal. 3/8 x 4 inch Torx button head with tamper resistant pin.
  - D. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.
  - E. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer for exterior applications.
  - F. Galvanizing: Where indicated for steel and iron components, provide the following protective zinc coating applied to components after fabrication:
    1. Hot-Dip Galvanizing: According to ASTM A 123/A 123M, ASTM A 153/A 153M, or ASTM A 924/A 924M.
  - G. Concrete Pads: Refer to Division 3 Section "Cast-in-Place Concrete."
- 2.03 BICYCLE RACKS
- A. Frame: Steel.
  - B. Style: Loop
  - C. Tube Diameter: Manufacturer's standard.
  - D. Overall Installed Height: 27 inches..
  - E. Overall Width: 25 inches..
  - F. Capacity: Designed to accommodate not less than four bicycles set as two individual rack units. Each ring holds two bicycles.
  - G. Installation Method: Surface flange anchored at finished grade to substrate.

### 2.04 FABRICATION

- A. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.
- B. Welded Connections: Weld connections continuously. Weld solid members with full-length, full-penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.
- C. Pipes and Tubes: Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

## BICYCLE RACKS

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- D. Baseplates: 2-1/2 by 6-1/2 inch (190 mm) square baseplates of 3/8 inch (10mm) thick steel in accordance with ASTM A 36, with two 5/8 inch (15 mm) diameter mounting holes on each base plate, spaced equidistant between the upright pipe and edge of the baseplate.
- E. Steel and Iron Components: Color coated. Bare metal steel or iron components are not permitted.
- F. Exposed Surfaces: Polished, sanded, or otherwise finished; smooth all surfaces, free from burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.
- G. Factory Assembly: Assemble components in the factory to the greatest extent possible to minimize field assembly. Ship rail mounted racks knocked-down for field assembly. Clearly mark units for assembly in the field.

### 2.05 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

### 2.06 STEEL FINISHES

- A. Steel Finish: Color coated.
  - 1. Color: As indicated by manufacturer's designation
- B. Plastisol Finish: Manufacturer's standard, UV-light stabilized, mold-resistant, slip-resistant, matte-textured, dipped, plastisol finish, with flame retardant added; complying with coating manufacturer's written instructions for pretreatment and application.
  - 1. Blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 10/NACE No. 2 "Near White Metal Blast Cleaning."
  - 2. Apply manufacturer's standard primer.
  - 3. Apply finish at coating manufacturer's recommended thickness [030 in. min.].
- C. Baked-Enamel, Powder-Coat Finish: Manufacturer's standard, baked, copolymer-based thermoplastic powder coating designed for maximum mechanical performance, impact resistance and UV-stability, comply with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.
  - 1. Coating Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Polyarmor; Innotek Powder Coatings, LLC Group.
    - b. Verify other coatings available from selected manufacturers.

### 2.07 STAINLESS-STEEL FINISHES

- A. Stainless-Steel Finish: Satin No. 4.
- B. Remove tool and die marks and stretch lines or blend into finish.

## BICYCLE RACKS



## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION, GENERAL

- A. Comply with manufacturer's written installation instructions, unless more stringent requirements are indicated. Complete field assembly of bicycle racks, where required.
- B. Install bicycle racks level, plumb, true, and securely anchored at locations indicated on Drawings.
- C. Post Setting: Set cast-in posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.
- D. Posts Set into Voids in Concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of bicycle racks and 3/4 inch (20 mm) larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.
- E. Baseplate Mounting: Where required, install steel tapered shims prior to anchoring in place. Fill gaps between baseplate and substrate greater than 3/8 inch with non-shrink, non-metallic grout.
- F. Rail Mounting: Fasten rails to concrete to create a free-standing array with anchors at each rail end. Shim and level as required to maintain installation tolerances.
- G. Installation Tolerances: Install bicycle racks to comply with the following maximum tolerances:
  - 1. Location: Plus or minus 1/2 inch.
  - 2. Height: Plus or minus 1/4 inch.
  - 3. Alignment of Adjacent Units: Plus or minus 1/2 inch in ten feet; 1 inch over total length.
  - 4. Plumb: Plus or minus 1/4 inch.
  - 5. Level: Plus or minus 1/4 inch.

### 3.03 CLEANING AND PROTECTION

- A. After completing bicycle rack installation, inspect components. Remove spots, dirt, and debris. Repair damaged finishes to match original finish or replace component.

END OF SECTION

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**DIVISION 5 – METALS**

**SECTION 05520 - ALUMINUM HANDRAILS AND RAILINGS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions, Division 01 - General Requirements, and other applicable specification sections in the Project Manual apply to the work specified in this Section.

**1.2 SUMMARY**

- A. Scope: Provide design and engineering, labor, material, equipment, related services, and supervision required, including, but not limited to, manufacturing, fabrication, erection, and installation for aluminum handrails and railings as required for the complete performance of the work, and as shown on the Drawings and as herein specified.
- B. Section Includes: The work specified in this Section includes, but shall not be limited to, the following:
  - 1. Aluminum handrails.
  - 2. Aluminum railings.
- C. Related Sections:
  - 1. Section 05 70 00 - Decorative Metal: Adjacent or adjoining handrails and railings fabricated from steel pipe and tube components.

**1.3 REFERENCES**

- A. General: The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The edition/revision of the referenced publications shall be the latest date as of the date of the Contract Documents, unless otherwise specified.
- B. Aluminum Association, Inc. (AA):
  - 1. AA SAS-30, "Specifications for Aluminum Structures."
- C. American Architectural Manufacturers Association (AAMA):
  - 1. AAMA 611, "Voluntary Specifications for Anodized Architectural Aluminum (Revised)."
  - 2. AAMA 2604, "Voluntary Specification, Performance Requirements, and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels."
  - 3. AAMA 2605, "Voluntary Specification, Performance Requirements, and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels."
  - 4. AAMA Aluminum Curtain Wall Series No. 12, "Structural Properties of Glass."
- D. American Iron and Steel Institute (AISI):
  - 1. AISI SG-673, Part I, "Specification for the Design of Cold-Formed Steel Structural Members."
- E. American Welding Society (AWS):
  - 1. AWS D1.2, "Structural Welding Code – Aluminum."
- F. ASTM International (ASTM):

**ALUMINUM HANDRAILS**

1. ASTM B26/B26M, "Standard Specification for Aluminum-Alloy Sand Castings."
2. ASTM B209/B209M, "Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate."
3. ASTM B210/B210M, "Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes."
4. ASTM B221/B221M, "Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes."
5. ASTM B247/B247M, "Standard Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings."
6. ASTM B429/B429M, "Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube."
7. ASTM C1048, "Standard Specification for Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass."
8. ASTM C1107, "Standard Specification for Packaged Dry, Hydraulic Cement Grout (Non-Shrink)."
9. ASTM E488, "Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements."
10. ASTM E985, "Standard Specification for Permanent Metal Railing Systems and Rails for Buildings."

G. Code of Federal Regulation (CFR):

1. 16 CFR Part 1201, "Safety Standard for Architectural Glazing Material" (Consumer Products Safety Commission).

H. National Association of Architectural Metal Manufacturers (NAAMM):

1. NAAMM MFM, "Metal Finishes Manual."

## 1.4 DEFINITIONS

- A. See definitions in ASTM E985 for railing-related terms that apply to this Section.

## 1.5 PERFORMANCE REQUIREMENTS

- A. General: Handrails and railings shall withstand structural loading as determined by allowable design working stresses of materials based on the following standards.

1. Aluminum: AA SAS-30.
2. Cold-Formed Structural Steel: AISI SG-673, Part I.
3. Glass: Fully tempered glass in glass-supported handrails and railings require a design with a safety factor of three applied to the applicable modulus of rupture listed in "Mechanical Properties" in AAMA Aluminum Curtain Wall Series No. 12.

- B. Structural Performance: Provide handrails and railings capable of withstanding the following structural loads without exceeding allowable design working stress of materials for handrails, railings, anchors, and connections:

1. Top Rail: Shall withstand the following loads:
  - a. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
  - b. Uniform load of 50 lbf per foot (730 N/m) applied horizontally or vertically downward.
  - c. Concentrated and uniform loads above need not be assumed to act concurrently.
2. Handrails not Serving as Top Rails: Shall withstanding the following loads:
  - a. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
  - b. Uniform load of 50 lbf per foot (730 N/m) applied in any direction.
  - c. Concentrated and uniform loads above need not be assumed to act concurrently.
3. Guard Infill Area: Shall withstand the following loads:
  - a. Concentrated horizontal load of 50 lbf (222 N) applied to 1 square foot (0.09 m<sup>2</sup>) at any point in system, including panels, intermediate rails, balusters, or other elements composing infill area. Loads need not be assumed to act concurrently with loads on top rails in determining stress on guard.

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- C. Thermal Movements: Handrails and railings shall allow for movements resulting from 120 degree F (49 degree C) changes in ambient and 180 degree F (82 degree C) surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
- D. Corrosion Resistance: Separate incompatible materials to prevent galvanic corrosion.

### 1.6 SUBMITTALS

- A. General: Submit under provisions of Section 01 33 00 - Submittal Procedures.
- B. Product Data:
  - 1. Submit manufacturer's data sheets on each product to be used, including, but not limited to, the following:
    - a. Preparation instructions and recommendations.
    - b. Storage and handling requirements and recommendations.
    - c. Installation methods.
  - 2. Submit product data for manufacturers product lines of handrails and railings assembled from standard components, including, but not limited to, the following:
    - a. Grout, anchoring cements and paint products.
- C. Shop Drawings: Submit shop drawings showing fabrication and installation of handrails and railings. Include plans, elevations, sections, details, and attachments to other work.
- D. Samples:
  - 1. Color Selection: Submit manufacturer's color charts showing the full range of colors available for products with factory-applied color finishes.
  - 2. Finish Selection: Provide sections of railing or flat sheet metal which depict available mechanical surface finishes.
  - 3. Verification Samples: For each type of exposed finish required, prepared on components indicated below and of same thickness and metal indicated for the work. If finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.
    - a. 6 inch (152 mm) long sections of each different linear railing member, including handrails and top rails.
- E. Quality Control Submittals:
  - 1. Design Data: For installed handrails and railing systems indicated to comply with certain design loadings, include structural analysis data signed and sealed by the professional engineer who was responsible for their preparation.
  - 2. Qualification Data: Submit documentation demonstrating capability and experience in performing installations of the same type and scope as specified by this Section. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

### 1.7 QUALITY ASSURANCE

- A. Qualifications:
  - 1. Manufacturer Qualifications: Manufacturer shall be a firm engaged in the manufacture of aluminum handrails and railings of types and sizes required, and whose products have been in satisfactory use in similar service for a minimum of 15 years.
  - 2. Installer Qualifications: Installer shall be a firm that shall have a minimum of five years of successful installation experience with projects utilizing aluminum handrails and railings similar in type and scope to that required for this Project.

- B. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction. Obtain necessary approvals from such authorities.
- C. Mock-Ups: Prior to installation of the work, fabricate and erect mock-ups for each type of finish and application required to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mock-ups to comply with the following requirements, using materials indicated for final unit of work. Locate mock-ups on site in location and of size indicated or, if not indicated, as directed by the Architect. Demonstrate the proposed range of aesthetic effects and workmanship to be expected in the completed work. Obtain the Architect's acceptance of mock-ups before start of final unit of work.
  - 1. Accepted mock-ups in undisturbed condition at time of Substantial Completion may become part of completed unit of work.
- D. Single Source Responsibility: Obtain aluminum handrails and railings from a single source with resources to produce products of consistent quality in appearance and physical properties without delaying the work.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

#### 1.9 PROJECT CONDITIONS

- A. Environmental Requirements: Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

#### 1.10 WARRANTY

- A. Warranty: Provide manufacturer's standard form outlining the terms and conditions of their Standard Limited Warranty:
  - 1. Surface Finish Warranty: One-year limited warranty.
  - 2. Material Integrity Warranty: One year limited warranty.
- B. Additional Owner Rights: The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

#### 1.11 EXTRA MATERIALS

- A. All supplemental materials not expressly specified in this section shall be approved by the Architect prior to installation.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

##### ALUMINUM HANDRAILS

PELLSTON PUBLIC SCHOOLS – PELLSTON, MI

- A. Basis of Design: Items specified are to establish a standard of quality for design, function, materials, and appearance. Equivalent products by other manufacturers are acceptable. The Architect will be the sole judge of the basis of what is equivalent.

2.2 MATERIALS

- A. Application/Scope of Work:

1. Architectural railing.
2. Fencing
3. Vehicle and pedestrian gate.

- B. Basis of Design: Hansen Architectural Systems, Inc.; 5500 SE Alexander Street, Hillsboro, OR 97123; Toll Free Tel: 800-599-2965, Fax: 503-356-8478; Email: [info@aluminumrailing.com](mailto:info@aluminumrailing.com); Web: [www.aluminumrailing.com](http://www.aluminumrailing.com).

- C. Metals: Provide metal free from pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view on finished units.

1. Aluminum: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than strength and durability properties of alloy and temper designated below for each aluminum form required.
  - a. Extruded Bar and Tube: ASTM B221/B221M, Alloy 6063-T5/T52.
  - b. Extruded Structural Pipe and Tube: ASTM B429/B429M, Alloy 6063-T832.
  - c. Drawn Seamless Tube: ASTM B210/B210M, Alloy 6063-T832.
  - d. Plate and Sheet: ASTM B209/B209M, Alloy 6061-T6.
  - e. Die and Hand Forgings: ASTM B247/B247M, Alloy 6061-T6.
  - f. Castings: ASTM B26/B26M, Alloy A356-T6.
2. Brackets, Flanges, and Anchors: Provide cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.
  - a. Provide cast brackets with flange tapped for concealed anchorage to threaded hanger bolt.
  - b. Provide formed or cast brackets with predrilled hole for exposed bolt anchorage.
  - c. Provide formed steel brackets with predrilled hole for bolted anchorage and with snap-on cover that matches rail finish and conceals bracket base and bolt head.
  - d. Provide brackets with interlocking pieces that conceal anchorage. Locate set screws on bottom of bracket.

- D. Railing Components:

1. Extruded Aluminum Components: Provide manufacturer's standard extruded aluminum components as follows:
  - a. Standard Post: 2.376 inches (60.35 mm) by 2.376 inches (60.35 mm) with radiused corner, 0.100 inch (2.54 mm) wall thickness.
  - b. Bottom Rail: 1.6926 inches (42.99 mm) high by 1.676 inches (43.57 mm) wide with a 0.765 inch (19.43 mm) wide pocket on the top and an open bottom.
  - c. Picket: 0.750 inches (19.05 mm) by 0.750 inches (19.05 mm), 0.062 inch (1.57 mm) wall thickness.
  - d. Top Rail: Circular cross section, radius as indicated on the Drawings or, if not indicated, as selected by the Architect from the manufacturer's standards with an open bottom, 0.0866 inch (2.20 mm) wall thickness.
2. Condensation Insert: Provide rigid plastic post insert to evacuate entrapped water in hollow sections of railing members, 2-3/8 inches (60 mm) by 2-3/8 inches (60 mm) by 4-1/8 inches (105 mm) high.
  - a. Basis of Design: "Dri-Post System," Hansen Architectural Systems, Inc.

- E. Glass Products and Glazing Materials:

1. Glass: Provide fully tempered, uncoated, transparent flat glass meeting the requirements of ASTM C1048, Type FT, Condition A, Type 1, Quality q3. Products shall comply with properties indicated for class, thickness, and manufacturing process that have been tested for surface and edge compression according to ASTM C1048 and for impact strength according to 16 CFR Part 1201 for Category II materials.
  - a. Clear Glass: Class 1 (clear).
  - b. Thickness: 1/4 inch (6 mm) except where noted.
  - c. Manufacturing Process: By vertical (tong-held) or horizontal (roller-hearth) process, at manufacturer's option. Horizontal process shall be performed tongless. Glass shall be free of tong marks and other visual distortions.
  - d. Marking: Subject to compliance with requirements, provide glass permanently marked with certification label of Safety Glazing Certification Council or other agency acceptable to authorities having jurisdiction.
2. Glazing Cement and Accessories: Provide glazing cement and related accessories recommended or supplied by railing manufacturer for bonding glass to metal subrails.

F. Fasteners:

1. Handrail Anchors: Select fasteners of type, grade and class required to produce connections suitable for anchoring handrails and railings to other types of construction indicated and capable of withstanding design loads.
2. Handrail and Railing Component Anchors: Use fasteners fabricated from same basic metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.
  - a. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are standard fastening method for handrail and railing indicated.
  - b. Provide Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.
3. Cast-in-Place and Post Installed Anchors: Provide anchors of type indicated below, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E488 conducted by a qualified independent testing agency.
  - a. Cast-in-place anchors.
  - b. Expansion anchors.

G. Grout and Anchoring Cement:

1. Non-Shrink, Non-Metallic Grout: Provide factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
2. Interior Anchoring Cement: Provide factory-packaged, non-shrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with water at project site to create pourable anchoring, patching and grouting compound. Use for interior applications only.

## 2.3 FABRICATION

- A. Assemble handrails and railings in shop 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.
- B. Form changes in direction of railing members as shown on the Drawings.
- C. Fabricate handrails and railings by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

## ALUMINUM HANDRAILS

## PELLSTON PUBLIC SCHOOLS – PELLSTON, MI

- D. Provide manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to connect handrail and railing members to other construction.
- E. Tempered glass shall be cut to final size and shape before heat treatment; provide for proper edge clearance and bite on glass. Provide thickness indicated on the Drawings, not less than required to support structural loads.
- F. Provide inserts and other anchorage devices to connect handrails and railings to concrete or masonry. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railings. Coordinate anchorage devices with supporting structure.
- G. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.
- H. Cut, reinforce, drill, and tap components as indicated on the Drawings to receive finish hardware, screws, and similar items.
- I. Close exposed ends of railing members with prefabricated end fittings.
- J. Provide mounted handrail wall returns at wall ends unless otherwise indicated. Close ends of returns, unless clearance between end of railing and wall is 1/4 inch (6 mm) or less.

### 2.4 FINISHES

- A. General: Comply with NAAMM MFM for recommendations for applying and designating finishes.
  - 1. Appearance of Finished Work:
    - a. Variations in appearance of abutting or adjacent units are acceptable if they are within one-half of the range of final samples. Noticeable variations in the same unit are not acceptable.
    - b. Variations in appearance of other components are acceptable if they are within the range of final samples and are assembled or installed to minimize contrast.
- B. Aluminum Finish: Brushed Aluminum.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verification of Conditions: Examine areas and conditions under which the work is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Architect, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
  - 1. Examine substrates to receive anchors verifying that locations of concealed reinforcements have been clearly marked for the Installer. Locate reinforcements and mark locations if not already done.
  - 2. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.

### 3.2 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installing anchors, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors, that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to the Project site.

### 3.3 INSTALLATION

- A. General:

## ALUMINUM HANDRAILS



1. Fitting: Fit exposed connections together to form tight, hairline joints.
2. Cutting and Placement: Set handrails and railings accurately in location, alignment, and elevation measured from established lines and levels and free from rack.
  - a. Do not weld, cut, or abrade coated or finished surfaces of railing components that are intended for field connection by mechanical or other means without further cutting or fitting.
  - b. Align rails so variations from level or parallel alignment do not exceed 1/4 inch in 12 feet (1.6 mm per m).
  - c. Provide manufacturer's proprietary system to evacuate entrapped water in hollow sections of railing members that are exposed to exterior or to moisture from condensation or other sources, in order to prevent water from entering the concrete slab. In lieu of the manufacturer's proprietary system, if acceptable to the Architect, provide another means to evacuate the entrapped water, i.e., a weephole and epoxy fill system ("drill-and-fill").
  - d. Anchor posts in concrete with pipe sleeves preset and anchored into concrete. After posts have been inserted into sleeves, solidly fill annular space between post and sleeve with non-metallic, non-shrink grout, mixed and placed to comply with anchoring material manufacturer's directions.
  - e. Anchor posts in concrete by forming or core drilling holes not less than 5 inches (127 mm) deep and 3/4 inch (19 mm) greater than outside diameter of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with non-metallic, non-shrink grout, mixed and placed to comply with anchoring material manufacturer's directions.

1) Cover anchorage joint with a round steel flange attached to post by set screws.

3. Corrosion Protection: Provide separation as recommended by manufacturer on concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals.
4. Adjusting: Adjust handrails and railings before anchoring to ensure alignment at abutting joint's space posts at interval indicated, but not less than required to achieve structural loads.
5. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing handrails and railings and for properly transferring loads to in-place construction.

B. Non-Welded Railings Connections: Use mechanical joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings.

C. Installing Glass Panels in Glass Handrails and Railings: Install assembly to comply with railing manufacturer's written instructions. Attach base channel to building structure, then insert and connect factory-fabricated and factory-assembled glass panels.

1. Erect glass handrails and railings under direct supervision of manufacturer's authorized technical personnel.

### 3.4 ADJUSTING AND CLEANING

- A. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and appoint exposed areas with same material.
- B. Cleaning: Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in field to shop; make required alterations and refinish entire unit, or provide new units.

### 3.5 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to the Installer, that shall ensure that the aluminum handrails and railings shall be without damage at time of Substantial Completion.

## ALUMINUM HANDRAILS

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- B. Protect finishes of handrails and railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at the time of Substantial Completion.

END OF SECTION

ALUMINUM HANDRAILS

PELLSTON PUBLIC SCHOOLS- PELLSTON, MI

DIVISION 10 – SPECIALTIES  
SECTION 10350 - FLAGPOLES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Ground-Set Flagpoles.
- B. Accessories.

1.2 REFERENCES

- A. ASTM B 241/B 241M - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.

1.3 SYSTEM DESCRIPTION

- A. Design Requirements:
  - 1. Flagpole heights: 40 feet and 30 feet.
  - 2. Flag sizes:
    - a. National: 6 feet by 10 feet.
    - b. State: 5 feet by 8 feet.
- B. Performance Requirements:
  - 1. Flagpole with flag flying: Resistant to 104 miles per hour wind velocity without permanent deformation.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's descriptive literature for flagpoles, including all components.
- B. Shop Drawings: Indicate locations and types of flagpoles in project; indicate mounting details.
- C. Selection Samples: Two sets of color chips representing manufacturer's full range of available colors.
- D. Verification Samples: Two samples, minimum size 6 inches square, representing actual color and finish of installed product.
- E. Quality Assurance Submittals:
  - 1. Design Data: Documentation of compliance to specified performance requirements, bearing seal and signature of registered Professional Structural Engineer licensed to practice in the State in which the project is located.
  - 2. Manufacturer's printed installation instructions for indicated project conditions.
- F. Closeout Submittals:
  - 1. Project record documents:
  - 2. Operation and maintenance data for specified flagpoles.
  - 3. Warranty documents: Issued and executed by manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Spiral wrap flagpole with protective covering and pack in protective shipping tubes or containers.

FLAGPOLES

## PELLSTON PUBLIC SCHOOLS- PELLSTON, MI

- B. Protect flagpole and accessories from damage or moisture.

### 1.6 SCHEDULING

- A. Ensure that anchoring devices are supplied to installers requiring them in time for building-in to substrates.

### 1.7 WARRANTY

- A. Manufacturer's Warranty: Furnish flagpole manufacturer's standard warranty against defects in product workmanship and materials.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
  - 1. Concord Industries, Inc., which is located at: 4150 Kellway Cir. P. O. Box 2449 ; Addison, TX 75001-2449; Toll Free Tel: 800-527-3902; Tel: 972-380-8186; Fax: 800-426-5770; Email: [jerry@flagpoles.com](mailto:jerry@flagpoles.com); Web: [www.concordindustries.com](http://www.concordindustries.com)
  - 2. The Baartol Company or equal.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

### 2.2 GROUND SET FLAGPOLES

- A. Acceptable Product: Concord Independence Concealed Halyard System or equal.
- B. Acceptable Product: Concord Sentry Concealed Halyard System or equal.
- C. Shaft:
  - 1. Material: Seamless cone-tapered aluminum tubing conforming to ASTM B 241, Alloy 6063, Temper T6.
  - 2. Finish: Natural; polished to deep luster sheen.
  - 3. Color: Mill Brushed.
- D. Truck: Cast aluminum housing and spindle, internal halyard type, with 2-1/2 inches diameter plated sheave; revolving mounting, non-fouling.
- E. Halyard:
  - 1. Material: 5/16 inch (8 mm) diameter (Number 10) white waterproof polypropylene.
  - 2. Hardware: Two chrome swivel-type flag snaps; neoprene-coated counterweight, beaded nylon retainer ring.
- F. Winch and Handle: Internal direct-drive, gearless type mounted on rotating plate; winch constructed of stainless steel, locking in any position upon removal of winch handle; single reinforced access opening and door with keylock, with access hole in door for winch handle.
- G. Cleat: Internal-mounted at factory, cam-action with internal sheave; cast aluminum access door and frame with keylock.

### 2.3 ACCESSORIES

## FLAGPOLES

## PELLSTON PUBLIC SCHOOLS- PELLSTON, MI

- A. Ground Sleeve: Galvanized steel components as follows:
  - 1. Foundation tube: Corrugated, 16 gage, diameter and length specified in manufacturer's descriptive literature for indicated flagpole height; centered on, and welded to face of base plate.
  - 2. Base plate: Square, side dimensions 4 inches greater than inside dimension of foundation tube.
  - 3. Ground spike: 3/4 inch diameter, 18 inches long; centered on, and welded to face of base plate opposite foundation tube attachment.
  - 4. Setting plate: 6 inches square, with drilled hole at center for attachment to ground spike; welded perpendicular to length of ground spike 6 inches from base plate.
- B. Shoebase Mounting Hardware:
  - 1. Anchor base: Cast aluminum, heat-treated, drilled for anchor bolt diameter and pattern specified in manufacturer's descriptive literature for indicated flagpole height; sleeved over shaft butt and joined to shaft butt by continuous circumferential welds at outside top and inside bottom of base; entire assembly, including flagpole, heat-treated after attachment of shoebase casting.
  - 2. Fasteners: Quantity, diameter, and length specified in Manufacturer's descriptive literature for indicated flagpole height; include anchor bolts, nuts and washers.
- C. Flash collar: Manufacturer's standard spun aluminum flash collar, finish matching shaft; size specified in manufacturer's descriptive literature for indicated flagpole height.
- D. Finial: Spun aluminum, 14 gage wall thickness, flush seam, gold anodized finish, diameter matching butt diameter of shaft.
- E. Cleat Covers: Aluminum housing, finish matching shaft, with key-operated cylinder lock, keyed alike for multiple units; two keys supplied for each lock.
- F. Halyard Boxes: Aluminum housing, finish matching shaft, 5 feet in length.

### 2.4 MIXES

- A. Concrete: 3000 pounds per square inch compressive strength at 28 days; 6 percent air entrainment.
- B. Grout: Non-shrink; 5000 pounds per square inch compressive strength at 28 days.

### 2.5 FABRICATION

- A. Provide self-aligning internal sleeves for shafts fabricated in sections for field assembly; field-welded connections, including plug-welding, are not permitted.
- B. Fabricate end-to-end joints of shaft sections for hairline joint after connection; match mark and number shaft sections for field assembly.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verification of Conditions: Anchoring devices are correct type, and in correct location, in accordance with approved shop drawings and manufacturer's instructions.

## FLAGPOLES

- B. Installer's Examination:
  - 1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
  - 2. Transmit two copies of installer's report to Architect within 24 hours of receipt.
  - 3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
  - 4. Beginning construction activities of this section indicates installer's acceptance of conditions.

### 3.2 INSTALLATION

- A. Install flagpole components and accessories in accordance with approved shop drawings and manufacturer's installation instructions.
- B. Ground Sleeve:
  - 1. Excavate in undisturbed soil to indicated depth, width, and length, providing shoring for unstable soil conditions; remove non-soil materials from excavation.
  - 2. Coat surface of ground sleeve assembly, and surfaces of shaft that will be installed below grade, with bituminous paint, minimum 5 mil dry film thickness (DFT).
  - 3. Place ground sleeve assembly in excavation, locating as indicated; drive ground spike into undisturbed soil to extent that base plate is flush with bottom of excavation.
  - 4. Place concrete in excavation immediately after mixing, using chute to deliver concrete to placement; surround ground sleeve with concrete, placing concrete to finish grade, and compacting with vibrators.
  - 5. Slope concrete surface from top of ground sleeve to grade for water run-off to grade; screed concrete surface to smooth trowel finish.
  - 6. Moist-cure concrete surface; allow concrete to attain full 28-day compressive strength before installing flagpole.
- C. Shoe Base:
  - 1. Set base in grout bed of sufficient height that excess grout is displaced as anchoring and adjusting of flagpole progresses; align base hole pattern with anchor bolts and lower base to grout bed.
  - 2. Anchor and align flagpole plumb; provide temporary bracing until grout attains full compressive strength.
  - 3. Screed sight-exposed grout surfaces to 45-degree fillet, removing excess grout from substrate.

END OF SECTION

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This information is believed to be correct.  
Each user should verify that the material  
is satisfactory for the intended purpose.

**MMT-313 Open Weave**  
Distribute only on a need to know basis

Manufacturer's ID		
Construction	PVC Coated Polyester (1000 Denier)	
Fire resistance	DIN B1; M2; NFPA 701, MEA	
Light transmission	44.4% (MMT test method 1)	
Color (L*a*b* color space)	L* = 95.63 a* = -0.44 b* = -4.70	
Weight	13 oz/yd <sup>2</sup>	440 gm/m <sup>2</sup>
Maximum width of roll goods	197 inches	500 cm

Property	Warp direction		Fill direction	
Tensile breaking strength	363.1 Lbs/in		372.9 Lbs/in	
Elongation @ 3 lb/inch load	0.05%		0.05%	
Elongation @ failure	7.97%		6.75%	
Tear - starting (pre-cut)	110.9 Lbs	504 N	120.1 Lbs	546 N
Tear - continuing (average)	195.1 Lbs	887 N	199.75 Lbs	908 N

Seam breaking strength	357.7 Lbs/in	640 N/cm
Seam peel strength	18 Lbsf/b 17.5 b/b	82 N 79 N
Grommet pullout strength with 2" x 3" webbing reinforcement	588.5 Lbs	2677 N

**Comments:**

(+4)

85% Closed 15% Open

Air Transmission is 1600 l/m<sup>2</sup>.sec based on DIN ISO 9237

Prints are more vivid than standard mesh, exceptional print quality when viewed from angles, compared to other mesh substrates

**Special Handling Requirements:**

Use Kraft Paper to cover drum to prevent "painting on drum".

This material is

Approved

MMT QuAD Apr 02, 2007

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