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May 2017

Product Guide Specification

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat*, *SectionFormat*, and *PageFormat*, as described in *The CSI Construction Specifications Practice Guide*.

This section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all "Specifier Notes" after editing this section.

Section numbers and titles are from *MasterFormat 2016 update*.

SECTION 13 34 16.53

CONTINUOUS ELEVATED ANGLE-FRAME BLEACHERS

Specifier Notes: This section covers Sturdisteel continuous, elevated, angle-frame bleachers. Consult Sturdisteel for assistance in editing this section for the specific application.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Continuous, elevated, angle-frame bleachers.

1.2 RELATED REQUIREMENTS

Specifier Notes: Edit the following list of related sections as necessary. Limit the list to sections with specific information that the reader might expect to find in this section, but is specified elsewhere.

- A. Section 03 30 00 – Cast-in-Place Concrete: Concrete foundations.
- B. Section 13 34 16.63 – Metal Press Boxes.

1.3 REFERENCE STANDARDS

Specifier Notes: List reference standards used elsewhere in this section, complete with designations and titles.

- A. AAMA 2603 – Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
- B. AISC Steel Construction Manual.
- C. Aluminum Association (AA) Aluminum Design Manual.
- D. ASTM A 36 / A 36M – Standard Specification for Carbon Structural Steel.
- E. ASTM A 123 / A 123M – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- F. ASTM A 307 – Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
- G. ASTM A 572 / A 572M – Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
- H. ASTM A 992 / A 992M – Standard Specification for Structural Steel Shapes.
- I. AWS D1.1 / D1.1M – Structural Welding Code – Steel.

Specifier Notes: Include CWB CSA W47.1 for projects in Canada.

- J. CWB CSA W47.1 – Certification of Companies for Fusion Welding of Steel.
- K. Research Council on Structural Connections (RCSC) Specification for Structural Joints Using High-Strength Bolts.

1.4 PREINSTALLATION MEETINGS

Specifier Notes: Edit preinstallation meetings as necessary. Delete if not required.

- A. Convene preinstallation meeting [1 week] [2 weeks] before start of installation of continuous, elevated, angle-frame bleachers.
- B. Require attendance of parties directly affecting work of this section, including Contractor, Architect, installer, and manufacturer's representative.
- C. Review materials, preparation, installation, adjusting, protection, and coordination with other work.

1.5 SUBMITTALS

Specifier Notes: Edit submittal requirements as necessary. Delete submittals not required.

- A. Comply with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Submit manufacturer’s product data, including installation instructions.
- C. Shop Drawings:
 - 1. Submit manufacturer’s shop drawings, including plans, elevations, sections, and details, indicating location, size, details, and quantity of steel and aluminum components and accessories.
 - 2. Indicate locations of exit stairs, ramps, seat locations, decking configurations, and overall general materials to be supplied.
 - 3. Shop drawings shall be signed and sealed by a qualified, registered professional engineer, registered in state of the installation.
- D. Samples: Submit manufacturer’s color samples for selection.
- E. Manufacturer’s Certification: Submit manufacturer’s certification that materials comply with specified requirements and are suitable for intended application.
- F. Design Data:
 - 1. Submit manufacturer’s design data, including an analysis to indicate that the structural members shall have sufficient strength to support required loads and ability to resist loads subjected, without exceeding allowable stresses of the materials.
 - 2. Design data shall be signed and sealed by a qualified, registered professional engineer, registered in state of the installation.
- G. Manufacturer’s Project References: Submit manufacturer’s list of successfully completed continuous, elevated, angle-frame bleacher projects, including project name and location, name of architect, and type and quantity of bleachers furnished.
- H. Installer’s Project References: Submit installer’s list of successfully completed continuous, elevated, angle-frame bleacher projects, including project name and location, name of architect, and type and quantity of bleachers installed.
- I. Warranty Documentation: Submit manufacturer’s standard warranty.

1.6 QUALITY ASSURANCE

- A. Manufacturer’s Qualifications:
 - 1. Manufacturer regularly engaged, for past 10 years, in design and manufacture of continuous, elevated, angle-frame bleachers of similar type to that specified.
 - 2. Fabricate structural steel in an AISC-certified plant; certified “STD” at time of the bid.
 - 3. Manufacturer listed by AISC as a certified fabricator.
 - 4. Certification and inspections in accordance with IBC Chapter 17.
- B. Installer’s Qualifications:

1. Installer regularly engaged, for past 5 years, in installation of continuous, elevated, angle-frame bleachers of similar type to that specified.
2. Employ persons trained and experienced for installation of continuous, elevated, angle-frame bleachers.

Specifier Notes: Specify AWS for projects in USA. Specify CWB for projects in Canada.

- C. Welder's Qualifications: [AWS] [CWB] certified within past 12 months for each type of weld required.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
 1. Store and handle materials in accordance with manufacturer's instructions.
 2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
 3. Do not store materials directly on ground.
 4. Protect materials and finish during storage, handling, and installation to prevent damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Manufacturer: Sturdisteel, PO Box 2655, Waco, Texas 76702. Toll Free 800-433-3116. Phone 254-666-5155. Fax 254-666-4472. Website www.sturdisteel.com. E-mail info@sturdisteel.com.
- B. Substitutions: Not permitted.

2.2 DESIGN REQUIREMENTS

- A. Design: Conform to AISC Steel Construction Manual and AA Aluminum Design Manual.
- B. Applicable Codes: Design and workmanship shall be in accordance with IBC 2012 and ICC 300 Bleachers, Folding and Telescopic Seating, and Grandstands.
- C. Design Loads:
 1. Live Loads:
 - a. Uniform Loading, Structure: 100 psf.
 - b. Uniform Loading, Seats: 120 plf.
 2. Sway Loads:
 - a. Perpendicular to Seats: 10 plf.
 - b. Parallel to Seats: 24 plf.
 3. Wind Loads: Local building code.
 4. Snow Loads: Local building code.

5. Seismic Loads: Local building code.
6. Handrail and Guardrail: 200 lbs. concentrated in any direction.

D. Shop Connections: Welded and capable of carrying stress put upon them.

Specifier Notes: Specify AWS D1.1 for projects in USA. Specify CWB W47.1 for projects in Canada.

E. Welding: [AWS D1.1] [CWB W47.1].

F. Concrete Foundations: Manufacturer shall design and install concrete foundations as specified in Section 03 30 00.

2.3 CONTINUOUS ELEVATED ANGLE-FRAME BLEACHERS

Specifier Notes: Specify size of continuous, elevated, angle-frame bleachers. Standard sizes are 3, 5, 8, 10, or 15 rows. Consult Sturdisteel for availability of custom designs.

A. Size: _____ feet long by _____ rows.

Specifier Notes: Refer to Continuous, Elevated, Angle-Frame Bleacher Seating Capacity Chart for gross seating capacity. To obtain the approximate number of net seats, multiply the gross seats by 0.85.

B. Net Seating Capacity: _____.

C. Press Box:

Specifier Notes: Specify size and support length of the press box.

1. Size: _____ by _____.
2. Support Length: _____ by _____.
3. Independently supported and connected to rear of bleachers with aisle access.
4. Specified in Section 13 34 16.63.

D. Framework: Space prefabricated angle bleacher frames at 6-foot intervals and connect by crossbraces.

E. Rise and Depth Dimensions:

1. Vertical Rise per Row: 8 inches.
2. Horizontal Depth per Row: 24 inches.
3. Seat Above its Respective Tread: 17 inches.

F. Risers:

1. 1/2-inch by 6-1/4-inch anodized aluminum board.
2. At Top Row: 1/2-inch by 11-1/2-inch anodized aluminum board.

G. Seats: 1-1/2-inch by 9-1/2-inch anodized aluminum board with end caps.

- H. Treads: Two 1-1/2-inch by 9-1/2-inch mill finish aluminum boards with end caps.
- I. Guardrail:
 - 1. Sides and back of bleachers, entry stairs, walkways, ramps, portals, and landings where 30 inches or more above adjacent area or grade.
 - 2. Material: Anodized aluminum pipe with end plugs at ends of straight runs or elbows at corners.
 - 3. Secure to angle posts with galvanized fasteners.
 - 4. Top Rail: 42 inches minimum above walkways, entrances, and any adjacent seat.
 - 5. Chain Link Fencing: 9-gauge galvanized steel, fastened in place with galvanized fittings and aluminum ties.
- J. Front Walkway:
 - 1. Width: 60 inches.
 - 2. Elevated:

Specifier Notes: Specify elevated height.

- a. On Mudsills: [30 inches] [40 inches] high.
 - b. On Slabs: [28-1/2 inches] [38-1/2 inches] high.
- 3. Deck: 1-1/2-inch by 9-1/2-inch mill finish aluminum boards.
- K. Steps:
 - 1. Frames: Galvanized steel.
 - 2. 1-3/4-inch by 11-1/2-inch mill finish aluminum boards with 2-inch by 2-inch dark bronze contrasting nosing.
- L. Entry Stairs:
 - 1. Entry Stairs, Guardrails, and Handrails: In accordance with local code requirements.
 - 2. Rise: 7 inches maximum.
 - 3. Tread: 11 inches minimum.

Specifier Notes: Provide greater aisle width as needed to meet local building code egress requirements.

- M. Aisle Width:
 - 1. Middle Aisle Width: 48 inches minimum.
 - 2. End Aisle Width: 36 inches minimum.
- N. Mudsills: 1-1/2-inch by 7-1/2-inch treated lumber, drilled for field bolting.
- O. Accessibility: Incorporate wheelchair spaces within bleachers to conform to applicable code and ADA.

2.4 MATERIALS

- A. Framework:

Specifier Notes: Specify the framework as galvanized steel (standard) or aluminum (optional).

1. Galvanized Steel:
 - a. ASTM A 36, ASTM A 572 Grade 50, and ASTM A 992.
 - b. Hot-dipped galvanized after fabrication in accordance with ASTM A 123.
2. Aluminum: Aluminum alloy 6061-T6, mill finish.

Bleacher manufacturer will not be responsible for the discoloration, staining and fading of exposed mill finish aluminum surfaces due to oxidation; prior to, during or after installation. Oxidation of mill finish aluminum surfaces is a natural phenomenon and is caused by condensation or moisture during packaging, transportation and/or storage.

- B. Seat Boards: Extruded aluminum alloy 6063-T6, clear anodized 204R1, AA-M10C22A31, Class II.

Specifier Notes: Specify clear anodized or powder coat finish for riser boards.

- C. Riser Boards: Extruded aluminum alloy 6063-T6; [clear anodized 204R1, AA-M10C22A31, Class II] [powder coat, AAMA 2603, color selected by Architect from manufacturer's standard colors].
- D. Tread Boards: Extruded aluminum alloy 6063-T6, mill finish.
- E. Guardrail: Aluminum anodized pipe, 1-5/8-inch OD.
- F. Accessories:
 1. Steel Bolts and Nuts: ASTM A 307, galvanized.
 2. Structural Connections: Snug tight to conform to RCSC Specification for Structural Joints Using High-Strength Bolts.
 3. Hold-Down Clip Assembly: Aluminum alloy 6063-T6.
 4. Form-Fitted End Caps: Aluminum alloy 2024, clear anodized 204R1, AA-M10C22A31, Class II.
 5. Channel End Caps: Aluminum alloy 6063-T6, clear anodized 204R1, AA-M10C22A31, Class II.
- G. Concrete Foundations: Specified in Section 03 30 00.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive continuous, elevated, angle-frame bleachers.
- B. Notify Architect of conditions that would adversely affect installation or subsequent use.
- C. Do not begin surface preparation or installation until unacceptable conditions are corrected.

3.2 PREPARATION

- A. Install concrete foundations for continuous, elevated, angle-frame bleachers as specified in Section 03 30 00 and indicated on the Drawings.

3.3 INSTALLATION

- A. Install continuous, elevated, angle-frame bleachers in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Install bleachers plumb, level, square, straight, and secure.
- C. Anchor bleachers securely in place to concrete foundations.

3.4 ADJUSTING

- A. Inspect completed continuous, elevated, angle-frame bleachers and make necessary adjustments to ensure proper installation.
- B. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
- C. Remove and replace with new material, damaged components that cannot be successfully repaired, as determined by Architect.

3.5 PROTECTION

- A. Protect completed continuous, elevated, angle-frame bleachers to ensure that, except for normal weathering, bleachers will be without damage or deterioration at time of Substantial Completion.

END OF SECTION