

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

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 16.13

#### I-BEAM GRANDSTANDS

Specifier Notes: This section covers Sturdisteel I-beam grandstands. Consult Sturdisteel for assistance in editing this section for the specific application.

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. I-beam grandstands.

##### 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 325 – Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
- H. ASTM A 529 / A 529M – Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality.
- I. ASTM A 992 / A 992M – Standard Specification for Structural Steel Shapes.
- J. AWS D1.1 / D1.1M – Structural Welding Code – Steel.

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

- K. CWB CSA W47.1 – Certification of Companies for Fusion Welding of Steel.
- L. 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 I-beam grandstands.
- 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 I-beam grandstand projects, including project name and location, name of architect, and type and quantity of I-beam grandstands furnished.
- H. Installer's Project References: Submit installer's list of successfully completed I-beam grandstand projects, including project name and location, name of architect, and type and quantity of I-beam grandstands 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 I-beam grandstands 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 I-beam grandstands of similar type to that specified.
  - 2. Employ persons trained and experienced for installation of I-beam grandstands.

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](http://www.sturdisteel.com). E-mail [info@sturdisteel.com](mailto: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 I-BEAM GRANDSTANDS

Specifier Notes: Specify size of I-beam grandstands.

A. Size: \_\_\_\_\_ feet long by \_\_\_\_\_ rows.

Specifier Notes: Refer to I-Beam Grandstand 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 I-beam grandstands with aisle access.

4. Specified in Section 13 34 16.63.

D. Steel Members:

1. Stringers: 6'-0" on center.

Specifier Notes: Column spacing may vary depending on application.

2. Columns: Spaced at 18 feet on center longitudinal and 11 feet to 18 feet on center transverse.

3. Cross Bracing: Steel rod bracing or steel angles.

E. Dimensions:

1. Front Walkway: 68 inches minimum.

2. Seat Height: 17 inches.

3. Walkway Elevation: 48 inches above Owner-supplied benchmark grade.

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

4. Aisle Width:
  - a. Middle Aisle Width: 48 inches minimum.
  - b. End Aisle Width: 36 inches minimum.

F. Decking/Seating:

Specifier Notes: Specify tread depth. 30 inches is required with backrests. 33 inches is required with chairs. Consult Sturdisteel for additional special tread depth requirements not indicated.

1. Tread Depth: [24 inches] [25 inches] [26 inches] [27 inches] [28 inches] [29 inches] [30 inches] [33 inches].

Specifier Notes: Specify riser height. Consult Sturdisteel for additional special riser height requirements not indicated.

2. Riser Height: [8 inches] [9-3/4 inches] [10 inches] [11-1/4 inches] [12 inches] [13-1/4 inches].
3. Decking Type:

Specifier Notes: Specify decking type. Litter shields, weather shields, and secondary gutters are optional. Delete if not required.

- a. Semi-closed.
    - 1) [Litter shields].
    - 2) [Weather shields].
  - b. Tongue and Groove: No thru bolting.
    - 1) [Litter shields].
    - 2) [Weather shields].
  - c. Interlocking: No thru bolting.
    - 1) [Secondary gutters].
    - 2) [Litter shields].
    - 3) [Weather shields].
  - d. Welded.
    - 1) [Secondary gutters].
    - 2) [Litter shields].
    - 3) [Weather shields].
4. Seating Type:

Specifier Notes: Specify seating type. The first seating type below is standard.

- a. Front: 9-1/4 inches by 1-3/4 inches. Rear: 9-1/4 inches by 1-1/2 inches.
- b. Front: 11-1/2 inches by 1-3/4 inches. Rear: 11-1/2 inches by 1-1/2 inches.

Specifier Notes: Consult Sturdisteel for other types of seating.

- c. Plastic Chairs: "Cardinal 3000 Series" stadium chairs.
- d. Plastic Seats: "Eagle Series 1000" stadium seats.
- e. Backrest.
- f. Armrest.
- 5. Aisles:
  - a. Midsteps: For rise above 8 inches.
  - b. Midstep Treads: Approximately half tread width.
  - c. Solid riser front for steps.
  - d. Aisle Midrails and End Aisle Handrails: Conform to local building code.
  - e. Contrasting Nosing: 2-inch anodized or powder coated for step nosing.

G. Guardrail:

- 1. Sides of bleacher, 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 and entrances and 42 inches minimum above any adjacent seat.
- 5. Chain Link Fencing: 9-gauge galvanized steel, fastened in place with galvanized fittings and aluminum ties.

Specifier Notes: Black vinyl-coated finish for chain link fencing is optional. Delete if not required.

- a. Finish: Black vinyl coated.

Specifier Notes: Steel or aluminum guardrail vertical picket rails are optional. Delete if not required.

- 6. Guardrail Vertical Picket Rails: [Steel] [Aluminum].

H. Handrails:

- 1. At all ramps and stairs.
- 2. Material: Clear anodized aluminum.
- 3. 1-5/8-inch OD with extensions and returns to conform to local building code.

I. Stairs:

- 1. Material: Aluminum.
- 2. Size: 2 inches by 12 inches.
- 3. Rise: 7 inches maximum.
- 4. Tread: 11 inches minimum.
- 5. Guardrails and Handrails: Conform to local building code.
- 6. Solid riser front.
- 7. Contrasting Nosing: 2-inch anodized or powder coated for step nosing.

J. Accessibility:

1. Incorporate ramps and wheelchair spaces within I-beam grandstands to conform to applicable code and ADA.
2. Wheelchair Spaces: Equally dispersed along front walkway and other crosswalks.
3. Companion Seat: For each wheelchair space.

## 2.4 MATERIALS

- A. Steel: ASTM A 36, ASTM A 529 Grade 50, or ASTM A 992.
- B. Aluminum: Extruded alloy 6063-T6.
- C. Accessories:
  1. Structural Steel Bolts and Nuts: ASTM A 325, galvanized.
  2. Structural Connections: Snug tight to conform to RCSC Specification for Structural Joints Using High-Strength Bolts.
  3. Accessory and Aluminum Component Bolts: ASTM A 307, galvanized.
  4. Hold-Down Clip Assembly: Aluminum alloy 6063-T6.
  5. End Caps: Aluminum alloy 6063-T6.
- D. Concrete Foundations: Specified in Section 03 30 00.

## 2.5 FINISHES

- A. Steel: Hot-dip galvanized after fabrication, ASTM A 123.
- B. Aluminum:
  1. Anodized:
    - a. Clear anodized 204R1, AA-M10C22A31, Class II.
    - b. Aluminum seats, riser boards, backrests, and stanchions.

Specifier Notes: Powder coat is optional. Delete if not required.

2. Powder Coat: AAMA 2603.

Specifier Notes: Shot blasted or shot blasted with clear anodized finish is optional for aluminum footboards.

3. Mill Finish: Aluminum footboards.

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.



## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Examine areas to receive I-beam grandstands.
- 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 I-beam grandstands as specified in Section 03 30 00 and indicated on the Drawings.

### **3.3 INSTALLATION**

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

### **3.4 ADJUSTING**

- A. Inspect completed I-beam grandstands 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 I-beam grandstands to ensure that, except for normal weathering, grandstands will be without damage or deterioration at time of Substantial Completion.

**END OF SECTION**