

STANDARD SPECIFICATION PERMANENT BEAM DESIGN GRANDSTANDS

PART 1 GENERAL

1.1 SECTION INCLUDES:

- A. Design, fabrication, and installation of permanent beam design grandstands including:
 - 1. Concrete Foundations (Piers & Pads)
 - 2. Steel Understructure
 - 3. Aluminum Decking System
 - 4. Press box w/ Understructure

1.2 REFERENCES:

- A. ASTM A572-50 Structural Steel Hot-Dipped Galvanized after fabrication to ASTM A123 Specifications.
- B. ASTM A307 - Specification for Carbon Steel Bolts and Studs (Ordinary Bolts)
- C. ASTM A325 - Specification for Carbon Steel Bolts (High Strength Bolt)
- D. All Bolts and Nuts to have a Hot-Dipped Galvanized Finish.

1.3 SUBMITTALS:

- A. Submit shop drawings in accordance with Section 01300 - Submittals.
- B. Shop Drawings: Shop Drawings submitted shall be Designed and Detailed under the direct supervision of a licensed in house Professional Engineer. The Professional Engineer shall be present during the time the design and detailing is completed unless all details are included on the approval drawings bearing his/her seal.

1.4 QUALITY ASSURANCE:

- A. Codes and Standards: Design, fabrication, and installation shall be in accordance with either The BOCA National Building Code, NFPA 101 Life Safety Code, SBC (Standard Building Code), UBC (Uniform Building Code), IBC 2000 (International Building Code) and the American's with Disabilities Act for wheelchair accessibility. Owner will furnish the applicable state and local code requirements.
- B. Manufacturer Qualifications: Minimum 10 years experience in the design and manufacture of permanent beam design grandstands.
- C. Installer Qualifications: Employees to be trained and experienced in the installation of permanent grandstands.
- D. Welders: AWS certified.

1.5 PROJECT/SITE CONDITIONS:

- A. Owner shall verify site location.
- B. Owner will locate all underground utilities and obstructions.
- C. Owner will furnish a geotechnical report indicating soil conditions for proper foundation design.

1.6 WARRANTY:

- A. Grandstands manufactured by E & D Specialty Stands, are warranted for a period of one year against defects in materials and workmanship starting after completion of the project. This does not apply to any damage resulting from neglect, misuse or improper handling of such material by the owner.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. E & D Specialty Stands, Inc.
2081 Franklin Street
P.O. Box 700
North Collins, N.Y. 14111
Tel (800) 525-8515, Fax (716) 337-3436

2.2 PERMANENT BEAM DESIGN GRANDSTANDS

- A. Design: The design shall be in accordance with the generally accepted standards as published by The American Institute of Steel Construction and The Aluminum Association.
- B. Design Loads:
 - 1) A uniformly distributed live load of not less than 100 psf of gross horizontal projection of the grandstand.
 - 2) Grandstand shall be designed to withstand, with or without live loads, the horizontal and uplift pressures due to the wind. Wind pressures shall be derived from ANSI/ASCE 7-93, Minimum Design Loads in Buildings and Other Structures.
 - 3) A horizontal swaying force applied to the seats, in a direction parallel to the length of the seats, of 24 lbs./ft.
 - 4) A horizontal swaying force applied to the seats, in a direction perpendicular to the length of the seats, of 10 lb./ft.
 - 5) All seat and footboard members shall be designed for live loads of not less than 120 lb. per lineal foot.
 - 6) Guardrails shall be capable of sustaining a vertical load of 100 plf. and a horizontal thrust of 50 plf acting outwardly at the top of the rail.
 - 7) Under these loads, stresses shall not exceed those allowed in the "Specifications for Structural Steel Buildings, June 1, 1989" as adopted by the American Institute of Steel Construction.
- C. Shop Connections: Welded and capable of carrying stress put upon them as per AWS standards.
- D. Steel Members:
 - 1) Stringers: Wide flange beams spaced 6'-0" on center.
 - 2) Columns: Wide flange beams spaced 18'-0" on center longitudinally and transversely they will be spaced according to the size of the stand with a maximum of 24'-0" on center.
 - 3) Cross Beams: Horizontal cross beams shall be wide flange beams and run "continuously" for the length of the stand.
 - 4) Cross Bracing: Front to back bracing shall be structural steel angle, bolted at ends and centers. Rod bracing shall be used for side to side bracing. On columns requiring 2 or more sets of cross bracing, the connecting strut shall run continuously for the entire length of the stand.
- E. Dimensions:
 - 1) Length of unit _____

Number of rows_____

Net seating capacity_____

Bleacher seats_____

Wheelchair spaces _____ per A.D.A. or Local Codes

- 2) Front Walkways: 66 inches clear width
- 3) Seat Height: 17 to 18 inches
- 4) Walkway Elevation: Standard (42" to 48") or as needed per design.
- 5) Aisles: Shall be designed to meet Applicable codes. All aisles shall have 1" black thread nosing to delineate the leading edge.

F. Typical E & D Stands:

- 1) Standard Beam Designs: 8" Rise or 10" Rise with a 24" row spacing.
- 2) Backrest Design? Rise with 30" row spacing (Min. Required for bench seating with backrest). The rise will be determined by sight lines.
- 3) Chair Design? Rise with 33" row spacing, (Min. Required for individual chair seating). The rise will be determined by sight lines.
- 4) Specialties: Special Rise and Run Designs to accommodate rare topographic conditions that will maximize spectator's sight lines.

G. Deck Arrangements:

- 1) Footboard and Riser Plank Arrangement: Full Plank (FP), Channel Interlock (CI), Channel Interlock Gutter (GI), Welded Deck (WD)
- 2) Seats: Standard 2 x 10 (1 3/4" x 9 5/8") Optional 2 x 12 or 12" contoured to accommodate straight or dished Backrests.
- 3) Walkways: Combinations of 2 x 12 & 2 x 10 planks to achieve the desired code complaint width.
- 4) Aisle Steps: Standard 2 x 12 plank. (2 x 12 plank with 1" contrasting nosing to delineate the leading edge.

H. Guardrails:

- 1) Furnished on sides of the bleacher including stairs, ramps, portals and landings.
- 2) All pipe shall be 1 5/8" O.D. anodized aluminum pipe with end plugs and elbows at corners. Secured to angle rail posts with galvanized fasteners.
- 3) Rails not less than 42" vertically above the center of the seat board surface shall be provided at the back and sides of the bleacher.
- 4) Rails are not to less than 42" above the elevated front footrests.
- 5) Included on all sides of the bleacher will be 2" x 9 gauge galvanized chain link fencing fastened in place with aluminum ties and galvanized tension bars and aluminum rail clamps.

I. Stairs: Shall be provided per applicable codes and/or architects drawings.

- 1) 2 x 12 aluminum plank with a maximum rise of 7".
- 2) Stairs shall have a "Multi-Pipe Rail System" that conforms to the 4" Ball Rule. Top rail shall be 42" above the leading edge of the treads.

J. Handicap Provisions:

- 3) Wheelchair pockets inset into the front rows of seating shall be provided to comply with specified local codes and the "American's with Disabilities Act" for wheelchair accessibility.
- 4) Handicapped seating will be enclosed on all three sides with no exposed vertical rise allowed.
- 5) Front platform shall be accessible from a ramp with a maximum gradient of 1:12.
- 6) Ramp width shall be minimum of 5'-0" for two-way traffic.

- 7) Ramp shall have a Pipe Rail System consisting of 1 5/8" O.D. anodized aluminum pipe with 2 x 9 gauge galvanized fence. Top rail will be 42" above the ramp surface.
- 8) A handrail 36" above the ramp surface shall be provided.

K. Press box:

- 1) Press box and Support Structure will be independently supported but connected to the rear of the grandstand.
- 2) Standard Press box Sizes: 8'-0" deep and a length in increments of 6'-0" starting at 12'-0".
- 3) Support Structure shall be designed to support the entire length of press box and entrance platforms as desired.
- 4) Press box specifications and upgrades available upon request.

2.3 MATERIALS:

- A. Steel: ASTM A572-50 (Hot-Dipped Galvanized),
- B. Aluminum: Extruded alloy 6063-T6.
- C. Foundation Concrete: Minimum compression strength of 3000 psi at 28 days.
- D. Accessories:
 - 1) High Strength Bolts and Nuts - ASTM A-325 steel
 - 2) Ordinary Bolts and Nuts - ASTM A-307
 - 3) Hold-Down Clip Assemblies - Aluminum alloy 6063-T6
 - 4) End Caps - Channel aluminum alloy 6063-T6

2.4 Finishes:

- A. Steel: Galvanized Steel
- B. Aluminum:
 - 1) Anodized: Seat planks, risers, backrest and stanchions shall have a clear anodized 204R1, AA-M10C22A31, Class II.
 - 2) Mill Finish: Footboards
 - 3) Paint: Electrostatically applied, baked -on siliconized acrylic or siliconized polyester enamel.

PART 3 - EXECUTION

3.1 Installation

- A. All work will be performed by factory-trained technicians experienced in bleacher seating installation.
- B. Complete installation as per approved shop drawings and manufacturers instructions.
- C. After installation, unit shall be inspected for proper alignment and function.

3.2 Foundations/Piers

- A. Footings for the grandstand shall be design to provide sufficient bearing area to support the total live and dead loads of the grandstand without exceeding the allowable soil bearing pressure.
- B. Design and depth of footings shall be determined from the geotechnical report indicating local soil conditions.
- C. Hot-Dipped galvanized anchor bolts shall be used, secured in the concrete footings.
- D. Concrete shall attain a working strength of 3,000 psi.