

SCOPE OF WORK

Provide engineering, material, freight, installation and supervision to provide a new permanent grandstand structure in accordance with the following specifications.

MINIMUM ACCEPTABLE CRITERIA:

1. Design per plan view and sectional view drawings
2. Color powder coated structural steel understructure per 2.02.1.H.2
3. Structural steel sizing as shown on drawings per Part 4 Peer Review
4. Continuous aluminum welded decking system with "shot blasted" slip resistant surface equal to or greater than .80 coefficient of friction per Section 2.02.5.2
5. 12"/24" rise/run with riser-mounted seatboard brackets with a structural steel connection
6. Powder coated riserboards (school colors) with 100% coverage front and back
7. All concrete foundations for structural columns as sized and shown on drawings and all concrete pads for ramps and stairs per Part 4 Peer Review
8. Qualification Evaluation Form and Technical Bid Proposal Form

DESIGN CRITERIA

A. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

- IBC / LOCAL STATE CODES
- NFPA-101 and NFPA-102 Current Edition
- AISC Manual of Steel Construction, Load & Resistance factor Design
- ACI Building Code for Reinforced Concrete
- Aluminum Association of America
- Federal Handicap Legislation
- ASTM E985, standard specification for permanent metal railing systems and rails for buildings
- ADA, Americans with Disabilities Act accessibility guidelines
- AWS D1.2, American Welding Society

B. DESIGN LOADS:

Dead Load	6 psf	Seat and footboards, risers, steel framing, etc.
Live Load	100 psf	To structural members. All stringers and girders shall be limited to L/200 for maximum vertical live load deflection.
	120 plf	Seatboards
	120 plf	Footboards
Design Wind Speed (local conditions)	mph	On projected vertical surface
Sway	24 plf	Per lineal foot of seat, parallel to seat run
Sway	10 plf	Per lineal foot of seat, perpendicular to seat

C. DEFLECTION:

Structural elements shall be sized to limit the live load deflections to 1/200 of the span. Calculation shall be submitted with shop details confirming 1/200 deflection criteria.

D. FOUNDATIONS:

Foundations have been sized by an engineer and are based on soil bearing capacity of _____ psf. Soil bearing capacity is to be verified by the Owner prior to placement of footings. Foundation sizes on drawings will not be reduced under any circumstance. Downsizing or redesigned foundations are not allowed.

QUALITY ASSURANCE

- A.** Manufacturer shall have a minimum of five (5) years experience in fabrication of grandstand structures.

- B.** The owner shall hire a third party structural engineer to review all drawings and calculations provided by the bleacher manufacturer. A calculation package must be provided to the owner with the first set of approval drawings. The calculations and plans shall bear the preparing engineer's seal. The drawings and calculations shall be reviewed by the third party structural engineer to verify that the design criteria outlined in Part 4 of this section has been met or exceeded. If the bleacher manufacturer refuses to comply with the peer reviewer design issues they will forfeit the total contract. A successful third party engineer review is a requirement to be awarded contract.

- C.** Warranty: Product shall be guaranteed for one (1) year. Damage resulting from abnormal use, vandalism, or incorrect installation (if done by other than authorized installer of the manufacturer) is not applicable. **Any exposed mill finish aluminum surface will become discolored due to oxidation which is a natural phenomenon. The manufacturer will not be responsible or liable for oxidation of mill finish aluminum.**

- D.** AISC Certification: Fabricator to carry current certification and comply with AISC's "Code of Standard Practice for Steel Buildings and Bridges." Participation in the AISC Certification Program is required at time of bid. (STD – Standard for Steel Building Structures)

Certified fabricators can be verified at www.aisc.org. Grandstand manufacturers that are not AISC-certified must provide fabricated steel from another AISC-certified shop.



MANUFACTURER

The basis of design is Dant Clayton Corporation, 1500 Bernheim Lane, Louisville, Kentucky 40210; (800) 626-2177. Other manufacturers requesting to bid shall be approved by written addendum at least seven (7) days prior to bid date. Listing as acceptable manufacturer does not remove responsibility to meet specifications.

STRUCTURAL STEEL

- A.** All detailing, fabrication, and erection shall be in accordance with AISC Specifications, Load & Resistance Factor Design
- D.** All welds shall conform to ANSI/AWS D1.1, latest edition
- E.** Columns shall be wide flange shapes. (OPTION) TUBE SECTIONS
- F.** Support beams shall be wide flange shapes
- G.** Stringer shall be wide flange shape
- H.** Steel Finish
 - 1. Powder Coat Option
 - a. All ferrous metal components shall be blast cleaned to an SSPC-6 commercial blast clean.
 - b. Powder for coating shall be a polyester-based thermal setting resin.
 - c. Powder coat system shall meet or exceed the following test requirements:
 - 1. Direct Impact Resistance: ASTM D 2794-93, up to 160 in.-lbs.
 - 2. Flexibility: ASTM D 522-93, Method B, equal to or less than a 1/4 inch mandrel.
 - 3. Pencil Hardness: ASTM D 3363-93a, HB-2H
 - 4. Crosshatch Adhesion: ASTM D 3359-97, Method B, 5B
 - 5. Salt Spray Resistance: ASTM B 117, plus 1,000 hours
 - 6. Humidity Resistance: ASTM D 2247, plus 1,000 hours

DECKING SYSTEM

- A.** The decking system has two components. The first component is a one-piece welded deck panel constructed by welding multiple aluminum extensions together in the factory utilizing a fully automated, computer controlled, multi-head welding machine. The welding machine will weld all extrusions together in a single pass with 0.040" diameter 4043 welded wire using Orlicon Gas to insure uniform shape, dimension and appearance. The decking system is fixed with a 1% slope to the front to enhance water drainage. The decking system is attached by concealed clips and galvanized hardware. The decking extrusions are 1 3/4" vertically with a .078" wall thickness and are interlocked horizontally prior to welding using a tongue and groove connection.
- B.** The second component is a one-piece aluminum riser extension that has a male-female connection at the top with the welded deck panel and a shingled overlap connection at the bottom with the welded deck panel. The riser is finished with a powder coated or anodized surface treatment, covering 100% of the riser surface.
- C.** The decking system will run from raker beam to raker beam. There will be a 1/2" gap at joint of the welded deck panels to allow for expansion and contraction of the aluminum due to temperature variations.
- D.** The joint of the welded deck panel is covered with a 4" wide aluminum extrusion joint cover.
- E.** The joint of the welded deck panel is elevated 1/4" by use of a 1/4" steel plate that is installed below the welded deck panel and above the structural steel supports below.
- F.** Riser height per row and tread depth per row is indicated on design drawings.
- G.** The ends of decking system will be finished with a one-piece aluminum angle end cap.

WALKING SURFACE REQUIREMENT

- A.** All aluminum decking intended for use as a walking surface, including walkways, aisles, walking surfaces in seating sections, stairs, ramps, platforms, handicap areas, and landings, will exhibit a slip resistant surface treatment intended to minimize the effects of wet conditions for pedestrian safety.

- B.** This surface treatment will increase the slip resistance of mill finished aluminum to achieve a slip index (coefficient of friction) of 0.80 or higher in all directions of travel, including parallel to seating, as measured by the Variable Incidence Tribometer (VIT), under wet conditions as well as dry conditions. This testing machine is referenced in ASTM F-1679, Standard Test Method for Using a Variable Incidence Tribometer.

SEATING

- A.** Bench seats shall be 6063-T6 extruded aluminum with a fluted surface and a minimum of 4 vertical legs. The exact size of seatboard is 2" x 10" x .080" wall thickened at the joints and weighing 1.9 lbs. per foot with 1" radius comfort curve front edge. Aluminum shall be cleaned, pre-treated and powder coated or clear anodized.
- B.** Mounting brackets: 3/16" thick A36 steel plate, plasma cut, bent and galvanized.
- C.** Seatboards shall be attached to the system by riser mounted galvanized steel "L" brackets (deck mounted brackets not allowed). The seatboards shall align with the intermediate steps at the aisles. Seat brackets must have a positive connection to the steel frame of the bleacher. Attachment to the aluminum decking system is not allowed.
- D. Molded Plastic Chair - Dant Model 220/Colosseum-One Series** is basis of design. Other chair module products MUST be submitted seven (7) days prior to bid for Owner/Architect's approval.
 - 1. Seat construction shall be one-piece, double wall construction, rotationally molded, polyethylene, with an average wall thickness of 3/16".
 - 2. The chair back must be compound curved and full-length, and an integral part of the seat unit, with no gap construction between the back and the seat pan, to ensure the occupant is fully protected from both beverage spills and potential kicking from behind the chair.
 - 3. The seat pan shall be full width of the chair and integral with the back, with no gaps. The seat pan shall be designed so any water or liquid spills will be channeled to a drainage slot which releases water or liquid under the seat.
 - 4. Polyethylene shall be treated with ultraviolet inhibitors and proper pigments to insure minimum fading.
 - 5. Mounting brackets: Galvanized ASTM-36 steel and aluminum "W" channels.
 - 6. The chair shall provide a full-length armrest minimum of 14".
 - 7. Choose to keep or delete this option. Seat numbers for chairs shall be anodized aluminum plates 3" x 1 3/4" x 0.20" thick, to be attached with four rivets. Numbers shall be 1 1/4" high and finished in weather-resistant recessed pockets.

SEATING (CONT.)

- E. Dant Colosseum-Two Seat Module** is basis of design. Other seat modules must be submitted seven (7) days prior to bid for Owner/Architect approval.
1. Seat construction shall be one piece, double wall construction, rotationally molded, high-density polyethylene resin with an average wall thickness of 3/16".
 2. Polyethylene shall be treated with ultraviolet inhibitors and proper pigments to insure minimum fading.
 3. Mounting Brackets: ASTM-36 structural steel and designed to fit the given conditions.
 4. The seats shall be supported by an aluminum rail system manufactured from a 6063-T6 alloy heat treated extrusion.
 5. The seat pan shall be one piece contour-formed modules with a maximum 10" or 12" front to back seat depth. Project conditions will predetermine whether a 10" or 12" module shall be required. Seat shall be designed so that any water or liquid spills will be channeled to a drainage slot which releases water or liquid under the seat.
 6. The seat pan shall be ergonomically designed with complex curves and a contoured waterfall front edge to enhance overall spectator comfort.
 7. Seat modules shall interlock side to side providing a true seat width of 18", 19" or 20" plus or minus 1/8".
 8. Seat number plate shall be aluminum 1 1/4" dia. placed in the front center of the seat and tilted up for easy viewing. The plate shall be placed in a vandal-resistant recessed pocket.
 9. The back of the seat module shall provide for an advertising/donor plate positioned for easy viewing.
 10. The texture on the seat surface shall be of wood grain appearance with impressions in the mold for a wood slat appearance.
 11. The seat module shall be fastened to the aluminum extrusion by means of a 1/4" dia. aluminum bolt with a vandal resistant square bit drive and secured with a wide flange serrated stainless steel nut.
 12. The end cap shall be an aluminum casting allowing for a team logo, aisle letter plate and advertising location.

SEATING (CONT.)

F. BACKRESTS

1. Backrests shall be 6063-T6 extruded aluminum with a minimum wall thickness of 0.078".
2. Backrest stanchion bars shall be 6061-T6 extruded aluminum, 204 R1 clear anodized spaced 6'0" O-C max
3. Aluminum for backrests shall be cleaned, pre-treated and anodized or powder coated.

GUARDRAIL

- A.** Vertical guardrail structural supports shall be aluminum rectangular tube 2.8" x 2.0 x .1888" or aluminum angle of equivalent strength, and shall be 6061-T6 alloy. Guardrail shall have structural support on each leg of the fencing at all 90° turns. Tension bars do not meet this requirement
- B.** Guardrail horizontal and vertical framing members will be 1 5/8" O.D. aluminum pipe.
- C.** Chain link fence shall be 2" mesh, 9 gauge galvanized (OPTION) or 6 gauge vinyl-coated fabric.

OPTION: VERTICAL PICKET GUARDRAIL

A. MATERIALS

1. Top and bottom rail shall be 1 1/2" ASTM.A36 hot rolled steel channel.
2. Vertical ballasters shall be 1/2" ASTM A36 bar stock
3. Vertical support posts shall be ASTM A-53 steel 2" square tube seal welded top and bottom cap

B. FABRICATION

1. Welds to be full seal welds around all joints in materials.
2. All welds shall be shop welded to top and bottom channel.
No partial or tack welding.

C. FINISH

1. Powder coated per 2.02.1.H

VERTICAL CLOSURE SYSTEMS

- A.** Vertical closure shall be provided at the following locations and shall enclose the area from the walking surface to 4" above grade:
1. Front of grandstand
 2. Egress stairs and associated platforms at front walkway
 3. Egress ramps and associated platforms
 4. Behind mid-level cross aisle (if applicable)
 5. Sides of grandstand (if applicable, hillside only)

ALUMINUM OPTION

- A.** Vertical closure material shall be corrugated 6063-T6 extruded aluminum riserboards and shall be provided in a color powder coated (or anodized) finish

POLY-PANEL OPTION

- A.** Vertical closure material shall be minimum 3/4" thick non-metallic and non-corrosive material, and shall be impact resistant and waterproof
- B.** Vertical closure material shall be provided in panels and framed on all sides with a heavy-duty aluminum channel integrated with grandstand steel and/or aluminum framing
- C.** Panels shall be provided in manufacturer's standard color
- D.** Panels shall have a maximum water absorption of 0.3%

MASONRY / BRICK / BRICK VENEER (APS) OPTION

- A.** Vertical closure material shall provide the appearance of brick, stone, or other textured masonry material as indicated by the architect
- B.** Vertical closure material shall be minimum 3/4" thick finished fiber reinforced cement panels (80% Portland Cement, 20% wood chips/fibers) integrated with grandstand steel and/or aluminum framing
- C.** Panels shall be impact-resistant and maintain a flexural strength of a minimum of 1000 psi under ASTM C 1185
- D.** Independent brick-faced or stone-faced concrete masonry units supported with concrete foundation as required shall be considered an acceptable substitution to this vertical closure requirement
- E.** Vertical closure material shall be provided with a textured cap, gray in color. This cap must provide an aesthetic transition to the aluminum walking surface above.