

**GAME READY GRANDSTAND
I-BEAM STYLE STADIUM - GRANDSTAND SEATING**

SECTION 13 34 16 – GRANDSTAND SEATING SYSTEM

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes complete services to provide permanent grandstand seating system of size and capacity, and with features indicated on the drawings
- B. Complete Scope of Work in this bid package includes the following:
 - 1. Grandstand per specification and drawings. (Exact dimensions shown on drawings are required).
 - 2. All structural steel will be manufactured by AISC Certified structural steel fabricator.
 - 3. Tongue and groove decking system.
 - 4. Walkway and Framing Elevations shall be 42". Topography information to be provided to Dant Clayton by others. Variations in topography that require elevations for ramps and stairs different than 42" will be accommodated with sitework provided by others.
 - 5. Rise/Run: 8/24
 - 6. Aluminum seats, aluminum handrail and galvanized chain fence guard railing
 - 7. Heavy duty aluminum bullnose bench seating with clear anodized finish
 - 8. Risers shall be clear anodized finish
 - 9. Galvanized chain link fence guardrail.
 - 10. Structural steel will have a hot dipped galvanized finish.
 - 11. Aluminum decking will be mill finish
 - 12. Seat support brackets shall be mill finished aluminum Z brackets deck mounted
 - 13. Exact layout shown in bid documents is required. No modifications permitted.
 - 14. Foundation systems have been designed to a 2000 psf bearing capacity. Soil bearing capacity to be verified by others prior to foundation installation.
 - 15. Topographical information and soil tests will be provided to Dant Clayton by others.

1.3 REFERENCES

- A. Aluminum Association.

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- 1. ADM 2015 - Aluminum Design Manual
- B. American Concrete Institute (ACI):
 - 1. ACI 318 - Building Code Requirements for Structural Concrete
- C. American Disabilities Act, DOJ Standards for Accessible Design
- D. American Galvanizers Association (AGA).
- E. American Institute of Steel Construction (AISC):
- F. AISC 360 - Specification for Structural Steel Buildings.
- G. AISC 341 - Seismic Provisions for Structural Steel Buildings (when required).
- H. American Welding Society (AWS):
- I. AWS D1.1 - Structural Welding Code - Steel.
- J. AWS D1.2 - Structural Welding Code - Aluminum.
- K. AWS D1.8 - Structural Welding Code – Seismic Supplement (when required).
- L. The Society for Protective Coatings (SSPC):
 - 1. SSPC-SP2 - Hand Tool Cleaning.
 - 2. SSPC-SP6 - Commercial Blast Cleaning.
- M. State specific Building Code.
- N. International Building Code (IBC) Referenced by State Building Code
- O. International Code Council (ICC):
 - 1. ICC 300 - Standard for Bleachers, Folding and Telescopic Seating, and Grandstands.

1.4 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Grandstand system shall withstand the effects of gravity loads and the following loads within limits and under conditions indicated:

Dead Load	6 psf.	Seat and footboards, risers, steel framing, etc.
Live Load	100 psf.	To structural members
	120 plf.	Seatboards
	120 plf.	Footboards
Design Wind Speed	150 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
Railings and guards	50 plf. 200# point	Per state requirements

- B. Deflection:
 - 1. Vertical deflection of grandstand framing shall be no greater than span/200 for service live loads.

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2. Horizontal drift of grandstand framing shall be no greater than height/200 for lateral sway, wind and seismic loads.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Engineered Drawings and Calculations: Complete detailed drawings and calculations prepared, signed and sealed by a Registered Professional Engineer (P.E.) licenses in the State of the Project.
 1. Detailed and dimensioned plans.
 2. Seating plan indicating aisles, walkways, seating sections and exits.
 3. Sections and details showing complete methods of assembly and anchorage.
 - a. Show riser heights and platform widths
 - b. Show stair sections including railings
 - c. Show overall sections showing railings and guards
 4. Footings, foundations, reinforcement and anchor bolt setting plan engineered to meet building code requirements and any geotechnical report.
 5. Any deviations from the bid documents shall be clearly identified in the bid drawing submittal. Final approval of construction documents is the sole responsibility of the Owner.
 6. Engineering calculations.
- C. Samples for Verification: All exposed finishes must be submitted and certified to satisfy this specification prior to manufacturing.
- D. AISC Certified Welding certificates for all structural steel.
- E. Warranty: Sample of standard warranty.

1.6 QUALITY ASSURANCE

- A. Manufacturer shall have a minimum of ten (10) years' experience in fabrication of grandstand structures and shall, upon request, provide references of successful projects of similar size and requirements and AISC Certification documents, for manufacture of structural steel.
- B. Installer: Manufacturer of grandstand system or factor-certified and trained, authorized representatives of the grandstand manufacturer who has completed successfully at least five installations of similar size and complexity within the past three years.
 1. Provide documentation and contact names for these installations

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- C. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code – Steel."
 - 2. AWS D1.2/D1.2M, "Structural Welding Code – Aluminum."
 - 3. AWS D1.3, "Structural Welding Code – Sheet Steel."

- D. AISC Certification: All structural steel must be fabricated in an AISC certified plant that participates in the AISC Qualify Certification Program. The fabricator shall cooperate with and make available to the Testing Agency (provided by the owner) records and documents which focus on general management, engineering, procurement, operations, and quality control and shall allow access to the facility to allow the Testing Agency to examine actual fabrication work in the shop. All cost associated with testing by Owner will be paid by manufacturer.

1.7 COORDINATION

- A. Coordinate installation of anchorages and interfaces with other construction, including, if applicable, press box. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts and items with integral anchors that are to be embedded in concrete.

- B. Coordinate interfacing Work covered in other sections.

1.8 WARRANTY

- A. Warranty: Product shall be guaranteed for five (1) year on the structure on the finishes together with labor. Damage resulting from abnormal use, vandalism, or incorrect installation (if done by other than authorized installer of the manufacturer) is not applicable.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design: The specifications and plans are based on I-beam products and the capabilities of Dant Clayton. Subject to compliance with specified requirements provide products of either the named manufacturer or comparable products by the following:
 - 1. Dant Clayton (Basis of Design)

- B. Specification Requirements: Some of the specification requirements of this Section may be a higher level than the "standard" even for the basis of design manufacturer. Where such differences occur, the higher-level requirement shall be

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provided (applicable to all manufacturers). In case of any doubt, contact the Owner for clarification.

2.2 MATERIALS

- A. Structural Steel: Provide structural steel per locations as shown on the drawings and in compliance with the following:
1. All detailing, fabrication, and erection shall be in accordance with the 2015 AISC Specification for Structural Steel Buildings.
 2. All fabrication will be completed in a certified AISC facility.
 3. Structural steel shall be ASTM A992 multi-certified grade 50.
 4. Miscellaneous steel shall be ASTM A36.
 5. Bolts and nuts: All bolts 5/8-inch diameter and larger shall meet ASTM F3125 grade A325; 1/2-inch diameter and smaller shall meet ASTM A307.
 6. Threaded rod shall be ASTM A36 or F1554 if used for anchorage to concrete.
 7. All welds shall conform to ANSI/AWS D1.1, latest edition. Electrodes shall be E70XX.
 8. Columns shall be wide flange shapes.
 9. Support beams shall be wide flange shapes.
 10. Stringer shall be wide flange shapes.
 11. Structural Steel Finish: Galvanized meeting ASTM A123
- B. Aluminum: Provide aluminum components at locations as shown on drawings, noted below in COMPONENT PARTS and in compliance with the following:
1. All detailing, fabrication, and erection shall be in accordance with the 2015 Aluminum Design Manual.
- C. Concrete: Provide all concrete work and materials as shown on drawings and in compliance with the following:
1. All detailing, fabrication, and installation shall be in accordance with the ACI 318.
 2. Cast-in-place concrete shall have a minimum compressive strength of 4,000 psi with air entrainment of 6% +/- 1%.
 3. All reinforcing steel shall be in accordance with ASTM A615 with a minimum yield strength of 60 ksi.

2.3 COMPONENT PARTS

- A. Chain Link Fence Guardrail System:
1. 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

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90 degree turns. Steel angle supports do not meet this requirement and are not acceptable.

2. Guardrail horizontal and vertical framing members will be 1 5/8" O.D. aluminum pipe.
3. Chain link fence shall be 2" mesh, galvanized fabric.
4. Vertical guardrail supports will have cast aluminum safety end caps on top and bottom.

B. Handrail:

1. Two-line center aisle handrails shall be anodized extruded aluminum pipe of 6061-T6 alloy, with a 1 15/16" outside diameter and a wall thickness of .145". All connections and fittings will be 1 15/16" finished size.
2. Handrails on all ramps and stairs shall provide 1-1/2" clearance from the guardrail material and shall extend 12" past the last riser with a return. Newel posts will not interrupt handrails. Handrails will not project more than 4.5" into the width of a stair or ramp.
3. Design handrails and guards to comply with OBC load requirements. Provide engineered calculations with bid.
4. Smaller size aluminum pipe fails this requirement of 1 15/16" O.D.

C. Seating:

1. Aluminum seats shall be 6063-T6 extruded aluminum with a fluted surface and a minimum of 4 vertical legs. The exact size of seat board 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 clear anodized.
2. Seatboards shall be attached to the system by deck mounted mill finish aluminum Z brackets. Attachment to the riser board or aluminum channels in decking is not allowed.

D. Deck System

1. Fully closed mill finished 6063-T6 extruded aluminum decking system with tongue and groove components. Decking system components shall have a minimum thickness of 1.75 inches without exception.
2. The decking system will run from raker beam to raker beam. There will be a 1/2" gap at joint of the decking panels to allow for expansion and contraction of the aluminum due to temperature variations.
3. The joint of the deck system is covered with a 4" wide aluminum extrusion joint cover.
4. The ends of the decking system will be finished with a one-piece aluminum angle end cap.
5. Gutters and open channels in the decking system are specifically prohibited.

E. Ramps, Stairs and Landings:

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1. Comply with Building Code and ADA requirements.
- F. End Caps
1. Walkways, footboards and aisle board end caps shall be one-piece mill finish aluminum angle design tumbled after fabrication to remove burrs and sharp edges. End caps shall be riveted to the planks.
 2. Seat board end caps shall be one-piece cast aluminum and shall be friction – fit to the plank without the use of mechanical fasteners. Plastic end caps are not permitted.
 3. CLF Guardrail posts shall be covered with cast aluminum top and bottom safety caps.
- G. Handicap Seating - as shown on drawings.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas and conditions with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the work
- B. Prepare written report, endorsed by installer, listing conditions detrimental to performance of the work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install grandstand and all components according to manufacturer’s written instruction and the approved shop drawings.

3.3 CLEANING

- A. At substantial completion, the topside of the grandstand system will be pressure washed with water one time in accordance with manufacturer standards and requirements.
- B. Use cleaning solutions and methods that do not damage finishes or the adjacent surfaces.
- C. Remove all metal burrs, sharp edges or other cutting, unsafe, conditions as determined solely by the manufacturer.
- D. Mill finish aluminum surfaces are unprotected from oxidization. All mill finished aluminum will oxidize at various rates during the manufacturing, shipping, installation, and usage of the grandstand as it is exposed to various weather elements. Oxidization is natural and expected, and in no ways impacts the life cycle

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or structural performance of the grandstand. Dant Clayton is not responsible for repair, replacement, or cleaning of oxidized aluminum.

END OF SECTION 13 34 16