

SECTION 13125 – ELEVATED BLEACHERS (Tube Square Angle Semi-Closed Deck)

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. The work consists of providing labor, materials, equipment, engineering, installation and supervision of an elevated tube square angle bleacher system, including but not limited to the following:
 - a. Decking System
 - b. Seating
 - c. Handrails / Guardrails
 - d. Ramps
 - 2. The construction and design of the bleacher shall be in compliance with the _____ Building Code.
 - 3. Dimensions / Capacities
 - a. The overall length of bleacher shall be _____.
 - b. The number of rows shall be _____.
 - c. Height of front cross aisle from grade shall be _____.
 - d. The rise per row shall be _____.
 - e. The depth per row shall be _____.
 - f. Net seating capacity shall be _____.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. General: Provide a complete, bleacher system of mutually dependent components and assemblies that form a bleacher system capable of withstanding structural and other loads, thermally-induced movement, and exposure to weather without failure. Include primary and secondary framing, Decking System, seating, handrails and or guardrails, and accessories complying with requirements indicated, including those in this Article.
- B. Structural Performance: Provide bleacher system capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Design Loads / Structural – Framing Members

- a. Dead Loading: 6 PSF for understructure
 - b. Live Loads: 100 PSF for understructure
- 2. Design Loads / Semi-Closed Decking System
 - a. Dead Loading: 6 PSF for decking, platforms, stairs and ramps
 - b. Live Loads: 100 PSF for decking, platforms, stairs and ramps
 - c. Deflection Limits: engineer assemblies to withstand design loads with deflections no greater than the following:
 - 1. Decking, platforms, stairs and ramps: vertical deflection of $L/240$
 - d. Sway loads of 24 PLF per row parallel to seat and 10 PLF per row perpendicular to seat run.
- 3. Design Loads / Handrail / Guardrail
 - a. 50 PLF in any direction
 - b. 200 LB Concentrated load any direction
- 4. Design Loads / Seat Boards
 - a. Live Loads: 120 PLF for seating

1.4 SUBMITTALS

- A. Shop Drawings: Submit manufacturer's approval drawings. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of the following bleacher system components:
 - 1. Foundations:
 - a. Footings, slab, and reinforcement.
 - 2. Structural framing:
 - a. Primary and secondary framing including but not limited to the following:
 - 1.) Vertical & Horizontal Members
 - 2.) Bracing
 - 3.) Connecting hardware
 - 3. Semi-Closed Decking System:
 - a. Decking
 - b. Risers
 - c. Supports for Seats
 - d. Aisle Steps
 - e. Aisle Handrails
 - g. Hardware
 - 4. Seating
 - 5. Handrails / Guardrails
 - 6. Ramps

7. Egress Stairs

- B. Proposal Drawings: Submit with bid proposal the following scheduled design plans:
1. Plan showing general design and seat locations
 2. A decking and aisle layout plan

1.5 QUALITY ASSURANCE

- A. Concrete Installers Qualifications: An experienced installer who has completed concrete work similar in material, design and extent to that indicated for this project and whose work has resulted in construction of bleachers with a record of successful in-service performance. Submit superintendent's name, phone number and list of three similar jobs with bid.
- B. Erector Qualifications: An experienced erector who has specialized in erecting and installing bleachers similar in material, design, and extent to that indicated for this Project. Submit superintendent's name, phone number and list of three similar jobs with bid.
- C. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installation of bleacher systems that are similar to those indicated for this Project in material, design and extent. All approval drawings and calculations shall bear the seal of a registered professional engineer.
- D. Quality Control: Manufacturer's written quality control for manufacturing, shipping and installation shall be submitted with bid.
- E. Standards and Guidelines: Comply with the provisions of the following codes, specifications and standards, latest editions, except as otherwise noted or specified:
1. American Concrete Institute (ACI)
 2. Aluminum Association of American
 3. American Welding Society (AWS)
 4. Americans with Disabilities Act (ADA)
- F. Site visitation: Bidder shall visit the job site ten (10) days prior to the bid date. At the time of visitation, bidder must announce himself to the owner's representative.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver components, and other manufactured items so as not to be damaged or deformed. Package items for protection during transportation and handling. Handling: Unload items to prevent bending, warping, twisting and surface damage.
- B. Do not store items on the job site in contact with other materials that might cause staining, denting or other surface damage.

1.7 WARRANTY

- A. All products shall carry, after proper erection, and under normal use for the type of structure a one (1) year warranty against all defects in materials and workmanship.

PART 2 PRODUCT

2.1 BLEACHER SYSTEM

- A. Structural Aluminum Framing and Decking System
 - 1. Outdoor Aluminum, Inc. (800) 225-4249
PO Box 118
Geneva, AL 36340
- B. Other manufacturers seeking to be approved must submit the following to the Owner for review and receive approval from the Owner seven days prior to bid. Interlocking or tongue and groove decking systems are prohibited. To be submitted:
 - 1. Seatboard sample
 - 2. Footboard sample
 - 3. Riserboard sample
 - 4. Handrail support post end cap sample
 - 5. 12" x 12" chain link fence sample
 - 6. Mid-aisle Grab Rail Unit sample
 - 7. Seating plan indicating aisles, walkways, seating sections and exits
 - 8. End elevation indicating riser and row depth, depth configuration, railings, size of framing members, and walkway
 - 9. Schedule of work experience, including names of contacts and phone numbers – 30 jobs minimum
 - 10. List of (5) similar jobs – should the Owners (3 persons maximum) request a site visitation to any of these jobs, it will be at the Bidder's expense

11. Resume including Corporate Officers, Sales Representatives, Technical Advisor, Project Manager and Job Site Superintendent
12. Project schedule, including phasing with other trades and designation for all tasks, milestone dates for drawing submittal, fabrication time, key material delivery dates and designated dates of installation

2.2 CONCRETE FOUNDATIONS (INCLUDING CONCRETE SLABS)

- A. Foundations shall be designed in accordance with mix designs.
- B. Foundations shall be based on a subsurface exploration report furnished by the owner.

2.3 UNDERSTRUCTURE:

1. The understructure of the system shall consist of a series of aluminum frames spaced at intervals of no more than 6-0' and joined by means of aluminum sway braces.
2. Each frame shall consist of vertical members, adequate diagonal braces, and horizontal members welded to form the rise per row and back-to-back spacing between seat rows as indicated.
3. All welded connections shall be by certified aluminum welders, and all mating parts shall be welded on all sides to assure adequate strength.
4. Vertical members shall be constructed on a minimum of 2" x 2" x 1/8" square tube aluminum, alloy 6061-T6, mill finish
5. Horizontal members shall be constructed of 2" x 1 1/2" x 3/16" or larger aluminum angle, alloy 6061-T6, mill finish.
6. Sway braces shall be constructed of 1 1/2" x 1 1/2" x 3/16" aluminum angle, alloy 6061-T6, mill finish

2.4 DECKING SYSTEM: "Semi-Closed Decking System"

- A. Decking System
 1. Decking shall consist of nominal 2" tall aluminum planking to provide gap coverage consistent with the specified building code.
 2. Individual extrusions shall be 1-3/4" in height and a minimum aluminum wall thickness of .078" and be aluminum alloy 6063-T6.
 3. Walking surface shall be fluted non-skid.
 4. At locations where decking extrusions meet end to end a dual splice sleeve shall be installed and fastened at one point only to allow for the continual expansion and contraction of the extrusion.
 5. End caps shall be of a heavy-duty, clamping, channel design, fastened to the underside of the plank with aluminum rivets.
 6. End caps shall match in both color and finish to the extrusion to which they will attach.

7. End caps shall be a single, full-length piece.
- B. Decking System Riser
1. The decking system riser shall be extruded aluminum; alloy 6063-T6 with a mill finish.
 2. The riser shall attach using extruded aluminum bolt clips, designed to clamp the riser to the supporting structure and hot dipped galvanized carriage bolts, lock washers, and hex nuts. Self-drilling fasteners are prohibited.
 3. The riser shall be structurally connected to every frame line.
 4. The riser extrusion shall be of sufficient height that the resulting gap between the riser and upper row footboard shall be less than 4"
- C. Decking System Seat Supports
1. The decking system seat support shall be of extruded aluminum angle, alloy 6061-T6, and mill finish.
 2. Seat support shall be mounted directly against the vertical portion of the understructure.
- D. Decking System Intermediate Aisle Steps (If Required)
1. The decking system aisle steps shall be extruded aluminum, alloy 6063-T6, and mill finish.
 2. Step height shall be one-half of the rise per row and step depth shall be one-half of the run per row. The length shall be the same as the width of the vertical aisle plus six inches.
 3. Contrasting step tread nosing to be anodized black. Powder coated nosing is prohibited.
- E. Decking System Aisle Handrails
1. The decking system aisle handrails shall be 1-5/8" schedule 40 anodized aluminum pipe.
 2. Aisles shall have an intermediate handrail with the top of rails set 34" above the leading edge of the steps. Handrails shall be discontinuous and shall not span more than five rows of seating and the spacing between rails shall not be less than 22" or more than 36".
- F. Egress Stairs
1. The decking system egress stair stringers are to be constructed of the aluminum channel, alloy 6061-T6.
 2. Walking surface of tread shall be mill finish aluminum, 1-3/4" in height, 11-1/2" in width using alloy 6063-T6.

3. Stair treads nosing to be anodized black. Powder coated nosing is prohibited. The leading edge of the step tread shall project ½” past the front of the vertical riser.
4. Stair grab rail to be constructed of 1-5/8” schedule 40 anodized aluminum pipe. Top of rails shall be set 34” above the leading edge of the steps.

G. Decking System Hardware

1. All bolts, washers and nuts shall be galvanized.

2.5 SEATING

A. Bench Seating

1. Seats shall be of extruded aluminum with a fluted non-skid surface, alloy 6063-T6, with 204R1 anodized clear finish.
1. Seat plank shall be a 2” by 10” nominal with a wall thickness of .078” (+ / - .006” industry tolerance).
2. Finish size shall be a minimum of 1-3/4” by 9-1/2”.
3. Seats shall attach to the decking system seat supports by means of concealed aluminum clips, hot-dipped galvanized bolts, washers and nuts.
4. Seat supports shall be installed on centers that will allow for the same design deflection criteria as the decking system.
5. End caps shall be of extruded aluminum and shall match in both color and finish the plank to which they attach. All end caps shall be single piece and shall attach to the underside of the plank with a minimum of two aluminum rivets.

B. Optional Bench Seating with Backrests

1. Backrests shall be of extruded aluminum with a fluted surface, alloy 6063-T6, with 204R1 anodized clear finish. (Optional: powder coated finish as specified by owner).
2. Plank shall be a minimum 2” by 6” contour nominal with a wall thickness of .078” (+ / - .006” industry tolerance).
3. Backrests shall attach to an anodized aluminum channel stanchion and the stanchion shall connect to the underside of the seat plank. The stanchion shall connect to the backrests and seat plank using concealed aluminum clips.
4. End caps shall be of cast aluminum and shall match in color the plank to which they attach. All end caps shall be single piece and shall attach to the underside of the plank with a minimum of two stainless steel pan head screws.

5. (Note): Most codes require a minimum tread depth of 30" to accommodate backrests.

2.6 HANDRAILS / GUARDRAILS

A. Bleacher Handrail / Guardrail System

1. All railing shall consist of 1-5/8" schedule 40 anodized pipe.
2. All pipe fittings shall be of cast aluminum.
3. Guardrail supports to be 3" aluminum channel, alloy 6061-T6.
4. Rail pipe shall be secured to the guardrail support by means of galvanized tension bands.
5. The top rail shall be 42" minimum above the nearest seat on the sides and rear, and 42" above the tread on the front walkway.
6. Handrails on stairs shall be 34" above the leading most edge of the stair tread.
7. An aluminized chain link fence shall be provided on the front, sides and rear of the bleacher and at all egress areas.
8. Handrails shall be provided at all walking areas and shall extend 1-1/2" from guardrail material. Standoff shall be extruded aluminum, alloy 6061-T6.
9. Handrails shall have internal sleeves for splice purposes and finished rail shall be continuous and shall not exceed 1-5/8" diameter.

2.7 RAMPS

A. Bleacher Handicap Ramps

1. Wheel chair accessible ramps with a minimum 60" clear width and a maximum 1:12 slope shall be provided, conforming to code.
2. Understructure shall be constructed of same materials as bleacher support structure.
3. Decking and handrails shall be constructed of same materials as bleacher decking.

2.8 IDENTIFICATION

A. Optional Bleacher Seat and Row Lettering

1. Seat numbering shall be clearly and permanently marked with computerized engraving system.
2. Seats shall be marked at 18" minimum on center on the non-fluted portion of the seatboard.
3. Row numbering shall be clearly and permanently marked with material providing a high contrast, high-resolution mark.
4. Row lettering shall be marked on the end caps.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of bleacher system.
- B. Before erection proceeds, survey elevations and locations of concrete foundations to receive structural framing. Verify compliance with requirements and bleacher manufacturer's tolerances.

3.2 ERECTION

- A. Erect bleacher system according to manufacturer's written instructions and erection drawings.
- B. Do not field cut, drill or alter structural members without written approval from bleacher system manufacturer's professional engineer.
- C. Set structural framing in locations and to elevations as indicated.

3.3 CLEANING AND PROTECTION

- A. Clean all metal surfaces promptly after installation of work.
- B. Exercise care to avoid damage to protective coatings and finishes.
- C. Remove all excess construction material and dispose of all debris.

END OF SECTION 13125