



New Lebanon High School – Lebanon, OH

CONTINUOUS ANGLE FRAME Bleachers



Wild Horse Pass Arena – Chandler, AZ



Schertz-Cibolo ISD – Cibolo, TX



McLennan Community College – Waco, TX

Standard or Custom Solutions

Designed for installation on flat and level surfaces, standard Angle Frame Bleachers are offered in 5, 8, 10, 15 and 20 rows. Our standard designs can be custom engineered for your specific site and seating needs.

Accommodates Expansion

As your facility and seating requirements increase, this type of bleacher system provides the flexibility of adding additional seats to continually meet the demand.

Versatility

Can be customized to accommodate various seating options including benches with straight backs, individual VIP chairs and armrest to designate exact seating for reserved areas.

An Economical Standard

For the ultimate in cost effective spectator seating, standard Angle Frame Bleachers provide the top quality features you expect, at a cost that will fit any budget for indoor and outdoor venues.

Recommended for:

Football	Baseball	Softball
Soccer	Lacrosse	Tennis
Track	Motorsports	Aquatic
Rodeo	Exposition	Ice Rink



Economical & versatile seating for all indoor and outdoor venues.



Structure

Our standard Angle Frame bleachers are built using a galvanized steel box frame construction that includes cross bracing and stringers spaced at 6 feet on center. Offered in both elevated or non-elevated applications and optional aluminum frame understructure.

Finish Applications

Standard features include anodized aluminum seating and risers, semi-closed or closed mill finished decks. Options include bench seating with straight backs or VIP chairs, press boxes, ramps, stairs or walkways.

Warranty

All Sturdisteel Products are warrantied for five years beginning at date of substantial completion of project - free from defect in materials and workmanship in the course of manufacture. This warranty excludes any other defects resulting from abnormal use, accidental or intentional damage or any occurrences beyond manufacturer's control.



Gross Seating Capacities

Gross seating is based on 18" per seat and is the total seating area (total rows multiplied by seating area length, divided by 1.5"). Not seating is the gross seating, less the seating lost due to aisles and handicap spaces requirements, and will vary based on local building code requirements. Not Seating is approximately 85% of Gross Seating and is the actual seating capacity.

LENGTH	3 ROWS	4 ROWS	5 ROWS	8 ROWS	10 ROWS	15 ROWS
15'	30	40	50	80	100	150
21'	42	56	70	112	140	210
27'	54	72	90	144	180	270
33'	66	88	110	176	220	330
39'	78	104	130	208	260	390
45'	90	120	150	240	300	450
51'	102	136	170	272	340	510
57'	114	152	190	304	380	570
63'	126	168	210	336	420	630
69'	138	184	230	368	460	690
75'	150	200	250	400	500	750
81'	162	216	270	432	540	810
87'	174	232	290	464	580	870
93'	186	248	310	496	620	930
99'	198	264	330	528	660	990
105'	210	280	350	560	700	990
111'	222	296	370	592	740	1110
117'	234	312	390	624	780	1170
123'	246	328	410	656	820	1230
129'	258	344	430	688	860	1290
135'	270	360	450	720	900	1350
153'	306	408	510	816	1020	1350
177'	354	472	590	944	1180	1770
195'	390	520	650	1040	1300	1950
213'	426	568	710	1136	1420	2130
231'	462	616	770	1232	1540	2310



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Sturdisteel is a Division of Schultz Industries, Inc.

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Guide Specification

Section 13125 Angle Frame Bleachers

Part 1 General

1.01 SPECIFICATION INCLUDES

- A. Design, fabrication and installation of angle frames bleachers.

1.02 REFERENCES

- A. ASTM A36 – Specification for Structural Steel.
- B. ASTM A123 – Specification for Zinc (Hot Dip Galvanized Coatings and Iron and Steel Products).
- C. ASTM A307 – Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.

1.03 SUBMITTAL

- A. Submittal Drawings: Submittal drawings sealed by a registered professional engineer indicating location, size, details, and quantity of all steel, and aluminum components and accessories. Drawing will indicate the locations of all aisles, seat locations, decking configuration, and general materials to be supplied.
- B. Design Calculations: Design calculations sealed by a registered professional engineer for the State of Iowa and shall present an analysis which will indicate that the structural members will have sufficient strength to support the required loads and ability to resist the loads subjected, without exceeding the allowable stresses of the materials.
- C. Color Chart: Submit color finishes for selection, if applicable.
- D. Manufacturer's product data. Submit product brochure and descriptive data.
- E. Certificates: Submit if applicable.
 - 1. Insurance Certificate
 - 2. Bid Bond, Payment & Performance Bonds (If Required)

1.04 QUALITY ASSURANCE

- A. Codes and Standards: Design, fabrication, and installation shall be in accordance with International Building Code, 2012 Edition. Owner will verify code, requirements.
- B. Manufacturer Qualifications: Minimum 10 years existence under current ownership and experience in the design and manufacture of bleachers.
- C. Manufacturer Installer Qualifications: Employ persons trained and experienced in the installation of bleachers.
- D. Welders: AWS certified.
- E. AISC Certification: All structural steel shall be fabricated in an AISC certified plant that is certified "STD" at the time of the bid. The manufacturer must be listed on the AISC's website as a certified fabricator. Proper certification and inspections are required under Chapter 17 of the IBC, latest addition.

1.05 DESIGN CRITERIA

- A. Applicable Codes: All design, materials and workmanship shall be in accordance with the International Building Code 2012 and ICC 300 Bleachers, Folding and Telescopic Seating and Grandstands. (or current edition)
- B. Design Loads:

Live Loads:	Uniform Loading-Structure=100 PSF
	Uniform Loading-Seat=120 PLF
Sway Loads:	Perpendicular to Seatings=10 lbs PLF
	Parallel to seats= 24 PLF
Wind Loads:	Per Local Building Code
Snow Loads:	Per Local Building Code
Seismic Loads:	Per Local Building Code
Handrail and Guardrail:	200 lbs concentrated in any direction

1.06 WARRANTY

- A. Guarantee bleachers to be satisfactory as to design, workmanship, and materials for five years beginning after completion of project.

1.07 MAINTENANCE

- A. Annual inspection and evaluation to be conducted by a qualified person retained by the owner. Required maintenance of grandstand to insure safe conditions by owner.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Sturdisteel Company, PO Box 2655, Waco, Texas, 76702-2655.
Tel (800) 433-3116. Fax (254) 666-4472, www.sturdisteel.com

2.02 ANGLE FRAME BLEACHERS

- A. Design shall be in accordance with American Institute of Steel Construction and Specifications for Aluminum Structures.
- B. Shop Connections: Welded.
- C. Welding: AWS standards.
- D. Framework: Space prefabricated angle bleacher frames at 6 foot intervals and connect by crossbraces.
- E. Rise and Depth Dimensions:
 - 1. Vertical Rise and Horizontal Depth per Row: 8 inches by 24 inches.
 - 2. Seat Above its Respective Tread: 17 inches.
- F. Riser:
 - 1. Nominal 1 by 6.25 at all rows except the top and 1 by 11.5 at the top row clear anodized aluminum plank at all rows.
- G. Seats: Nominal 2 by 10 anodized aluminum plank, with 2 by 10 end caps.
- H. Treads: Nominal two 2 by 10 mill finish plank with 2 by 10 end caps.
- I. Guardrail: To be on all sides of the bleachers, and shall be secured to structural angle post/vertical members attached to the understructure. Attachment of guardrail posts to aluminum planking (seats or footboards) is prohibited.
 - 1. Back and Side Top Rails: 42 inches above its adjacent seat.
 - 2. Chain Link Fence Enclosure: In accordance with IBC 2012.

- J. Aisle Width: 48 inches in accordance with IBC 2012, unless greater width specified by local code requirements. Each aisle extension boards to have a 2 inch dark bronze anodized nosing.
- K. Anchor to concrete slab, designed by Sturdisteel, using 2 3/8 x 3 screw anchors for each frame. If concrete slab is not provided, then use wolmanized lumber, 2x8, for all frame locations and anchor using earth augers in order to meet the required wind loads
- L. Wheelchair provisions, quantity and locations shown on the plans. Wheelchair locations shall have guardrails directly behind the wheelchair section.

2.03 MATERIALS

- A. Framework
 - 1. Galvanized Steel Angle Frames, Cross Bracing and Guardrail Posts: ASTM A36. Hot-dipped galvanized after fabrication in accordance with ASTM A123. Aluminum Frames and cross bracing will be unacceptable
- B. Extruded Aluminum:
 - 1. All planking to be extruded aluminum alloy 6063-T6.
 - 2. Seats and risers shall be clear anodized 204R1, AA-M10C22A31, Class II
 - 3. Tread planks will be mill finish
- C. Accessories:
 - a. Channel End caps: aluminum alloy 6063-T6, clear anodized finish to match the seats
 - b. Hardware
 - i. Bolts, nuts and washers are galvanized
 - ii. Hold-down clip assembly is aluminum alloy 6061-T6
 - c. Guardrailing: front sides and rear to be of anodized aluminum pipe 1-5/8 inch o.d. with galvanized chain link
 - d. Handrails: Anodized aluminum pipe 1-5/8 inch o.d.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install angle frame bleachers complete in accordance with manufacturer's written instructions and approved shop drawings

3.02 CLEAN UP

- A. Clean all surfaces after installation, in accordance to manufacturer's recommendations
- B. Remove and properly dispose of all packaging and construction debris