



TRIUMPH 2554

Spectator Stadium Seat

SECTION 12 63 00 – STADIUM AND ARENA SEATING

PART 1: GENERAL SPECIFICATIONS

1.01 SCOPE - Provide, deliver and install fixed stadium seating as specified herein. Chair shall be of the floor and/or riser attached type with blow molded plastic seat and back, die cast aluminum end and center standards, and shall have a mechanism for automatically lifting the seat to a uniform full folded position. There will be approximately (QTY) chairs to be delivered and installed.

1.01 ENVIRONMENTAL CONDITIONS - Wet-work in space shall be complete and minimally dry, all concrete work shall be complete including finish sanding and sealing.

1.02 QUALITY ASSURANCE

A. References to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies will refer to the latest edition of such publications adopted and published prior to submittal of the bid. All such codes and standards will be considered a part of the specifications as if they were fully included herein.

B. The Owner and Architect shall ensure that the entire installation conform to the following:

- Standard Building Code, 1999 Edition
- BOCA National Building Code, 1999 Edition
- Uniform Building Code, 1997 Edition
- Best practices of the industry and other applicable local, state and/or federal regulations.

BASE SPECIFICATION:

Global Sport Resources Ltd. Seating Model - 2554 – TRIUMPH – Solid-Back Stadium Chair with Die Cast Aluminum Standards

1.04 PERFORMANCE TESTING

A. VERTICAL DROP IMPACT TEST-SEAT

i. TEST SAMPLE: Three unit seat and back chair.

ii. TEST DESCRIPTION: This test consists of repeated impacts of a forty-pound 10" diameter sand bag dropped on the seat at an approximate rate of nineteen (19) impacts per minute. The center of impact is to be at the center of the seat. The chair tested shall be in the middle of a three-chair unit with the seat fixed in the down position.

iii. TOLERANCES: Bag weight- plus or minus one pound. Bag diameter and heights- plus or minus one inch.

iv. TEST CRITERIA: The bag shall be dropped as follows:

- 25,000 times from a height of 6"
- 25,000 times from a height of 8"
- 25,000 times from a height of 10"
- 25,000 times from a height of 12"

v. ACCEPTANCE CRITERIA: Measurements of the seat height are to be taken at the completion of the first 100 impacts and at the completion of the test. The vertical seat to floor height measured at the front edge shall not drop more than 3/4 of an inch. There shall be no loosening of the fasteners which retain the seat to the standards. The seat must be able to return to normal fold position.

B. SWING IMPACT TEST-BACK

i. TEST SAMPLE: Use the same three-chair assembly as previously used for the vertical drop impact tests except for the following changes: Rearrange the setup so that the two outer standards become the middle standards, one outer seat and back shall comprise the middle chair. The previously tested middle chair parts are to be used for the outer chairs.

ii. TEST DESCRIPTION: This test consists of repeated impacts to the chair back of two 40 pound, 10" diameter sand bags. The bags, mounted at 13" centers, are to be pivotally hung from a horizontally reciprocating bar cycling at approximately 37 strokes per minute. The sand bags are to be filled with dry sand and hung with the bottom of the bag 32" below the pivot suspension point and 10" below the top of the chair back. The chair back is to be centered between the bags when the bags are in the center of the stroke.

iii. TOLERANCES: Bag weight- plus or minus one pound. Bag diameter and heights/distances- plus or minus one inch.

iv. TEST CRITERIA: The number of impacts and the horizontal stroke of the actuating bar shall be as follows:

30,000 impacts (cycles) through a distance of 4-3/4"

30,000 impacts (cycles) through a distance of 6"

30,000 impacts (cycles) through a distance of 8"

v. ACCEPTANCE CRITERIA: At the completion of the test, no mechanical failures shall have occurred in the standards, seat or back of the middle chair.

C. STATIC LOAD TO TEST SEAT

i. TEST SAMPLE: A single floor mounted chair unit

ii. TEST DESCRIPTION: A vertical static load is to be applied to the top of the seat fixed in the down position with the center of the load approximately 3" rearward of the front edge and equidistant from the sides. A beam (wood, 4" x 4" +/- 1/2", longer than the seat width) is to be used to distribute the load transversely across the seat.

iii. TEST CRITERIA: The test load of 600 pounds is to be applied at the rate of approximately 2" per minute.

iv. ACCEPTANCE CRITERIA: Initial and final seat to floor vertical height measurements are to be taken with a seated 200 pound minimum occupant after five seating cycles. At the completion of the test, permanent distortion shall not exceed 5/8". Deflections and permanent distortions are to be measured at the front center edge of the seat vertically relative to the floor.

C. SELF-LIFTING OSCILLATING SEAT

i. TEST DESCRIPTION: The test shall be conducted using ASTM F 851-87 (2000) as a guide. The standard requires that the seat shall be lowered mechanically against the down stop, and then released at a rate of 20 times per minute by means of 2 hard rubber rollers attached dually to the end of an adjustable length actuating bar. The roller wheels shall be approximately 3-1/2" in diameter and contact the center of the seat approximately 5" from the front edge. The mechanism shall allow the seat to cycle freely through its full operation.

ii. TEST CRITERIA: 100,000 Cycles

iii. ACCEPTANCE CRITERIA: At the completion of the test, the seat shall have demonstrated sufficient strength and durability to withstand this test without any appreciable loss of the seat's self-rising action or excessive loosening of components.

1.05 SUBMITTALS

A. SHOP DRAWINGS - Submit drawings prepared from the Contract Documents and field measurements, including layout of seating units, chair sizes and aisle widths. Seating plans shall be reviewed and approved by the Architect. Any revisions necessary due to "as built" and installation conditions shall be made and reviewed prior to final printing. Five copies shall be provided.

B. SAMPLES - Provide representative samples of textures, materials and colors available within the grade specified herein.

1.06 PRODUCT DELIVERY - Deliver the seating at a proper time for installation that will not interfere with other trades operating in the building or other installation area.

1.07 FIELD MEASUREMENTS - Field measurements are to be taken by the Chair Installer after installation space has been substantially completed to verify or supplement dimensions indicated. Changes are to be forwarded to the seating manufacturer prior to confirming ship date.

1.08 MATERIALS AND WORKMANSHIP

A. Provide new materials of types specified.

B. Turn over all work to the Owner in an undamaged condition.

1.09 WARRANTY

A. Provide a manufacturer's life time limited warranty.

B. Repair or replace any part, which becomes defective during the warranty period, excepting where the product has been subject to accident, alterations, abuse, misuse or neglect.

PART 2: MATERIAL

2.01 DIE CAST ALUMINUM: Die cast aluminum shall have a 45,000 PSI minimum tensile strength for standards. The die cast aluminum shall be free of blow holes and inordinately rough surfaces.

2.02 PLASTICS-BLOW MOLDED: Plastics shall be one piece, dual-wall patented compression-fused-reinforcement design, High Density Polyethylene with in-molded UV stabilizers, through-colored, and external texturing for wear resistance, "No Stick" and long life.

2.03 FINISH

A. METAL PARTS:

i. Prior to painting, all metal components are shot blasted clean and smooth after the casting process. Next, each part is cleaned and receives a waterborne, black, cathodic electrodeposition primer finish to seal the part against corrosion.

ii. All exposed metal parts shall be then protected with a five-stage bonderization process before being powder coated and oven baked with a super durable, UV stable, polyester powder coat finish to a thickness of 2-3 mils. Select from manufacturer's standard color range.

B. PLASTIC PARTS: Color of plastic shall be selected from manufacturers standard color range.

C. HARDWARE:

- i. All anchoring hardware shall be zinc-plated or otherwise treated with a rust-resisting process.
- ii. All assembly hardware including bolts and nuts for attaching backs and seats to standards and hinges respectively, shall be stainless steel.

PART 3 – CONSTRUCTION DETAILS

3.01 CHAIRS

A. TYPE: Chair shall be riser/floor attached type with blow molded plastic seat and back, die cast aluminum pedestal type end and center standards, and shall have a die cast aluminum hinge mechanism for automatically lifting the seat to a uniform full folded position.

B. SIZES: Chair sizes are available in 19", 20", 21" and 22". Varying sizes (laterally) of backs and seats shall be used in accordance with approved seating plans, with standards in each row spaced laterally so that the end standards will be in alignment from the first row to the last row whether aisles are of constant or converging width.

3.02 AISLE END AND CENTER STANDARD:

A. Aisle and center standards shall be manufactured of no less than a 45,000 PSI tensile strength, high grade die cast aluminum alloy for maximum ductility and include provisions for mounting the seat back and seat hinge assemblies. All die cast aluminum components shall be smooth and free of any sharp burrs.

B. A formed foot as an integral part of the standard component shall have four openings for center standards and two openings on aisle end standards for mounting the standard to the floor or the face of the riser, manufactured as the layout requires.

C. The arm shall be an integral part of the standard component providing a single piece construction.

3.04 HANDICAPPED ACCESS – OPTIONAL (Architect to select):

A. REMOVABLE CHAIRS: Provide (Quantity) chairs with removable anchoring hardware to meet ADA requirements as indicated on seat layout drawing. They are available for sections of one (1), two (2) or three (3) floor mounted chairs. For each standard, pre-drill and attach the standard with (2) ¼ - 20 x 1" hex head bolts and two (2) ¼" female anchor sleeves.

B. MOVABLE BASE CHAIRS: Provide (Quantity) chairs mounted to movable steel bases to meet ADA requirements as indicated on seat layout drawing. They are available for sections of one (1), two (2) or three (3) floor mounted chairs fabricated from 3-½" wide x 24" long, 3/16" thick steel base with a cross member for rigidity. Holes shall be provided to attach standards to the base. Optional: For each base/standard, pre-drill and attach the base/standard with (2) ¼ - 20 x 1" hex head bolts and two (2) ¼" female anchor sleeves.

3.06 SEAT AND BACK: The seat and back shall be of high density polyethylene formulated for outdoor exposure that is blow-molded into a one piece unit of double-wall construction having a nominal wall thickness of 1/8" that is compression fused at points of attachment. Backs shall include a compound curvature for strength and comfort to measure 32 inches in height from the floor. The 2554 Chair back is to be of a solid seating surface construction. Seats shall have waterfall leading edge for greater comfort and to measure 17-½" nominally from the floor at the top of the front edge in the down position.

3.07 SEAT HINGE MECHANISM:

A. The seat shall pivot using a dual-actuator system including a fully enclosed system of seat arms and hinge brackets manufactured of no less than a 65,000PSI tensile strength, high grade die cast aluminum alloy for maximum ductility. All ductile iron components shall be smooth and free of any sharp burrs.

B. The hinge mechanism shall incorporate a heavy-duty torsion spring design to facilitate easy maintenance and include a permanently lubricated injection molded plastic bearing sleeve.

C. The seat shall rotate on an integral die cast aluminum hinge rod incorporating a positive up stop and down stop cushioned at the up stop by a rubber bumper for silent operation. The hinge mechanism shall allow responsive vertical and lateral movement.

3.08 NUMBER AND LETTER PLATES (OPTIONAL):

A. A numbering system shall be provided for identification of all chairs. Number and letter plates shall be furnished as shown on the approved seating layout. Number and letter plates shall be 1-³/₄" x 2-³/₄".

B. The seat back shall have a recessed area at the top right corner for the number plates to be attached. Row letter plates shall be attached to the aisle end standard with a two-part epoxy. Attaching hardware shall have aluminum or black finish compatible to the plate.

PART 4: EXECUTION

4.01 INSPECTION: Installer must examine areas/conditions under which seating is to be installed, including condition of substrate to which seating standards are to be attached, and notify the owner, in writing, of conditions detrimental to proper and timely completion of work. Do not proceed until conditions have been corrected in a manner acceptable to the manufacturer and the owner.

4.02 INSTALLATION

A. Installation is to be performed under the direction of an experienced capable installation superintendent.

B. The seating plan is to be reproduced on the floor and all dimensions checked against the plan, and necessary adjustments made to the layout for any discrepancies.

C. Comply with recommendations of seating manufacturer for secure and proper installation. Install chairs in locations indicated on approved shop drawings, with required clearances, elevations, and sightlines.

D. Install standards in locations necessitated by seating layout, with each standard attached to substrate by not less than two (2) anchoring devices.

1. For floor mount standards, anchor with ¹/₄" x 2-¹/₂" minimum length expansion bolts with approved leaded sleeves. The approved leaded sleeves require a hole drilled ¹⁷/₃₂" diameter to a depth of a minimum of 1-³/₄". The concrete should be 3,000PSI and at least 3" thick to provide an installation free from rocking or instability under conditions of actual use.
2. For riser mount standards, anchor with ³/₈" x 3" minimum length expansion bolts with approved leaded sleeves. Riser mount standards require a minimum 2" deep hole that is ²¹/₃₂" in diameter. The concrete should be 3,000PSI and at least 4" thick to provide an installation free from rocking or instability under conditions of actual use.

E. Install chairs by mounting components to standards using manufacturer's recommended hardware and fasteners. Ensure that chairs in curved rows are installed at proper radius, and verify that moving components operate properly.

4.03 ADJUSTMENTS AND CLEANING

- A. Adjust seat uplift mechanism mounts laterally as required assuring that the seat and back are aligned when the seat is in the upright position.
- B. Replace any seat or back which has been damaged in installation.
- C. Remove all debris caused by this work.

END OF SPECIFICATIONS

Updated: June 3, 2011