

Convention Auditorium Chair Specifications

MATERIAL SPECIFICATIONS:

STEEL: All steel shall have smooth surfaces and be of sufficient gauge thickness and designed to withstand strains of normal use and abuse.

PADDING MATERIAL: Seat and back padding material shall be of cold molded polyurethane foam. Padding material shall comply with the flammability requirements outlined in California Technical Information Bulletin #117, Resilient Cellular Materials, Section A & D, dated February 1975, when tested in accordance with Federal Test Method standard 191, Method 5903.2.

PLASTIC LAMINATE: Plastic laminate shall be composed of a core of kraft papers impregnated with phenolic resins, a decorative surface sheet, and overlay sheets containing melamine. Layers are fused together under pressures in excess of 1,000 PSI, and temperatures over 275 degrees. Plastic laminate shall meet or exceed performance standards as established by N.E.M.A.

Thickness: Horizontal Surface .050”
 Vertical Surface .030”

WOOD: Plywood, exposed or concealed, shall be constructed from hardwood. All plywood shall be hot press laminated using high frequency process. Interior plies shall be Class 3 or better. Exposed exterior plies shall be Class 1. Particleboard core shall be 55- pound density.

PLASTIC: Plastic shall be injection molded, high-density polypropylene with ultra-violet light inhibitors to retard fading. Plastic shall have a burn rate of 1” per minute when tested in accordance with ASTM D635 or the Department of Transportation of Motor Vehicle Safety Standard No. 302.

FINISH:

a. **METAL:** Prior to the application of epoxy powder finish, all metal parts shall be cleaned by use of a five step process consisting of an iron phosphate, hot water rinse and a chromic acid rinse. All metal parts, both exposed and non-exposed, shall be coated with an epoxy powder which shall be electrostatically applied. All metal shall have a minimum dry film thickness of at least two millimeters and shall pass a 2H-hardness test. All coated metal parts shall be oven baked at not less than 360 degrees.

b. **WOOD PARTS:** All exposed surfaces shall be stained to color selected and coated with lacquer of sufficient film depth to afford wear resistance of institutional quality.

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

d. **HARDWARE:** All assembly hardware shall be rust resistant, black plated.

e. **FABRIC:** Fabric and fabric color shall be selected from manufacturer’s standard fabric selection.

PERFORMANCE TESTING:

TEST ONE – VERTICAL DROP IMPACT TEST TO SEAT:

The tests are performed on the center seat of a three-chair assembly mounted to a concrete floor and consisted of repeated free-fall impacts of a forty pound, 9 inch diameter canvas sandbag at a rate of approximately 30 impacts per minute. The Center of impact is centered 7 inches back from the front edge of the seat. The Bag was dropped 25,000 times from a height of 4,6,9, and 12 inches.

Tolerances: Bag weight plus or minus one pound.
Bag diameter plus or minus one inch.

Test Criteria: The bag shall be dropped as follows:
25,000 times from a height of 4”
25,000 times from a height of 6”
25,000 times from a height of 9”
25,000 times from a height of 12”

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 required 100,000 impacts. The seat height measured at the front edge with a 2-pound weight shall not drop in excess of ¾” There shall be no loosening of the seat pivots to the seat standards or of the floor fasteners. The seat shall be functional and return to the normal fold position.

TEST TWO-SWINGING IMPACT TEST:

The tests are performed on the center chair back of a three chair assembly mounted to a concrete floor and consisted of repeated impacts to the front and back of the seat back with two (2) 40 pound, 9” high diameter sand bags. The bags are mounted at 13” centers on a horizontal reciprocating bar mounted 34” above the bottom of the bag. The apparatus was located such that the bottom of the bags were positioned 10” below the top of the chair back. The chair back was centered between the bags when they were at the center of the stroke. The apparatus cycled at approximately 30-cycles per minute and consisted of 10,000 impacts through distances of 5”, 7”, 9” and 12”.

Tolerances: Bag weight plus or minus one pound Bag diameter plus or minus one inch.

Test Criteria: The bag shall be dropped follows:

10,000 times from a height of 5’ 10,000
times from a height of 7” 10,000 times
from a height of 9” 10,000 times from a
height of 12”

Acceptance criteria: Upon completion of the test, the standards, connections, welds, seat and back must maintain sufficient structural integrity to withstand the test without failure or irregularities.

TEST THREE-SELF-LIFTING SEAT OSCILLATION TEST:

Test Description: The test is performed on the center of a three-seat assembly and consisted of mechanically lowering the seat against the down stop and then freely returning to the folded position. The seat was lowered with a cable attached to the front of the seat. The cable then ran through a pulley secured to the floor was attached to a motorized pulley with a trip bar. The test was performed at the rate of 30 cycles per minute for 300,000 cycles.

Acceptance Criteria: At the completion of the test the seat shall obtain sufficient durability and strength to maintain its self-folding capability and contain no excess loosening of components.

TEST FOUR – STATIC LOAD TEST:

A 600-pound static load test is performed on the center seat of a three-chair assembly. An initial load of 50 pounds was applied to “set” the seat component. The 50-pound weight was removed and a 15-pound weight was then placed on the front edge of the seat. A measurement of 17-5/8” was taken from the floor to the center of the seat pan to determine an initial zero (“0”) reading of the seat position. A load of 600 pounds was then applied to the seat in 100 pound increments. The load was evenly distributed on a 2” X 4” beam centered along a line 3” back from the front edge of the seat. The load was maintained for one hour and then removed. Following a 20 minute recovery period a final measurement was determined.

PRODUCT:

MANUFACTURER: All fixed chairs specified shall be Mobiliario Seating, series of auditorium chairs. All bidders wishing to offer a substitute auditorium chair shall request in writing approval to bid, subject to the compliance and requirements of these specifications. All request for substitutions and approval to bid shall be received seven (7) days prior to bid date.

CONSTRUCTION DETAILS:

a. **UPHOLSTERED BACKS:** The back assembly shall consist of an upholstered inner back panel and an injection molded polypropylene plastic outer back panel providing a 26” long back and chair back height of 32-1/2”. The upholstered inner back panel consists of an injection molded plastic panel with compound curves, a polyurethane molded foam pad 2” thick attached by to inner back by stapling fabric attaching tabs that are molded into the polyurethane pad and covered over the front with the specified fabric. The fabric is attached to the plastic inner panel with staples. Wings for attaching the back to the standards are 14-gauge steel and bolted to the inner back with four

(4) hex head bolts into metal “T” nuts providing concealed back fasteners. Back wings are provided with adjustments to allow for three (3) back angles. The rear of the back is totally enclosed with an injection molded polypropylene plastic cover. There are no exposed fasteners above the back wings.

b. **UPHOLSTERED SELF LIFTING SEAT:** The seat assembly shall consist of an upholstered and padded surface, an injection molded polypropylene plastic seat pan and a self rising seat that raises to the 100% fold position when unoccupied. The seat is designed for exceptional comfort with a superior constructed seat of molded polyurethane foam and arch-spring support of five (5) serpentine springs attached to a molded high density polypropylene frame. A seat cover is tailored from the specified fabric and upholstered over the molded

polyurethane foam pad which is locked into place with saw tooth upholstery hooks formed into the steel channel.

c. **HINGES AND SEAT LIFT:** Two seat hinge attachment brackets constructed of die formed 7-gauge carbon steel are MIG welded to a solid 5/8" bar for attaching the seat to the chair standards. Also, MIG welded to the 5/8" solid steel bar are two 9-gauge die formed carbon steel seat stops. The hinge/stop assembly is attached to the seat by means of four 1/4" X 20 machine screws through a special structural molded plastic housing. As the seat silently moves from the unoccupied to the occupied position the seat stops rests on rubber bumpers embedded into the special structural plastic housing. These parts are totally maintenance free without a need for lubrication or spring replacement.

The seat lift mechanism is molded plastic container attached to the rear of the seat cushion frame and weighted with the correct amount of counter balance to insure an automatic, self-raising operation without the aid of springs. The seat will automatically return to a 90-degree, or 100% fold, vertical position perpendicular to the floor when unoccupied.

d. **SEAT PAN:** The entire bottom of the seat, including the seat-lifting mechanism and upholstery attachment, is totally enclosed by an injection molded polypropylene plastic seat bottom cover. This also prevents tampering with the seat mechanism. The cover is contoured to a shape favorable to the chair design and complements the design of the back with matching texture and colors.

e. **STANDARDS AND END PANELS:** All standards are pedestal Design, 14-gauge steel, 1" X 3" rectangular tube. All standards shall be provided with a 1-3/4" X 11-1/2" flat 16-gauge steel plate for mounting armrests and a 9-gauge steel wing welded to the rear of the standard for attaching the chair back wings. All end standards shall have a decorative end panel of high-pressure laminate, wood veneer or fabric securely attached into a 16-gauge steel channel.

f. **BASE PLATE:** Floor mounted standards are provided with an 11-gauge formed carbon steel foot welded to the bottom of the rectangular standards. The weldment is 360 degrees around the standard and concealed on the inside to give a clean appearance to the standard. The foot dimension is 8" X 3" for firm attachment to the floor. The standard is fabricated to fit the floor incline and maintain the proper seat height and sight line.

g. **ARMRESTS:** The armrest shall be high impact injection molded polypropylene plastic to compliment the design of the chair. Optional armrest shall be Red Oak hardwood, high-pressure laminate plastic glued to a particle board core or fully upholstered to match the seat and back fabric.

OPTIONS:

a. **AISLE LIGHTS:** Aisle lights shall consist of low voltage lights and Transformers. The low voltage light assembly shall consist of a six bulb housing, a mounting plate to attach the housing to the end standard under the arm rest, pre wired with a 24" pigtail, 18" flexible conduit and a connector. All transformers shall be provided by seating contractor. All final connection shall be done by others.

b. **ADA ARMS:** Provide an armrest at the aisle ends that fold upward to allow occupants with disabilities to egress and ingress the chair without interference of the armrest. The quantity and locations of the ADA arms shall be noted on the shop drawings in compliance with local, state and federal regulations and approved by the architect and/or owner.

b. **MOVEABLE BASES:** Provide moveable bases as shown on the drawings for single, double or triple chair groupings. The bases shall be of the skid base design and attached to the floor with removable hardware to allow for quick and easy removal of the chair grouping.

c. **FOLDING TABLET ARMS:** The tablet arm shall be constructed of a 5-ply,

5/8" hardwood plywood core that is surfaced on both sides with a high pressure laminate. The edges of the tablet arm shall be filled with a pigmented paint. The tablet arm shall be attached to a steel hinge plate with four (4) bolts into "T" nuts imbedded in the plywood core. The tablet arm will smoothly and quietly fold to a position parallel to the chair standard under the armrest. The folding mechanism shall consist of steel and cast metals. When the tablet arm writing surface is in the down position, the chair shall have a complete and full length armrest. The writing surface shall measure 10-1/2" X 11-1/2".

LUMBAR PAD: The inner back padding shall be a cold cured molded polyurethane foam pad with varying thickness of foam from 2" at the top of the inner back to 4" at the lumbar region to provide extra support to lower back of the occupant.

EXECUTION:

SCOPE OF WORK: The installation shall be performed by the successful bidder, under the direction of a capable installation superintendent, in a manner satisfactory to the Architect. The installation shall be turned over to the owner with all chairs complete and ready to use.

METHOD OF INSTALLATION: The seating plan shall be reproduced on the floor and/or risers, all dimensions checked against the approved seating plan and necessary adjustments made in the layout for all discrepancies.

Chairs shall be attached to the concrete floor/risers by means of an approved type of lead shield expansion bolts. Riser mount chairs shall be attached with 3/8" double lead expansion bolts not less than 3" long. Floor mount chairs shall be attached with 1/4" expansion bolts not less than 2" long. There shall be two (2) bolts per standard.

CLEANING: Remove all debris caused by this work from the premises.