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DIVISION 12 - FURNISHINGS

SECTION 12 65 00

FIXED SEATING

08/08

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FIXED SEATING

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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM A 1011/A 1011M	(2008) Standard Specification for Steel, Sheet, and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
ASTM A 48/A 48M	(2003; R 2008) Standard Specification for Gray Iron Castings
ASTM A 513	(2008) Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing
ASTM D 4157	(2007) Standard Test Method for Abrasion Resistance of Textile Fabrics (Oscillatory Cylinder Method)
ASTM F 851	(2005) Standard Test Method for Self-Rising Seat Mechanisms

HARDWOOD PLYWOOD AND VENEER ASSOCIATION (HPVA)

HPVA HP-1	(2004) American National Standard for Hardwood and Decorative Plywood
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U.S. GREEN BUILDING COUNCIL (USGBC)

LEED	(2002; R 2005) Leadership in Energy and Environmental Design(tm) Green Building Rating System for New Construction (LEED-NC)
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1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Detailed Drawings; G

Seating plans dimensioned and showing row spacing, row lengths, the varying lateral spacing at backs and seats, back pitch, and seat widths for the various section lengths, placement of standards, floor pitch, and riser height, where applicable. Drawings indicating metal thickness, fastenings, details of hinge mechanism, seat and back dimensions, and proposed finish.

SD-03 Product Data

Seating System; G
Installation; G

Manufacturer's descriptive data, catalog cuts, and installation instructions.

Local/Regional Materials

Documentation indicating distance between manufacturing facility and the project site. Indicate distance of raw material origin from the project site. Indicate relative dollar value of local/regional materials to total dollar value of products included in project.

SD-04 Samples

Seating System; G

Minimum 6 by 6 inches samples of upholstery, exposed plywood, plastic laminate, wood, identification plate, paint, armrest and plastic finish materials. Furnish fabric samples of sufficient size to show color range, pattern, and finish.

One complete chair that meets requirements specified. Chair sample may be incorporated into the installation, provided the sample is approved and it's location is noted.

SD-06 Test Reports

Fire Safety; G
Tests; G

Complete set of test reports for the fire safety and other testing.

SD-07 Certificates

Seating System

Two complete sets of certificates attesting that the proposed seating system meets specified requirements. Date the certificate after the award of contract, include name the project and a list of specific requirements being certified.

Recyclable Materials; G

Report stating that the seating system contains recycled materials and indicating the actual percentage of recycled material, to include percent of post consumer and post industrial,

and relative dollar value of recycled content products to total dollar value of products included in project.

SD-10 Operation and Maintenance Data

Assembly Manuals; G

Three sets of assembly manuals describing assembly procedures.

Maintenance Manuals; G

Three sets of maintenance manuals describing routine maintenance and inspection, proper cleaning and minor repair procedures.

SD-11 Closeout Submittals

Seating System

LEED documentation relative to recycled content credit in accordance with LEED Reference Guide. Include in LEED Documentation Notebook.

Adhesives Fresh Paint

LEED documentation relative to low-emitting materials credit in accordance with LEED Reference Guide. Include in LEED Documentation Notebook.

1.3 QUALITY ASSURANCE

1.3.1 Warranty

Warrant the fixed seating for a period of 5 years with the following exceptions: one year for fabric and two years for tablet arms. Provide manufacturer's standard performance guarantees or warranties that extend beyond the periods listed.

1.3.2 Certified Installers and Licensed Electricians

When recommended by the manufacturer, seating shall be delivered and installed by an authorized dealer with a certified installation crew. All hardwiring shall be completed by a licensed electrician provided by the Contractor; the certified installers shall be onsite when questions arise.

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver components to the site in unopened containers clearly labeled with the manufacturer's name and container contents. Store materials in a safe, dry, and clean, well ventilated area, protected from damage, soiling, and moisture, and strong contaminant sources and residues, maintained at a temperature above 60 degrees F for 2 days prior to installation. Seating shall not be stored with materials which have high emissions of volatile organic compounds (VOC's) or other contaminants. Do not store seating near materials that may offgas or emit harmful fumes, such as kerosene heaters, fresh paint, or adhesives. Handle the items in a manner that will protect the materials from damage.

PART 2 PRODUCTS

2.1 MATERIALS

Recyclable materials (seat padding, plastics, etc.) shall conform to EPA requirements in accordance with Section 01 62 35 RECYCLED / RECOVERED MATERIALS. Favor the use of local/regional materials to comply with LEED requirements.

2.1.1 Upholstery Fabric

Provide fabric which is a decorative weave, fiber content of 100 percent polyester treated to resist staining and soiling. Fabric upholstery for seating shall comply with a minimum of 55,000 double rubs when submitted to the tests required by ASTM D 4157.

2.1.2 Polyurethane Foam

Polyurethane foam shall be fire retardant, nonhardening and non-oxidizing and shall have a high resistance to alkalies, oils, grease, soaps, abrasions, moisture, mildew, and tearing. Handling of this foam shall conform to the requirements of fire safety as specified in the Submittals paragraph.

2.1.3 Plywood

Provide plywood conforming to HPVA HP-1, made of hardwood and of crossbanded construction. Face veneers, for exposed surfaces, shall be of Grade A hardwood, vertical grain, with manufacturer's standard finish. Unexposed veneers shall be sound grade hardwood or Grade A fir.

2.1.4 Solid Hardwood and Wood Veneer

Solid hardwood and wood veneer shall be first grade finished to match existing wood. Finish exposed wood with manufacturers standard finish.

2.1.5 Plastic

Plastic shall have built-in inhibitors to retard fading and anti-static compounds to retard dirt attraction. Pigment quality shall eliminate need to paint plastic parts. Component surfaces shall have a textured finish. Color shall be integral to the plastic.

2.1.6 Cast Iron

Cast iron shall comply with ASTM A 48/A 48M. Finish shall be powder coat.

2.1.7 Steel

Steel shall comply with ASTM A 513 or ASTM A 1011/A 1011M. Finish shall be powder coat.

2.2 SEATING SYSTEM

Construct components and assembly free from objectionable projections or irregularities. Make corners and edges smooth and rounded. Unless otherwise noted, bolts, nuts, and other fastenings shall be concealed where possible. Steel shall be well-formed to shape and size required. Jointing of members shall be welded, riveted, or interlocked. Casting shall be fine

textured, sound, and free of pits, blow holes, and fins. Lines shall be true, accurate, and true-to-pattern with excess metal or imperfections removed. Submit [Assembly Manuals](#) as specified in the Submittals paragraph.

2.2.1 Backs

Provide back assembly of the fixed type and consisting of an upholstered rear panel with an upholstered inner panel. Attach back assembly to standards with 14 gauge steel wings/back brackets; wings/back brackets shall have back pitch adjustability option. Rear panel shall extend below the seat unit to completely conceal and protect the seat assembly.

2.2.1.1 Upholstered Rear Panels

Panels shall be 1/2 inch thick, electronically glued curved hardwood plywood with 1/4 inch thick slab polyurethane foam and fabric.

2.2.1.2 Upholstered Inner Panels

Fabricate upholstered inner panels from 5 ply, [7/16 inch](#) minimum thick plywood, compound steel or compound curved 20 percent glass filled polypropylene with deep web reinforcing. Cushion shall consist of [2 inch](#) thick polyurethane foam padding and have an upholstery cover. Padding shall be cemented to plywood inner panel. Upholstery cover shall be securely stapled to the inner plywood panel or held in place with draw strings for ease of re-upholstering. Upholstery cover shall not be attached with the use of nails, tacks, or screws.

2.2.2 Seats

Provide foundation for upholstered seats free from visible screws, bolts, open holes, and projections on the bottom, front, and sides. The front center edge of each seat shall have an identification plate. The area to receive the plate shall be recessed to prevent wear and abrasion. Method of attachment shall be tamper-resistant. The seat unit shall be removable without disturbing the standards, the upholstered seat cover shall be easily removable without removing the seat unit; and the fabric covering shall be fastened to the frame in a manner that will permit easy reupholstering.

2.2.2.1 Upholstered Plywood Seat Units

Seat unit shall be fabricated from plywood, minimum 7-ply, [3/4 inch](#) thick. Seat unit shall be supported by sturdy formed steel arms that are bolted to the seat. Bolts shall have decorative heads. Sand smooth all exposed edges. Seat hinges shall be securely attached. Form seat to fit the contour of a seated person. Padding material shall be 3 inch thick polyurethane foam, glued to inner panel. Outside surface of seat panel shall be encapsulated in 1/4 inch slab polyurethane foam.

2.2.3 Hinges

Hinges shall be a counterweight mechanism using gravity to return to the upright position, compensating type or spring lift mechanism, completely enclosed in the seat assembly, totally independent, free and easy in operation, and capable of compensating for circular installation, variation in installation conditions, and unevenness of floors. Each hinge shall have a noiseless, self-rising seat device, shall rise automatically to a uniform safety position of 3/4 fold at all times, and shall fold 100

percent when additional pressure is applied, to provide additional clearance. Seat hinge mechanism shall comply with [ASTM F 851](#) and require no adjustment after installation. The compensating type and spring lift mechanism hinge shall be self-lubricating requiring no maintenance. Cushion both the up and down stops on the seat to reduce noise.

2.2.4 Standards

Provide standards which are minimum 14 gauge tubular or sheet steel or one integral piece of cast iron. Steel standards shall be welded. Standards with ADA hinged armrests shall be provided with a label displaying the handicapped symbol and shall be located as shown on drawings.

2.2.4.1 Floor Standards

Form floor standards to fit the floor incline so that the standards will be vertical and the hinge point will be at a height that will maintain proper relation of seat to floor. Form the feet to eliminate tripping hazards, with a minimum of two holes for bolt attachment to the floor.

2.2.4.2 Riser Standards

Form riser standards to approach the riser face at an angle to allow maximum clearance, formed to fit the riser so that the standards will be vertical and the hinge point will be at a height that will maintain proper relation of seat to floor. There shall be no projection of the standard to create a stumbling hazard or interfere with sweeping and cleaning. Riser attachment shall be made through a [1/4 inch](#) steel plate welded to the standard or on an integrally cast foundation, standard shall be securely attached to the riser without the use of shims or filler strips and shall be attached at a minimum of 2 points.

2.2.4.3 Aisle and End Standards

Aisle and end standard shall match existing fixed seating.

2.2.5 Armrests

Armrests shall be solid hardwood with rounded corners and manufacturer's standard finish. ADA Armrest shall be provided in locations as shown on drawings. ADA armrest shall be hinged at rear to allow easy access for limited mobility occupants.

2.2.6 Tablet Arm

Equip each chair with a fold-away tablet arm assembly. Tablet arm shall automatically return to the stored position when raised manually to a vertical position in one motion and fall to the stored position by force of gravity, fold smoothly and quietly, store completely out of the way and be easily accessible when needed by the occupant without bending or reaching. Tablet arm shall be fabricated using balanced construction and be composed of manufacturer's standard core material faced with plastic laminate on the writing surface. All edges shall be rounded. When in a writing position, the arm shall lock firmly in place so that it cannot be accidentally disengaged. Both left and right handed tablet arms shall be provided as shown on drawings.

2.2.7 Identification Plates

Seating shall have number and letter plates for seat and row designations. Plates shall be constructed of manufacturer's standard brass or bronze finish or satin finished anodized aluminum and have black letters and numbers. Attaching hardware shall be tamper resistant and have a finish compatible with plates.

2.3 COLOR

Color shall be upholstery fabric Steelcase Jack 5B66 Plum. Color listed is not intended to limit the selection of equal colors from other manufacturers.

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2.4 BASIS OF DESIGN

Product specification is based on manufacturer: Theatre Solutions, Inc.
Product type: Acclaim C3, standard floor-mounted chair with fully upholstered seat and back and tablet arm.

PART 3 EXECUTION

3.1 PLACEMENT OF STANDARDS

The system shall permit the standards to be installed on radial lines from a common center for which concentric circles are determined with each row of units utilizing common middle standards. Standards in each row shall be placed laterally so the aisle-end standards will be in alignment as indicated on seating layout drawing. The angle of inclination of backs shall be adjusted for variations in sightlines. Mechanical attachment of components shall be of sufficient flexibility so that when permanently assembled they will compensate for the changing dimensions laterally between standards caused by convergence toward the center. Seat and back attachments shall absorb inaccuracies in lateral spacing of standards at point of attachment caused by unevenness of floor. Varying lateral dimensions of backs and seats shall be in accordance with approved seating layout. Minimum width of seating unit shall be 20 inch and may be used only to complete a specific row dimension.

3.2 INSTALLATION

Installation of the seating system shall be in accordance with the approved [detailed drawings](#) and manufacturer's recommended installation instructions.

3.3 CLEANING

Upon completion of installation, all products shall be cleaned and polished and the area shall be left in a clean and neat condition. Any defects in material and installation shall be repaired, and damaged products that cannot be satisfactorily repaired shall be replaced. Submit [Maintenance Manuals](#) as specified in the Submittals paragraph.

-- End of Section --