

SECTION 096400 - WOOD FLOORING

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. Stage flooring.
- B. Related Sections include the following:
 - 1. Division 3 Section "Cast-in-place Concrete" for concrete base.
 - 2. Division 6 Section "Finish Carpentry" for proscenium nosing.
 - 3. Division 9 Section "Wood Athletic Flooring" for gymnasium flooring.
 - 4. Division 9 Section "Painting" for painting court lines as indicated on drawings.
 - 5. Division 11 Section "Gymnasium Equipment" for volleyball floor sleeve inserts.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show installation details including location and layout of each type of wood flooring and accessory.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors and finishes available for wood flooring.
- D. Samples for Verification: For each type of wood flooring and accessory, with stain color and finish required, approximately 12 inches (300 mm) long and of same thickness and material indicated for the Work. Include sample sets showing the full range of normal color and texture variations expected.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed wood flooring similar in material, design, and extent to that indicated for this Project and whose work has resulted in wood flooring installations with a record of successful in-service performance. Installers for gymnasium flooring shall be certified by MFMA.

- B. Source Limitations: Obtain each type of material and product from one source with resources to provide materials and products of consistent quality in appearance and physical properties.
- C. Hardwood Flooring: Comply with NOFMA grading rules for species, grade, and cut.
 - 1. Certification: Provide flooring that carries NOFMA grade stamp on each bundle or piece.
- D. Maple Gymnasium Flooring: Comply with Maple Flooring Manufacturers Association (MFMA) grading rules for species, grade, and cut.
 - 1. Certification: Provide flooring that carries MFMA mark on each bundle or piece.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wood flooring materials in unopened cartons or bundles.
- B. Protect wood flooring from exposure to moisture. Do not deliver wood flooring until after concrete, masonry, plaster, ceramic tile, and similar wet-work is complete and dry.
- C. Store wood flooring materials in a dry, warm, well-ventilated, weathertight location.
- D. Move wood flooring into spaces where it will be installed, at least seven days before installation.

1.6 PROJECT CONDITIONS

- A. Conditioning: Maintain relative humidity planned for building occupants and an ambient temperature between 65 and 75 deg F (18 and 24 deg C) in spaces to receive wood flooring for at least seven days before installation, during installation, and for at least seven days after installation. After post-installation period, maintain relative humidity and ambient temperature planned for building occupants.
 - 1. For unfinished products, open sealed packages to allow wood flooring to acclimatize.
 - 2. Do not install flooring until it adjusts to the relative humidity of and is at the same temperature as the space where it is to be installed.
 - 3. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by flooring and finish manufacturers.
- B. Install factory-finished wood flooring after other finishing operations, including painting, have been completed.

1.7 COORDINATION

- A. Wood flooring shall be coordinated with installation of concrete substrate under floor. The FF/FL of the subfloor installed per Section 033000 shall be 45-55.
- B. The moisture content of the concrete floor shall be monitored prior to the installation of the flooring.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: AacerFlex System as manufactured by Aacer or approved equal.
- B. Additional manufacturer's approved to bid this project are listed below. Being listed as a prequalified manufacturer does not release the manufacturer from providing a similar product that meets the performance criteria as listed in this specification. It is the responsibility of the manufacturers to provide evidence of meeting the specification parameters.
- C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering wood flooring that may be incorporated into the Work include the following:
 - 1. Wood Flooring:
 - a. Aacer; AacerFlex System
 - b. Action Floor Systems; Action Thrust
 - c. Connor; Neo-shock System
 - d. Robbins; Bio-Cushion System
 - 2. Floor Finishes:
 - a. Floor manufacturer's standard.
 - b. Robbins
 - c. Minwax
 - d. Sherwin Williams
 - e. Cabot
 - f. Olympic

2.2 GYMNASIUM FLOORING

- A. Membrane
 - 1. 6-mil polyethylene
- B. Bio-Panel System
 - 1. 7/16" Bio-Pads
 - a. Pads shall be double trapezoidal EPDM rubber with reverse cavity. Lower and upper surfaces shall be non-coextensive.
 - 2. Plywood - 2 layers of 15/32" thick 4' x 8' APA Rated Sheathing, Exposure I, Fir or Southern Pine.
 - 3. Fasteners
 - a. Flooring - 2" barbed cleats or equivalent.
 - b. Subfloor
 - 1) 1" length, 7/16" crown, coated staples or equivalent.
 - 2) Construction adhesive, PL400 or equivalent.
 - 4. Gymnasium Flooring
 - a. 25/32" thick x 2-1/4" width, Second and Better, T&G and EM, KD Northern Hard MFMA Maple Flooring and graded in accordance with MFMA standards.

- b. Maple shall be FSC certified.
- C. Perimeter Base - 3" x 4" ventilating type. (black)
- D. Finishing Materials
 - 1. Manufacturer's oil modified polyurethane sealer and finish.
 - 2. Gameline paint shall be recommended by the finishing materials manufacturer, compatible with the finish.

2.3 STAGE FLOORING

- A. Proscenium and stage shall be ¾" T & G Douglas Fir Plywood. CSA Standard 0121, Grade A.
- B. White Maple for proscenium shall be FSC certified.

2.4 ACCESSORY MATERIALS

- A. Wood Sleepers and Subfloor: As specified in Division 06 Section "Rough Carpentry."
- B. Vapor Retarder: ASTM D 4397, polyethylene sheet not less than 6.0 mils (0.15 mm) thick.
- C. Asphalt-Saturated Felt: ASTM D 4869, Type II.
- D. Wood Flooring Adhesive: Mastic recommended by flooring and adhesive manufacturers for application indicated.
 - 1. Use adhesives that have a VOC content of not more than 100 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- E. Trowelable Leveling and Patching Compound: Latex-modified, hydraulic-cement-based formulation approved by wood flooring manufacturer.
- F. Fasteners: As recommended by manufacturer, but not less than that recommended in NWFA's "Installation Guidelines: Wood Flooring."
- G. Trim: In same species and grade as wood flooring, unless otherwise indicated.
 - 1. Threshold: Tapered on each side and routed at bottom of one side to accommodate wood flooring.
 - 2. Reducer Strip: 2 inches (51 mm) wide, tapered on 1 side, and in thickness matching wood flooring.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Grind high spots and fill low spots on concrete substrates to produce a maximum 1/8-inch (3-mm) deviation in any direction when checked with a 10-foot (3-m) straight edge.
 - 1. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- B. Remove coatings, including curing compounds, and other substances on substrates that are incompatible with installation adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- C. Broom or vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements, installation tolerances, and other conditions affecting performance of wood flooring. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Concrete Slabs: Verify that concrete slabs comply with requirements specified Division 3 Section "Cast-in-Place Concrete."
 - 1. Verify that slabs are dry according to test methods recommended by flooring manufacturer or, if none, by test methods in NOFMA's "Installing Hardwood Flooring."

3.3 INSTALLATION

- A. General: Comply with flooring manufacturer's written instructions, but not less than recommendations in NOFMA's "Installing Hardwood Flooring," as applicable to flooring type. For Gymnasium flooring comply with flooring manufacturer's written instructions, but not less than recommendations in MFMA "Guide Specification for Double Plywood Floor System."
- B. Bio-Panel System
 - 1. Install polyethylene with joints lapped a minimum of 6".
 - 2. Install 7/16" Bio-Pads 32 pads per sheet, 12" O.C., on underside of lower plywood subfloor.
 - 3. Install the lower plywood subfloor perpendicular to the intended finish flooring direction. All joints shall be staggered and spaced 1/4" apart.
 - 4. Install the upper plywood subfloor diagonal to the lower subfloor panels staggering joints and spacing 1/4" apart. Secure these panels using adhesive and 1" staples placed 6" O.C. at panel perimeter and 12" O.C. throughout interior.
 - 5. Machine nail maple finish flooring 10" to 12" O.C. with end joints properly driven up and proper spacing provided for humidity conditions in specific region per manufacturer's recommendations. Provide 2" expansion voids at the perimeter and at all vertical obstructions.

C. Sanding

1. Sand flooring with drum sander, edger, buffer, and hand scraper.
 - a. Use coarse, medium and fine grade sandpaper.
 - b. After sanding with drum sander, buff entire floor using 100 grit screenback or equal grit sandpaper, with a heavy-duty buffing machine.
 - c. Vacuum or tack floor before first coat of finish.
 - d. Floor shall present a smooth surface without drum stop marks, gouges, streaks or shiners.

D. Finishing - Gymnasium

1. Apply 1 coat of wood flooring manufacturer's sealer and 2 coats of wood flooring manufacturer's finish.
2. Screen or steel wool and vacuum and/or tack between each coat after it dries; apply game lines accurately after the seal coat, after buffing and vacuuming. Layout in accordance with drawings. For game lines, use current rules of association having jurisdiction. Lines shall be straight with sharp edges in colors selected by Architect.

E. Finishing - Stages

1. Apply 2 or more coats of penetrating sealer, buffed in accordance with manufacturer's instructions in order to provide a low gloss, flat finish. Proscenium and stage shall be finished in Minwax Ebony. Other acceptable manufacturers are:
 - a. Sherwin-Williams WoodClassics 250 Stain
 - b. Cabot Stain and Polyurethane, Onyx.

F. Perimeter Base Molding in Gymnasium

1. Install vent cove base anchored to walls with base cement or screws and anchors. Use pre-molded outside corners and neatly mitered inside corner.

G. Clean up all unused materials and debris and remove same from the premises.

3.4 PROTECTION

- A. Cover installed wood flooring to protect it from damage or deterioration, before and after finishing, during remainder of construction period. Use heavy kraft-paper or other suitable covering. Do not use plastic sheet or film that could cause condensation.
 1. Do not cover site-finished floors with kraft paper, or any other material, until finish reaches full cure, but not less than seven days after applying last coat.

END OF SECTION 096400

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