

## **SECTION 09642 – WOOD COMPONENT STAGE FLOOR**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION**

##### **A. Related work specified under other sections.**

##### **1. CONCRETE SUBFLOORS - SECTION 03\_\_ \_\_**

- a. Slab depression related to adjacent finished floor surfaces shall be 1-3/4" to accommodate specified completed stage floor system.
- b. The general contractor shall furnish and install the concrete subfloor depressing the slab sufficiently to accommodate the floor system. The slab shall be steel troweled and finished smooth to a tolerance of 1/8" in any 10' radius by the general contractor. High spots shall be ground level, and low spots filled in with approved leveling compound by the general contractor to the full approval of the installer (Flooring Contractor).
- c. Concrete slab aggregate shall be 3/4" screen crushed limestone or similar type material (no river gravel or pea gravel), free of curing agents. Concrete shall develop an average of 3,500-PSI compression after 28 days.

##### **2. MEMBRANE WATERPROOFING - SECTION 07\_\_ \_\_**

- a. Concrete subfloors on or below grade shall be adequately waterproofed beneath the slab and at the perimeter walls and on earth side of below grade walls by general contractor using suitable type membrane.

#### **1.2 REFERENCES**

- A. MFMA - Maple Flooring Manufacturers Association
- B. APA – American Plywood Association

#### **1.3 QUALITY ASSURANCE**

##### **A. Manufacturer**

1. Manufacturer of stage floor system shall be a firm specializing in manufacturing products specified in this section.
2. Manufacturer of stage subfloor system must be ISO 9001:2000 Certified to assure quality control of materials provided.
3. Basis of design shall be "SpotLight" stage floor system as provided by Connor Sports.
4. Materials other than those listed must be approved by architect in written addendum. Materials from non-approved manufacturers will not be accepted.

##### **B. Installer (Flooring Contractor)**

1. The complete installation of the stage floor system, as described in the scope of these specifications, shall be carried out by an experienced installer (Flooring Contractor), and the work shall be performed in accordance with most recent installation instructions of the manufacturer.
2. Installer (Flooring Contractor) shall be liable for all matters related to installation for a period of one year after the floor has been substantially installed and completed.

##### **C. Floor System Design**

1. Subfloor panel design shall include special ridge technology independently tested to show two stage resiliency and high deflection at light impacts.
2. System construction shall include manufactured method of stop blocking throughout entire floor for protective resilient pad housing and full subfloor support when exceeding stage performance loads.
3. Protective pad housing shall have been independently evaluated demonstrating resilient pad resistance to compression under static load testing with only .003" change from original average profile heights 24 hours after 600 PSF loading at 72 hours.
4. Resilient pads shall be linear, aligned continuously perpendicular to flooring direction, average spacing of 8" on center.
5. Closed cell polyethylene foam shall not be included as a resilient component.
6. Subfloor shall provide full surface plate throughout, manufactured of minimum 3/4" 7-ply plywood.
7. Subfloor panels shall be integrated with attachment of extending edges on all sides.
8. Installation method of subfloor system shall include special anchorage tool to prevent excessive compression of resilient components.
9. Floor system design shall accept maintenance vehicle loads of 10,000 lbs when including floor surface protection slip layer.

**1.4 SUBMITTALS**

- A. Specification** - Submit Connor SpotLight specification sheets.
- B. Sample** - Submit one sample of specified system, if requested by architect.
- C. Maintenance Literature** - Upon completion of floor installation, send to owner, attendants or individuals in charge and responsible for the upkeep of the building a CARE CARD. This card spells out care and maintenance instructions including temperature and humidity ranges for areas where floor system is installed.

**1.5 WORKING CONDITIONS**

- A.** The wood flooring specified herein shall not be installed until all masonry, painting, plaster, tile, marble and terrazzo work is completed, and overhead mechanical trades and painters have finished in the wood floor areas. The building shall be enclosed and weathertite.
- B.** The concrete subfloor shall be determined dry by industry standard testing procedures, free of foreign materials and turned over to the installer (Flooring Contractor) broom clean. Moderate room temperature of 65 degrees or more shall be maintained a week preceding and throughout the duration of the work. Humidity conditions within the building shall approximate the humidity conditions that will prevail when the building is occupied.
- C.** Permanent heat, light and ventilation shall be installed and operating during and after installation, maintaining a range of temperature and humidity compatible with the expected low and high moisture content of the flooring. The wood moisture content range is determined by the flooring contractor based on the facility's mechanical controls and/or geographical location.
- D.** Flooring must be stored in a dry, well-ventilated area, not in contact with masonry, to acclimate to building conditions and shall be installed at moisture content compatible with the normally expected environmental range of temperature and relative humidity achieved while the facility is occupied.
- E.** General Contractor shall lock floor area after floor is finished to allow proper cure time. If general contractor or owner requires use of stage after proper cure time, he shall protect the floor by covering with non-marring Kraft paper or red rosin paper with taped joints until acceptance by owner of complete gymnasium floor
- F.** Working conditions as described above shall be followed. Variations and substitutions shall be submitted for approval to the architect who shall advise Connor of the same

**1.6 HUMIDITY CONTROL**

- A.** Since all wood flooring will expand and contract as relative humidity varies, it is important to minimize extremes between low and high. Hardwood flooring is manufactured at moisture content most compatible with a 35%-50% relative humidity range. Geographical regions and available mechanicals determine the typical range of temperature and humidity for each facility. Maintaining a 15% fluctuation between highest and lowest average indoor relative humidity provides limited shrinkage and growth. Facility managers should make use of available HVAC systems to prevent excessive tightening and shrinkage of flooring.

**PART 2 – PRODUCTS****2.1 MATERIAL**

- A. Vapor Barrier** - 6-mil polyethylene.
- B. Resilient Pads** - Connor 9/16" X 1" X 48" Focus FR 825 resilient pads.
- C. Subfloor** - Connor pre-manufactured 3/4" subfloor panels providing machined SpotLight subfloor pad slots, anchor pockets, and attached resilient pads. Hardboard floor surface option below (D2) requires additional layer of 15/32" APA rated sheathing, Exposure 1.
- D. Floor Surface**
  - D1 (Specify or Delete) – Hardwood Floor - 25/32" X 2-1/4", First Grade, Northern Hard Maple Flooring, TGEM, MFMA Grade marked and stamped as manufactured by Connor Sports, Amasa, MI.  
Optional – (Specify or Delete)
    - a. Manufactured flooring profile shall include 1/64" side edge crush bead.
    - b. Hard maple flooring shall be certified as harvested from managed forest in compliance with the SmartWood<sup>cm</sup> program of the Rainforest Alliance.
  - D2 (Specify or Delete) – Hardboard Floor - Hardboard complying with Hardboard Product Standard ANSUAHA A135.4-1982, nominal .250" thick, +.005" maximum tolerance. Hardboard shall be sanded on both faces. Minimum density of 71 lbs. per cubic foot. Modulus of rupture 6400 psi minimum. Tensile strength minimum 3750 psi. Lebanite PL-90 S2S, or approved equal.
  - D3 (Specify or Delete) – Laminated Hardboard Plywood – Tempered hardboard laminated to Douglas Fir/Hemlock plywood with waterproof glue bond meeting APA PS 1-07 specifications.

**E. Fasteners**

1. Flooring Fasteners
  - D1 Hardwood Flooring - 1-1/2" barbed cleats or coated staples.
  - D2 Hardboard Floor - Zinc plated 1-1/4" flat head steel screws.
  - D3 Laminated Hardboard Plywood - Zinc plated 1-1/2" flat head steel screws.
2. Subfloor Fasteners - 3/4" staples or equivalent.
3. Subfloor Adhesive - PL400 adhesive or equal.

**F. Surface Finish**

1. D1 Hardwood Flooring – Connor oil modified polyurethane or equal.
2. D2 Hardboard Floor – High quality Acrylic Latex primer and compatible Acrylic Latex top coat.
3. D3 Laminated Hardboard Plywood - High quality Acrylic Latex primer and compatible Acrylic Latex top coat.

**G. Wall Base** - 3" X 4", heavy duty, molded, vented cove base with pre-molded outside corners.

**PART 3 – EXECUTION**

**3.1 INSPECTION**

- A. Inspect concrete slab for proper tolerance and dryness. Report any discrepancies to general contractor and architect in writing.
- B. Concrete slab shall be broom cleaned by general contractor.
- C. Installer (Flooring Contractor) shall document all working conditions provided in General Specifications prior to commencement of installation.

**3.2 INSTALLATION**

**A. Subfloor**

1. Cover concrete with poly, sealing and lapping joints a minimum of 6".
2. Arrange subfloor panels in a staggered brick pattern perpendicular to finished flooring direction with panel ends offset 48" in alternating rows. Attach overlapping side and end joints of adjacent panels by applying ribbon of subfloor adhesive, and 3/4" staples 12" on center. Provide nominal 1/4" spacing between panel edges, and provide 1-1/2" expansion voids at perimeter and at all vertical obstructions. Install solid blocking at doorways.
3. Secure panels to concrete with steel anchors inserted into anchor pockets provided. Maintain proper anchor penetration with Connor installation tools and procedures.

**B. Floor Surface**

- D1 Hard Maple Flooring
  1. Install maple flooring by power nailing or stapling approximately 12" on center with end joints properly driven up.
  2. If required, size joints between flooring strips to allow for intermediate expansion in accordance with local humidity conditions.
  3. Provide 1-1/2" expansion voids at perimeter and at all vertical obstructions.
- D2 Hardboard Floor
  1. Install added layer of 15/32" x 4' x 8' plywood sheathing diagonally to subfloor, 1/4" spacing at all edges and breaking joints 4'. Apply ribbons of PL 400 adhesive in box-X pattern to underside of sheathing and attach to subfloor with 1" coated subfloor staples fastened 12" on center in both directions, taking care not to contact concrete anchors.
  2. Install hardboard panels perpendicular to bottom subfloor panel direction with ends offset by 4' in alternate rows to form a brick pattern. Allow 3/32" spacing (or adjust slightly as required for regional environmental conditions) between panel edges. Attach panels with 1-1/4" screws spaced 6" on center along panel edges and 12" on center throughout interior of panels, with perimeter screws applied within 1/2" of panel edges. Pre-drill and countersink screws below panel surface taking care not to contact concrete anchors.
- D3 Laminated Hardboard Plywood -
  1. Install laminated hardboard plywood panels perpendicular to subfloor panel direction with ends offset by 4' in alternate rows to form a brick pattern. Allow 3/32" spacing (or adjust slightly as required for regional environmental conditions) between panel edges. Attach panels with 1-1/2" screws spaced 6" on center along panel edges and 12" on center throughout interior of panels, with perimeter screws applied within 3/4" of panel edges. Pre-drill and countersink screws below panel surface taking care not to contact concrete anchors.

**3.3 FINISHING**

- A. Maple Flooring
  - 1. Machine sand with course, medium, and fine paper to a smooth, even and uniform surface.
  - 2. Remove sanding dust from entire surface by tack or vacuum.
  - 3. Inspect entire area of floor to insure that surface is acceptable for finishing, clean and completely free from sanding dust.
  - 4. Apply two (2) coats of approved seal and two (2) coats of approved finish per manufacture’s instructions.
  - 5. Buff and clean floor between coats.
- B. Hardboard and Laminated Hardboard Plywood Floor Panels
  - 1. Remove all dust and dirt from entire surface by tack or vacuum prior to first coat and between coats as necessary according to recommendations of paint manufacturer.
  - 2. Protect adjacent surfaces and seating areas.
  - 3. Inspect entire area of floor to insure that surface is acceptable for painting.
  - 4. Apply primer and top coat(s) per paint manufacturer’s instructions. Apply coats keeping even edge at panel edges.

**3.4 BASE INSTALLATION**

- A. Install vent cove base to walls with base cement or screws. Use pre-molded outside corners and mitered inside corners.

**3.5 CLEANING**

- A. Remove excess and waste materials from the area of work.

**END OF SECTION 09642**