

WOOD FLOORING

GENERAL INFORMATION

- 1.1 This section applies to factory finished wood strip flooring.
- 1.2 Reference Standard: NOFMA - National Oak Flooring Manufacturers Association Grading Standards.
- 1.3 Warranty: Provide manufacturer's standard one-year warranty.

DESIGN REQUIREMENTS

- 2.1 Prefinished Solid Hardwood Strip Flooring: $\frac{3}{4}$ " thick; in species as required for project (to be approved by Facilities); Grade: Clear/Select; Width: 3-1/4" (or as required for project); Length: Random, with 6'-0" maximum, 2'-0" minimum, and 4'-0" average lengths. Edge: Tongue and Groove; End: Matched (tongue and groove).
- 2.2 Factory finishing: Factory machine sand hardwood strip flooring to smooth even finish with no evidence of sander marks. Apply one seal coat followed by finish coats of urethane. Cure.
- 2.3 Acceptable subfloor materials include plywood and oriented strand board, depending on application. Particleboard and Masonite are not acceptable substrates.
- 2.4 Wood sleepers, plywood sheathing, blocking, and other framing accessories:
 - a. Subfloor filler and patching compound: Gray cement based type as recommended by flooring manufacturer
 - b. Wood Floor Adhesive: 100 percent urethane floor adhesive as recommended by flooring manufacturer.
 - c. Sheet vapor retarder: Black polyethylene sheeting, 8 mils thick. Provide reinforced, self-adhesive, 2 inches (51 mm) minimum width tape for sealing seams.

DESIGN REQUIREMENTS

- d. Underlayment: Asphalt impregnated, weather resistant, water-vapor permeable building felt paper. Dry tensile strength: 20 psi minimum in both directions. Maximum water vapor transmission: 35 grams per square meter per 24 hours.
 - e. Sound isolation underlayment: Cork or compressed fiber, if required.
- 2.5.1 Submittals: Product data; installer and manufacturer qualifications; maintenance procedures; shop drawings; and samples.
- 2.6 Quality Assurance:
- a. Manufacturer: Company specializing in manufacture of prefinished wood flooring with 5 years successful experience.
 - b. Installer: Company specializing in installing wood flooring with minimum 5 years successful experience.
 - c. Hardwood shall meet grading requirements of NOFMA. Provide species and grade stamp on underside of each piece of flooring. Hardwood shall be kiln dried with moisture content ranging from 6 to 9 percent. Wood Grade Select/Clear: Uniform color, no knots, and longest average lengths of the three available grades.

CONSTRUCTION REQUIREMENTS

- 3.1 Examination: Verify that site conditions are acceptable for installation of prefinished wood flooring system. Do not begin installation until substrates have been properly prepared. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- 3.2 Preparation:
- a. Before installation, acclimate the new flooring in the areas in accordance with manufacturer's instructions specific to wood species selected. Consistent indoor temperatures of 60°-80° F and constant indoor humidity levels of 35% - 55% are required during period of acclimatization. Very dry or humid regions may require extended conditioning. Excessive squeaks and gapping can result from poor or no acclimation.
 - b. If particleboard or Masonite subfloor is present, cover or replace with 3/8 inch (9.5 mm) plywood or oriented strand board, as recommended by flooring manufacturer.

DESIGN REQUIREMENTS

- c. Coordinate installation of wood flooring with construction of wood subfloor. Ensure that framing members are rigid and subfloor is level, smooth, and securely attached with ends over firm bearing.
 - d. Coordinate installation of wood flooring with construction of concrete substrate.
- 3.3 Coordinate required depth of recess with installation of concrete subfloor so that wood flooring is flush with adjacent floor finishes. Prior to installation, inspect concrete substrate to determine existence of moisture, major cracking or settlement, deterioration of concrete, oil, grease, and other deficiencies which might adversely affect installation of wood flooring. Ensure:
- a. Concrete shall be completely cured, 90 days cure time minimum.
 - b. Moisture content of substrate shall be within 2 percent of wood flooring (for widths 3-1/4 inches (83 mm) and wider, and within 4 percent for 2-1/4 inches (57 mm) width boards) to be installed. Test concrete using CC test and verify moisture does not exceed 3 pounds per 1,000 square feet (14.65 kg per 1,000 square meters in 24 hours).
 - c. Verify for slabs scheduled to receive nailing base or wood flooring installed adhesive that concrete sealer has not been applied, and that concrete slab has neutral alkalinity.
 - d. Concrete surfaces shall be smooth, flat, and free from irregularities. Maximum acceptable variation in any direction shall be 3/16 inch in 10 feet (5 mm in 3 m).
- 3.4 Fill low spots, cracks, joints, holes, and other defects with floor filler. Apply, trowel, and float filler to leave smooth, flat, hard surface. Prohibit traffic until cured. Report deficiencies to Architect and do not proceed with flooring installation until resolution. Vacuum or broom clean floor surfaces immediately before installation.
- 3.5 Installation of Mechanically-Fastened Nailing Base:
- a. Vapor Barrier: Install plastic sheet vapor barrier under wood subfloor. Lap seams 6 inches (152 mm) and tape. (Note: Vapor Barrier may be trowel-applied over concrete subfloor. Install any vapor barrier in accordance with flooring manufacturer's recommendations)
 - b. Loose lay 3/4 inch (19 mm) thick exterior grade plywood over floor on a diagonal to direction of finished floor. Stagger joints between sheets 48 inches (1219 mm). Leave 3/4 inch (19 mm) space at perimeter walls and 1/8 inch (3 mm) space between panels. Cut plywood to fit under door jams and within 1/8 inch (3 mm) of obstructions.

DESIGN REQUIREMENTS

- c. Fasten plywood with powder-actuated concrete nails or hammer-driven concrete nails. Use 9 nails minimum per plywood panel. Start nailing at center of plywood panel and work toward edges.
- d. Prior to installation of wood flooring, install one ply of asphalt felt underlayment.

3.6 Wood Flooring Installation:

- a. Install flooring in accordance with manufacturer's instructions and approved shop drawings.
- b. When installation to occur in high humidity area, allow wood flooring to acclimatize for an extended period, as recommended by manufacturer according to species specified.
- c. Intermingle board lengths.
- d. Stagger board ends 3 times board width or 6 inches (152 mm) minimum.
- e. Select wood boards from several cartons to ensure good color and shade mixture.
- f. Allow 3/4 inch (19 mm) voids, or voids equal to the thickness of the flooring, for expansion and movement of wood flooring at walls and permanent obstructions.
- g. Do not install flooring directly over joists without subflooring.
- h. Use joist spacing to determine minimum subfloor thickness.
- i. All structural panels/underlayment to be installed sealed-side down. Provide 3/4 inch (19 mm) perimeter spacing.
- j. Square-edged or non tongue and grooved panels used as a subfloor require a minimum 1/8 inch (3 mm) expansion space between all plywood seams.
- k. Panels must meet minimum CDX grade Exposure 1 and US Voluntary Product Standard PS1-95, PS2-04 for construction sheathing. Code must be stamped on underside of all panels used.
- l. For large wood floor areas, 30 feet by 30 feet (10 m by 10 m) or high humidity conditions provide center expansion gaps by inserting washers as temporary spacers in accordance with manufacturer's instructions.
- m. Lay hardwood strip flooring on underlayment over wood subfloor or wood nailing base and parallel with length of room and perpendicular to wood joists.

DESIGN REQUIREMENTS

- n. Blind staple or nail flooring to subfloor with appropriate flooring nailer or stapler: Space fasteners at 6 to 8 inches (152 to 203 mm). Fasteners shall not be installed within 2 inches (50 mm) of board ends to avoid splitting. Fasteners shall be driven at an angle from the top of the tongue of the flooring board. Ensure that the flooring nailer or stapler is adjusted to insert fastener at proper angle and is set to the proper depth for flooring being installed to prevent splitting and damage to finished wood surface. Where clearance does not permit blind nailing with flooring nailer, pre-drill holes and top nail on the tongue side of the board.
 - o. For flooring 3-1/4 inches (76 mm) wide x 3/4 inch (19 mm) thick the nail placement should be 6 inches to 8 inches (152 mm to 203 mm) apart and there should be a nail placed within 1 inch to 3 inches (25 mm to 76 mm) from each end, with at least two nails in every board
- 3.7 Installation of Trim and Moldings: Install wood moldings and trim pieces of types shown and detailed on Drawings and reviewed shop drawings. Acclimate wood moldings and trim 48 hours minimum. Pre-drill pieces to be secured by nails to avoid splitting. Cut moldings and trim pieces with motorized miter saw with carbide tipped blade. When installing base or quarter round moldings, attach to wall to avoid restricting expansion and contraction of wood flooring. When splicing moldings and trim, miter cut rather than square cut. Counterset nails and fill holes with wood filler colored to match prefinished trim or molding color. Stair nosings shall be nailed and glued for safety.
- 3.8 Cleaning and Protection: Remove unused materials and debris. Clean floor surface. Use cleaning products recommended by flooring manufacturer for urethane floors. Protect completed wood flooring from construction operations with heavy paper or plywood sheets installed over walkways. Take necessary precautions to eliminate damage from dropped objects. Use breathable materials to cover installed wood flooring. Do not completely cover installed wood flooring, as moisture and color shading issues may arise. Instruct Owner's designated representatives in wood flooring maintenance.
- 3.8.1 Delivery, Storage and Handling: Store products in manufacturer's unopened packaging until ready for installation. Follow manufacturer's recommended handling and storage procedures.
- 3.9 Project Conditions: Do not install wood flooring until wet construction work and majority of overhead work is completed. Provide permanent heat, light, and ventilation prior to installation. Maintain room temperature at 65 degrees F for 2 days prior to delivery of materials, during installation, and after installation. Acclimatize wood flooring in accordance with period of time recommended by manufacturer. In applications in which high levels of humidity are present, extend period of time accordingly. Anticipate environmental conditions (temperature, humidity,



DESIGN REQUIREMENTS

and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

REFERENCE

- 4.1 The applicable CSI Specification Section is 09 64 00