

SECTION 096403

CERTIFIED WOOD FLOORING

CSI 3-PART **SHORT-FORM** GUIDE SPECIFICATION:
USE FOR OUTLINE OR DD SPECIFICATION ISSUES.
EDIT TO SUIT PROJECT

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section includes but is not limited to certified sustainable solid wood flooring and accessories.
- B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. A list of those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and DIVISION 01 General Requirements, Specification Sections, apply to this Section.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's printed descriptions of materials, components, treatment systems, performance criteria, finishes, fasteners, adhesives, use limitations, recommendations and installation information.
- B. Shop Drawings: Submit plan drawings showing extent of wood flooring scope, and keyed detail drawings indicating detailed expansion considerations, material transitions, and specific attachment requirements.
- C. Samples:
 - 1. Initial for Selection: Submit printed color charts or sample chains indicating manufacturer's complete range for each type of material finish exposed to view that is not yet selected by Architect or specified.
 - 2. Final Selection: Submit 6 inch (150mm) long sample of each different profile (grain and species for clear finishes) with proposed finishes, and fasteners.
- D. Quality Assurance Submittals: Certificates of Grade; KD Certificates; Test and Evaluation Reports for wood treatments; and Qualification Statements.

NOTE: Edit LEED Requirements below to suit project.

- E. Sustainable Design (USGBC [LEED®](#)) Submittals:
 - 1. LEED Credit MR, Materials & Resources. Submit completed LEED 2009-NC v.3 Submittal Templates, product data, and other required paperwork as follows:
 - a. MR 5.1, 10% Regional Materials
 - b. MR 5.2, 20% Regional Materials
 - c. MR 7, FSC Certified Wood: Submit chain-of-custody certificates
 - 2. LEED Credit IEQ, Indoor Environmental Quality. Submit completed LEED 2009-NC v.3 Submittal Templates, and required paperwork as follows:
 - a. IEQ 4.1, Low Emitting Materials, Adhesives & Sealants: Submit VOC Data
 - b. IEQ 4.2: Low Emitting Materials, Paints & Coatings, VOC Data

- F. Closeout Submittals: Operation and Maintenance Data, Executed Warranty Documentation, and Record Documents.

NOTE: Edit LEED Requirements below to suit project.

1. Sustainable Design Closeout Documentation: Submit completed USGBC LEED® [Worksheet Templates](#) for the following credits:
 - a. MR 5.1, MR 5.2, MR 7
 - b. IEQ 4.1, IEQ 4.2

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements: Fire retardant treatment; ISO 14001, 9001, and 9002 compliant
- B. Qualifications: Fabricator / Supplier and Testing Agency
- C. Certifications: Wood timber and manufactured wood products shall be sourced from sustainably managed forests as certified by SmartWood (SW), SCS, SGS, BVC, SFI, ATFS, CSA, or VFF, and displaying the FSC, PEFC, PEFC member or VFF label.

NOTE: Edit sustainability standards and certifications below to suit project.

- D. Sustainability Standards and Certifications:
1. Adhesive and Sealant VOC Limits: According to South Coast Air Quality Management District [Rule 1168](#) and [GS-36](#) for aerosols.
 2. VOC Limits of Wood Finishes, as tested using U.S. EPA Reference Test Method 24 and as defined by:
 - a. South Coast Air Quality Management District Rules: In areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur.
 - 1). SCAQMD [Rule 1113](#), Architectural Coatings
 - 2). SCAQMD [Rule 1168](#), Adhesive and Sealant Applications
 - b. Bay Area Air Quality Management District Regulation: For containers larger than 16 oz., for areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - 1). BAAQMD [Regulation 8, Rule 51](#)
 - c. California Air Resources Board: For areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - 1). CARB for containers 16 oz. or less.
 - d. Green Seal Standards:
 - 1). [GS-11](#), Low Odor or Low VOC Paint
 - 2). [GC-03](#), Anti-Corrosive Paints, Second Edition, January 7, 1997
 3. Certified Wood Materials: According to [FSC-STD-40-004](#) chain-of-custody requirements.
- E. Field Samples: Provide field samples, dry laid, to demonstrate aesthetic effects of materials in the room it is to be installed. Minimum Layout Size: 25 sf (2.3m²)
- F. Mockups: Build Mock-up in location and size acceptable to design professional of type specified. Demonstrate the anticipated range of materials, workmanship and finish expected.

NOTE: Either Field Samples and Mockups above or Prototypes below may satisfy the designer's selection process. Delete the one not selected.

- G. Prototypes: Provide materials or assemblies of each unit type for review and approval prior to benchmarking, manufacturing or fabrication production.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, Storage and Handling per fabricator's written recommendations, industry guidelines, and DIVISION 01 requirements.

1.5 WARRANTY

- A. Factory Finish Warranty: Contractor shall provide manufacturer's guarantee against defects in factory finish materials and workmanship for the original owner for a twenty-five (25) year period beginning on the date of Substantial Completion acceptance.

PART 2 - PRODUCTS

2.1 FABRICATORS / SUPPLIERS

GREEN NOTE: For most current list of Vermont FSC Certified Products go to http://www.vtwoodnet.org/certified_wood_sources.html.

- A. List of Fabricator and/or Supplier of **Sustainable VT Wood Flooring**: Subject to compliance with requirements, provide products by one of the following:

1. Currier Farms Forest Products, Danville, VT; 802.684.8128; SW-COC-1120 C and SCS-COC-001477 E
2. Lathrop's Maple Supply LLC (Exclusively Vermont Wood Products), Bristol, VT; www.exclusivelyvermont.com

NOTE: Exclusively Vermont Wood Products provides sustainably harvested wood from known local central Vermont sources.

3. Planet Hardwood, St. George, VT; 802.482.4405; www.planethardwood.com

NOTE: Planet Hardwood provides FSC certified sustainably harvested wood from Vermont Family Forest and other sources.

4. Rex Lumber, Arlington, VT, 802.236.0758; www.rexlumber.com; FSC-COC-639
5. TimberKnee Wide Plank Flooring, South Royalton, VT; www.timberknee.com; SW-COC-988
6. Vermont Family Forests, Bristol, VT; 802.453.7728; www.familyforests.org; SCS-COC-001477 D

NOTE: Below see non-Vermont based FSC Certified companies that use northern forest timber.

7. Carlisle Wide Plank Floors, Stoddard, NH; 303.893.3937; [SmartWood Certification](#)

- B. List of VT Fabricator or Supplier of **Salvaged Wood Flooring**: Subject to compliance with requirements, provide products by one of the following:

1. Vermont Wildwoods (Salvaged Diseased Butternut), Marshfield, VT; www.vermontwildwoods.com

- C. List of Fabricator and/or Supplier of VT Wood Flooring: Subject to compliance with requirements, provide products by one of the following:

NOTE: The list below encompasses local fabricators and suppliers from Vermont who are NOT certified.

1. Dick Walker Sawmill, Etc., Fair Haven, VT; 802.747.7900; www.dickwalkersawmill.com
2. Kerber Farms, Mill & Lumber Co., Guilford, VT; 802.257.0614; Kerbervt2000@yahoo.com
3. Mansfield Forest Products, N. Ferrisburg, VT; 802.425.7900; www.mansfieldforest.com
4. Northfield Wood Products, Northfield, VT, 802.485.6411

5. Vermont Hardwoods, Chester, VT; 802.875.2550; www.vfh.us

D. Substitution Limitations: Manufacturers of equivalent products beyond those listed above shall be considered when submitted per DIVISION 01, using CSI Substitution Request Form 1.5C (During the Bidding Phase) or Form 13.1 (After the Bidding Phase.) [link](#)

E. Product Options

NOTE: Edit options below to suit project requirements deleting that not chosen. The higher the Janka number the harder and denser the wood.

1. Wood Flooring Species ([Janka Hardness](#) in pounds-force)
2. Wood Cut or [Saw Pattern](#):
 - a. Plain sawn (flat-sawn or flat-grained); Quarter sawn (straight-grained, edge grained or straight-grained); Rift sawn

NOTE: Quarter sawn timber is approx. four times more stable than tangentially sawn timber.

3. Wood Veneer: Rotary-cut veneer (peeled); Sliced veneer; Sawn veneer (thick)
4. Edge:
 - a. Square or straight; Microbevel; Tongue and groove (T&G)
5. Dimensions:
 - a. Thickness: Standard 3/4 inch (19mm)
 - b. Width: Standard strip 2-1/4 inch (57mm) or Plank 5 inches (127mm)
 - 1). Each floor board over under-floor heating shall be ≤ 4 inches (100mm) wide.
 - c. Lengths: Random 12 to 84, 60 or 48 inch
6. Finish:
 - a. Shop prefinished
 - 1). UV cured Acrylic Urethane: Acid cure (strong odor) or Water-based
 - b. Unfinished with field finish
 - 1). Polyurethane. High gloss or matte finish; Moisture cured or Penetrating oil modified
 - 2). Aluminum Oxide
 - 3). Epoxy
 - 4). Wax
 - 5). Varnish. Matte or glossy finish
 - 6). Shellac and Lacquer
7. Accessories:
 - a. Underlayment - Acoustic
 - b. Underlayment - Moisture and Vapor Retarder: Polyethylene sheet or Asphalt-saturated felt sheet
 - c. Underlayment – Thermal Insulation: Cork, Wool, Wood fiber, or Composite plywood on polystyrene board
 - d. Radiant-heat system per DIVISION 23, HVAC

RED NOTE: Use engineered wood flooring with radiant heating systems, not solid wood flooring unless you wish to have wood board gaped joints, checks, twisting and/or cupping.

- e. Adhesive: Urethane-based, Water-based, or Acrylic
- f. Wood Trim per DIVISION 06 SECTION, FINISH CARPENTRY.

2.2 DESCRIPTION / MATERIALS

A. General:

1. Hardwood: Provide solid wood lumber per performance requirements; Open Grain "Ring-Porous" or Close Grain "Diffuse-Porous"
2. Softwood: Provide solid wood lumber per performance requirements.

B. Performance Capacities

1. Wood:
 - a. Surface Burning Characteristics per ASTM E84
 - b. Critical Radiant Flux per ASTM E648
 - c. Formaldehyde Emission per ASTM E1333
 - d. [Janka](#) Relative Species Hardness per ASTM D143 (pound-force)
 - e. Hardness Modulus per ASTM D1037 (psi)
 - f. Movement in service requirement
2. NHLA [Grade](#)
3. NeLMA (WWPA) [Grade](#)
4. Moisture Content
 - a. 6 to 9 percent for hardwoods per NHLA
 - b. National Grading Rule:
 - 1). S-GRN (surfaced green)
 - 2). S-DRY (surfaced dry)
 - 3). MC 15 (moisture content 15 percent)
5. Factory-applied Finish:
 - a. Taber Abrasion Test per ASTM D4060
 - b. Static Coefficient of Friction per ASTM D2047

C. Regulatory Requirements: Minimum Class C fire-test-response characteristics per ASTM E84 or UL, and per AHJ.

D. Sustainability Characteristics

1. [USGBC](#) LEED Rating: Comply with project requirements intended to achieve the following Rating, as measured and documented according to the USGBC LEED® Green Building [Rating and Version](#) indicated:

NOTE: Each LEED Version requires a different credit total to achieve the desired LEED Rating.

NOTE. Select one of the following Ratings and edit the Version listed to suit your project:

- a. Rating: Certified, Silver, Gold, or Platinum
 - b. Version: [LEED 2009-NC](#) v. 3 (New Construction)
 2. Applicable LEED Credits: Performance requirements of the following LEED Categories and Credits apply to this Section and shall be met:
 - a. MR: 5.1, 5.2, 7
 - b. IEQ: 4.1, 4.2
- E. Fasteners: Of appropriate type (screws, shank, nails or staples), length and durability for wood product used to securely fasten to the substrate for the intended life and use of the unit.
- F. Adhesives: Formulation specifically recommended for indicated use by adhesive manufacturer; Urethane-based or water-based.
- G. Underlayment: Vapor retarder; acoustic padding; thermal insulation

2.3 ASSEMBLY / FABRICATION

- A. Expansion / Contraction Movement: Assemble wood products using details that allow for expansion and contraction due to the specified range of changes in ambient conditions.

PART 3 - EXECUTION

3.1 FIELD CONDITIONS

- A. Conditions and Measurements: Visit jobsite to verify installation conditions and floor measurements.
- B. Ambient Conditions per manufacturer's written recommendations, industry guidelines, DIVISION 01, and as follows:
 - 1. New concrete slabs shall be flat, clean and dry with no installation of materials on top of the slabs until each moisture requirement is met.
 - 2. Environmental Limitations: Do not deliver or install until building is enclosed, overhead work is complete, wet work is complete, and HVAC system has been fully operating a minimum (1) one week, consistently maintaining recommended temperature and relative humidity at occupancy levels.

RED NOTE: Do not use portable heaters.

- a. Allow solid wood flooring and accessories to acclimate from 3 to 7 days to the conditions in which it will be installed, at or near occupancy levels.
- b. Do not proceed with installation until all ambient conditions are met.

NOTE: Hardwood typically expands across its width during the summer as the air becomes more humid and the wood takes in the moisture, and shrinks during the winter when the heating dries out the air and removes moisture from the boards.

3.2 EXAMINATION, PREPARATION, AND INSTALLATION

- A. Examination, preparation, and installation per manufacturer's written instructions, industry guidelines, DIVISION 01, and as follows:
 - 1. Acceptance of Conditions: Carefully examine installation areas with Installer present, for compliance with requirements affecting Work performance.
 - a. Verify that field measurements, surfaces, substrates, structural support, tolerances, flatness, levelness, plumbness, humidity, moisture content level, cleanliness and other conditions are as required, and ready to receive Work.
 - 1). Clean substrate as needed. Scrape or scarify, sweep and vacuum substrate clear of debris, paint, drywall, oily films, soap, wax, silicone, and dust. Do not use solvents. Cover if recommended.
 - 2). Locate areas not flat within required tolerances and correct.
 - b. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 2. Layout installation by marking extents of each item, and anchoring / fastening locations coordinated with blocking or other structural support.
 - 3. Protect adjacent substrates, installed work and existing items from damage by construction operations with temporary but effective means.

NOTE: Choose from the following floor installation methods, deleting the ones not selected.

- 4. Installation Method: Floating Floor, or Nail Down, or Glue Down

RED NOTE: Glue-down installation of solid wood flooring is typically not a sustainable method precluding the possibility of salvage and reuse due to adhesive contamination, and possibly negatively affecting IAQ (indoor air quality).

- 5. Install solid wood floors in selected pattern by secret nailing or stapling into timber (either an existing floor or battens or sleepers or plywood laid over concrete), allowing for expansion.

NOTE: Choose from one of the following subfloor systems, deleting the ones not selected.

6. Hardwood Strip Flooring on Plywood: Plywood on Concrete Subfloor, or Plywood Floating Subfloor, or Plywood Glued to Concrete Subfloor
 - a. Moisture Barrier: Lay polyethylene sheet film or asphalt felt over concrete.
7. Site Finishing:
 - a. Top Sanding with dust control vacuum attachment, and dust containment system.
 - b. Finish Coating: Stain and clear topcoat per DIVISION 09.

3.3 FIELD QUALITY CONTROL

- A. Site Tests and Inspections. Inspect Wood Flooring for:
 1. Buckling, cupping, crowning, and tenting, an indication that a subfloor and wood flooring acclimation period and/or moisture testing limits may not have been met, and/or allowances for expansion and contraction were not observed.
 2. Creaking, popping, squishy, bouncy, or sea saw effects, an indication that the subfloor was not properly prepared, and/or meeting the recommended flatness tolerance.
 3. Gapping due to shrinkage, an indication that the wood flooring may not have met moisture content limits and/or was not properly installed per temperature and RH requirements.

3.4 CLEANING, MAINTENANCE, AND PROTECTION

- A. Provide Progress Cleaning, Waste Management, and Provide Final Cleaning per DIVISION 01 requirements.
- B. Provide Initial Maintenance per manufacturer's recommendations.
- C. Protect installed wood flooring from construction operations, including damage by work of other trades, until date of Final Completion or Owner occupancy, whichever occurs first.

3.5 CLOSEOUT ACTIVITIES

- A. Substantial Completion Requirements per DIVISION 01.
- B. Correct Non-Conforming Work per General Conditions, and the acceptance of the Architect.

END OF SECTION

NOTE: Please **contact us** with comments, additions and deletions about this GuideSpec so we can make it better.

VERMONT SUSTAINABLE JOBS FUND

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RED NOTE: Be sure to obtain the latest version of this Guide Specification.

This Guide Specification is not a completed document ready for use. It must be edited deleting, adding, or modifying text, as required to suit project requirements.

The professional stamping and the contracting parties of the Contract Documents are responsible for the accuracy of issued project specifications, including any use of this Guide Specification.

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