

SECTION 062003

CERTIFIED FINISH CARPENTRY

CSI 3-PART **LONG-FORM** GUIDE SPECIFICATION
EDIT TO SUIT PROJECT

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section consists of milled certified wood, and includes but is not limited to the following:
1. Millwork, molding and trim
 - a. Door casings
 - b. Window casings
 - c. Mantels
 - d. Baseboards
 - e. Chair-rails
 - f. Picture-rails
 - g. Crown molding
 2. Prefinished Paneling
 3. Board Paneling
 4. Wood treatments
 5. Accessories including, but not limited to, fasteners
- 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.
 2. SECTION 060530, CERTIFIED WOOD TYPES: Forest, tree and timber management and sourcing.
 3. SECTION 061003, CERTIFIED ROUGH CARPENTRY: Wood framing.
 4. SECTION 061603, CERTIFIED WOOD SHEATHING: Composite wood panels.
 5. SECTION 064003, CERTIFIED ARCHITECTURAL WOODWORK: Wood casework.
 6. SECTION 085203, CERTIFIED WOOD WINDOWS
 7. SECTION 096403, CERTIFIED WOOD FLOORING
 8. Products installed but not furnished or supplied under this Section.
 - a. SECTION 074223, WOOD WALL PANELS
 - b. SECTION 081400, WOOD DOORS

1.2 REFERENCES

- A. Abbreviations and Acronyms per SECTION 011000, SECTION 014000, and as follows:
1. AHJ. Authority Having Jurisdiction from local, state and federal regulatory agencies.
 2. CoC. Chain-of-Custody.
 3. Per. In accordance with.

NOTE: Edit Definitions and References below to suit project.

NOTE: Items may also be moved to Section 014000 and deleted here.

B. Definitions per SECTION 011000, SECTION 014000, and as follows:

1. Certified Wood: Independent third party (FSC) verified wood from forests complying with responsibly managed forest standards that meet broad social, economic and environmental goals.
2. Finish Carpentry: The last step of the carpentry process where the finish carpenter performs tasks such as installing baseboards, crown molding, and other millwork elements that are viewable as opposed to carpentry within walls, which will later be enclosed.
3. HAP. Hazardous Air Pollutant
4. HMA Hardwood Moldings [Glossary](#)
5. MDF. Medium Density Fiberboard
6. MIC. Methyl diisocyanate, an extremely toxic isocyanate chemical compound and HAP, used in making industrial adhesives and polyurethane.

RED NOTE: Extremely toxic MIC has a NIOSH IDLH (immediately dangerous to life or health) exposure of 3 ppm. Higher levels of exposure, over 21 ppm, can result in pulmonary or lung edema, emphysema and hemorrhages, bronchial pneumonia and death.

There is no known antidote.

7. Northern Forest: Timber stands that range from the NY Adirondacks through Vermont and New Hampshire up into Maine. <http://www.northernforestalliance.org/explore.htm>

NOTE: The US federal government has not yet adopted the RoHS Directive. However, many US companies doing business in the EU are compliant.

8. RoHS Compliant: European Union (EU) Directive for the restriction of hazardous materials compliant, meaning NO lead, mercury, cadmium, hexavalent chromium, PBB (polybrominated biphenyl) and PBDE (polybrominated diphenyl ethers).
9. Sustainably Harvested Wood: Wood harvested from forests managed in accordance with stated environmental, social, economic, legal, forest management, and systematic validation principles such as those proffered by the Northern Forest Alliance <http://www.northernforestalliance.org/about/sustainforest.htm> and FSC www.fsc.org/pc.html.
10. Sustainable Forest Management: The practice of meeting the forest resource needs and values of the present without compromising the similar capability of future generations (1993 Montreal Process.) The UN-FF (United Nations Forum on Forests) in 2004 adopted these seven themes of sustainable forest management: Extent of forest resources; Biological diversity; Forest health and vitality; Productive functions of forest resources; Protective functions of forest resources; Socio-economic functions; and Legal, policy and institutional framework.
11. Sustainably Recycled Wood: Wood products certified by a third party to be made from reused, reclaimed or salvaged wood timbers or post-consumer wood products.
12. VOC. Volatile Organic Compounds are compounds that have a high vapor pressure and low water solubility.

C. Referenced Standards per SECTION 014000 and as follows:

1. ALSC. American Lumber Standard Committee; www.alsc.org
 - a. Lumber Grading Rules
2. ANSI. American National Standards Institute; www.ansi.org
3. APA. APA – The Engineered Wood Association; www.apawood.org
 - a. U.S. Product Standard PS 1 for Construction and Industrial Plywood
4. ASTM. ASTM International; www.astm.org
5. AWI. Architectural Woodwork Institute
 - a. AWI - Quality Standards, 8th Edition, Version 1.0, 2003.
 - b. AWI / AWMAC / WI – Architectural Woodwork Standards – 2009, 1st Edition

NOTE: The AWS will be printed and available for distribution before August 1. The Woodwork

Institute will adopt it as their official standard for work bidding after Oct 31, 2009.

6. AWWA. American Wood Preservers Association; www.awpa.com
7. BAAQMD. Bay Area Air Quality Management District; www.baaqmd.gov
8. CARB. California Air Resources Board, a department of the California Environmental Protection Agency; www.arb.ca.gov

NOTE: CARB regulations govern formaldehyde emissions in both raw composite wood panels and finished products sold or used in California.

Both imported and domestic products are regulated and must be third-party certified and clearly labeled to indicate they meet California's requirements.

The regulation applies to hardwood plywood, particleboard, and medium density fiberboard (MDF) and all products (such as furniture, cabinets, flooring, store fixtures, moldings and millwork, countertops, decorative household items, doors, etc.) made with those products.

Phase I emission requirements are effective beginning January 1, 2009.

9. [CPA](http://www.pbmdf.com/). Composite Panel Association; <http://www.pbmdf.com/>
 - a. CARB Certification Program; <http://www.carbrule.org/>
 - b. EPP. Environmentally Preferable Product Grademark Program
10. EPA. U.S. Environmental Protection Agency; www.epa.gov
11. FSC. Forest Stewardship Council; Certified Sustainably Managed Lumber; www.fsc.org/pc.html; <http://www.fscus.org/>
 - a. Certifier: Rainforest Alliance 'SmartWood' Program. <http://www.smartwood.org>
 - b. Certifier: Scientific Certification Systems 'Forest Conservation Program' (FCP); <http://www.scscertified.com>
 - c. Certifier: BVC. Bureau Veritas Certification; <http://certification.us.bureauveritas.com/>
 - d. Certifier: Price Waterhouse Cooper LLC (PwC); <http://www.pwc.com/extweb/pwcpublications.nsf/docid/0cca106f2a7b9d5585256fc50051263a>
 - e. Self-Withdrawn Certifier: SGS Systems & Services Certification USA; http://www.us.sgs.com/forestry_us
12. [HMA](http://www.hardwoodinfo.com). Hardwood Manufacturers Association; www.hardwoodinfo.com
13. ICC. International Code Council; www.iccsafe.org
14. ICC/ES. International Code Council / Evaluation Service; www.icc-es.org
15. ISO/IEC. International Organization for Standardization, International Electrotechnical Commission; www.iec.ch/
16. [NeLMA](http://www.nelma.org). Northeastern Lumber Manufacturers Association. www.nelma.org
 - a. Standard Grading Rules for Northeastern Lumber 2006
17. [NESHAP](http://www.epa.gov/EPA-AIR/1998/December/Day-28/a34308.htm). National Emission Standard for Hazardous Air Pollutants as applied to Wood Furniture Manufacturing; <http://www.epa.gov/EPA-AIR/1998/December/Day-28/a34308.htm>
18. NFPA. National Fire Protection Association; www.nfpa.org
19. NHLA. National Hardwood Lumber Association; www.natlhardwood.org
20. [PEFC](http://www.pefc.org). Programme for the Endorsement of Forest Certification schemes, Geneva-based; [PEFC Annex 4](http://www.pefc.org) Chain of Custody; (SFI, CSA, and ATFS are endorsed by PEFC.)
 - a. Member: [SFI](http://www.sfiprogram.org). Sustainable Forestry Initiative, Washington DC; www.sfiprogram.org
 - b. Member: [ATFS](http://www.treefarmssystem.org). American Tree Farm System Certified; www.treefarmssystem.org
 - c. Member: [CSA](http://certifiedwood.csa.ca). Canadian Standards Association; <http://certifiedwood.csa.ca>
 - d. Certifier: Bureau Veritas Certification (BVC); <http://certification.us.bureauveritas.com/>
 - e. Certifier: Price Waterhouse Coopers LLC (PwC); <http://www.pwc.com/extweb/pwcpublications.nsf/docid/0cca106f2a7b9d5585256fc50051263a>
21. SBA. Structural Board Association; www.osbguide.com
22. SCAQMD. South Coast Air Quality Management District; www.aqmd.gov
23. SPIB. Southern Pine Inspection Bureau; www.spib.org
24. UL. Underwriters Laboratories Inc.; www.ul.org

- 25. United States Department of Commerce Standard [PS20-99](#)
 - a. Procedures for the Development of Voluntary Product Standards
- 26. USGBC. United States Green Building Council; www.usgbc.org
- 27. [WI](#). Woodworking Institute; <http://www.wicnet.org/publications/2003manual.asp>

1.3 ADMINISTRATIVE REQUIREMENTS

NOTE: Coordinate and edit to the correct Section number below. The numbers shown indicate relevant broad-scope, medium-scope and narrow-scope numbers of the CSI MasterFormat® system.

- A. Coordination per SECTION 013000 or 013100, and as follows:
 - 1. Coordinate certified material chain-of-custody from original material resource to project site.

NOTE: Coordinate and edit to the correct Section number below.

- B. Preinstallation Meetings per SECTION 013000 or 013100 and as follows:
 - 1. Meeting purpose shall be to review site conditions, installation procedures, schedules, coordination with other work, and warranty requirements.

NOTE: Coordinate and edit to the correct Section number below.

- C. Sequencing: Per SECTION 010000 or 011100, and as follows:
 - 1. Millwork Fabricator:
 - a. Certified wood stored and tracked separately.
 - b. Maintains dust control.
 - c. Wood scrap, chips and dust reused, recycled or converted into harnessed energy.
 - d. Uses non-toxic, and low or no-VOC adhesives and finishes.
 - e. Does not use cadmium or chromium-plated materials.
 - f. Millwork and harvested forest resource transported less than 500 miles (805 km).
 - 2. Jobsite: Certified wood materials stored and tracked separately prior to installation.

NOTE: Coordinate and edit to the correct Section number below.

- D. Scheduling: Per SECTION 010000 or 011100, and SECTION 013000 or 013200.

1.4 SUBMITTALS

NOTE: Coordinate and edit to the correct Section number below.

- A. Product Data per SECTION 013000 or 013300 and as follows: Submit manufacturer's printed descriptions of materials, components and systems, performance criteria, use limitations, recommendations and installation information.

NOTE: Coordinate and edit to the correct Section number below.

- B. Shop Drawings per SECTION 013000 or 013300 and as follows: Submit keyed location plans, detailed and keyed plans and elevations indicating materials, dimensions, finishes, hardware, blocking and other attachment requirements.

NOTE: Coordinate and edit to the correct Section number below.

- C. Samples per SECTION 013000 or 013300 and as follows:
 - 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 per SECTION 014000 and as follows:
1. Certificates: Submit printed certificates or manufacturer's letterhead with manufacturer's signature certifying that each product and/or system meets each regulatory requirement, sustainability characteristic, performance requirement, design criteria, and applicable standard specified.
 - a. KD Certificates: Kiln-dried moisture content by (ALSC) recognized inspection agency.
 2. Qualification Statements: Submit a letter, on printed letterhead and signed by an officer of the firm, for each listed quality assurance qualification listed, attesting to meeting each requirement called out.
- E. Sustainable Design (LEED) Submittals: Submit the following in accordance with the requirements of SECTION 018113, LEED REQUIREMENTS:
1. LEED Credit MR, Materials & Resources. Submit completed LEED-NC 2.2 Submittal Templates in accordance with SECTION 017419, CONSTRUCTION WASTE MANAGEMENT, and other required paperwork as follows:
 - a. MR 4.1: Recycled Content: 10 Percent (post-consumer + 1/2 pre-consumer)
 - b. MR 4.2: Recycled Content: 20 Percent (post-consumer + 1/2 pre-consumer)
 - 1). Submit product data indicating percentage by weight of recycled content with a statement indicating costs for each.
 - c. MR 5.1: Regional Materials, Regionally Extracted, Processed & Manufactured Products, 10 Percent
 - d. MR 5.2: Regional Materials, Regionally Extracted, Processed & Manufactured Products, 20 Percent
 - 1). Submit product data indicating name of the manufacturer, product cost, distance between the project site and the manufacturer, and the distance between the project site and the extraction site for each raw material
 - e. MR 6: Rapidly Renewable Materials
 - 1). Submit the product name, material manufacturer, total product cost for each tracked material, total product cost for each tracked material, percentage of product by weight, for each material that meets the rapidly renewable criteria.
 - f. MR 7: FSC Certified Wood
 - 1). Submit certificates of chain-of-custody signed by manufacturers certifying materials and products specified are made from certified wood obtained from forests certified by a Forest Stewardship Council accredited certification body.
 - 2). Submit evidence mill is certified for chain-of-custody by an FSC-accredited certification body.
 2. LEED Credit EQ, Indoor Environmental Quality. Submit completed LEED-NC 2.2 Submittal Templates and required paperwork as follows:
 - a. EQ 4.1: Low Emitting Materials, Adhesives & Sealants, VOC Data
 - 1). Submit manufacturers' product data for construction adhesives and sealants, including printed statement of VOC content and MSDS Sheets.
 - 2). Submit manufacturer's certification that products meet the requirements of SCAQMD Rule 1168 in areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur.
 - 3). Submit manufacturer's certification that products meet the requirements of BAAQMD Regulation 8, Rule 51 for containers larger than 16 oz and with CARB for containers 16 oz or less, for areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - b. EQ 4.2: Low Emitting Materials, Paints & Coatings, VOC Data

- 1). Submit manufacturers' product data for interior paints and coatings, including printed statement of VOC content and MSDS Sheets.
 - 2). Architectural paints, coatings and primers applied to interior walls and ceilings shall meet the requirements of GS-11.
 - 3). Clear wood finishes, floor coatings, stains, sealers, and shellacs applied to interior elements meet the VOC content limit requirements established by SCAQMD Rule 1113, Architectural Coatings, effective January 1, 2004.
- c. EQ 4.4: Low Emitting Materials, Indoor Composite Wood & Agrifiber, No Added Urea-Formaldehyde Content
- 1). Submit manufacturers' product data for composite wood products used in the building showing they contain no added urea-formaldehyde.

NOTE: Coordinate and edit to the correct Section number below.

- F. Closeout Submittals per SECTION 017000 or 017800, unless noted otherwise.
1. Operation and Maintenance Data: Including, but not limited to, methods for maintaining installed products and precautions against cleaning materials with methods detrimental to finishes and performance.
 2. Record Documents: Drawings, Specifications, and Product Data.

NOTE: Edit LEED Requirements below to suit project.

3. Sustainable Design Closeout Documentation: Submit completed USGBC LEED® [worksheet templates](#) for the following credits:
 - a. MR 4.1: Recycled Content: 10 Percent (post-consumer + 1/2 pre-consumer)
 - b. MR 4.2: Recycled Content: 20 Percent (post-consumer + 1/2 pre-consumer)
 - c. MR 5.1: Regional Materials, 10 Percent Regionally Extracted, Processed & Manufactured Products
 - d. MR 5.2: Regional Materials, 20 Percent Regionally Extracted, Processed & Manufactured Products
 - e. MR 6: Rapidly Renewable Materials
 - f. MR 7: FSC Certified Wood
 - g. EQ 4.1: Low Emitting Materials, Adhesives & Sealants, VOC Data
 - h. EQ 4.2: Low Emitting Materials, Paints & Coatings, VOC Data
 - i. EQ 4.4: Low Emitting Materials, Indoor Composite Wood & Agrifiber, No Added Urea-Formaldehyde Content

1.5 QUALITY ASSURANCE

A. Regulatory Requirements

1. Engineered wood shall display the APA trademark assuring the product is manufactured in conformance with APA performance standards shown in the mark.
2. Provide fire retardant treatment which complies with the following regulatory requirements:
 - a. FHA Minimum Property Standard #2600.
 - b. HUD Materials Release 1261.
3. Provide AWI / AWMAC / WIC Quality Certification Program labels and inspection or Certificate indicating that woodwork complies with the requirements of the grades specified. Finish Carpentry Work shall conform to one of the following program type(s):
 - a. Premium
 - b. Custom
 - c. Economy
 - d. Laboratory

B. Qualifications:

1. Manufacturer: A firm experienced a minimum five (5) years in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
 - a. Manufacturer shall source wood materials from sustainably managed forests.
 - b. Manufacturer shall be capable of providing Third Party Certification that wood materials were sourced from sustainably managed forests.
 2. Supplier: A firm capable of providing Third Party Certification that wood materials were sourced from sustainably managed forests.
 3. Fabricator: A firm experienced a minimum five (5) years in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
 - a. Fabricator shall source wood materials from sustainably managed forests.
 - b. Fabricator shall be capable of providing Third Party Certification that wood materials were sourced from sustainably managed forests.
 4. Installer: Perform installation with skilled, experienced and trained workmen supervised by trained personnel who shall have a minimum three (3) years successful experience in installations of similar size and scope.
 5. Testing Agency: An independent testing agency with the experience and capability to conduct the testing indicated, meeting requirements of ISO/IEC (International Organization for Standardization / International Electrotechnical Commission) Standard 17025 or ASTM E699 and ASTM E329.
- C. Certifications: Wood timber and manufactured wood products shall be sourced from sustainably managed forests as certified by SmartWood, SCS, SGS, BVC, SFI, ATFS or CSA and displaying the FSC or PEFC label.
- D. Sustainability Standards and Certifications:
1. Engineered wood shall be made using non-toxic glues, no added formaldehyde, and 100 percent recycled fibers or certified sustainably harvested wood.
 2. Adhesive and Sealant VOC Limits: According to South Coast Air Quality Management District [Rule 1168](#) and [GS-36](#) for aerosols.
 3. VOC Limits: 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
 4. Composite wood and agrifiber products shall contain no added urea-formaldehyde resins.
 5. Certified Wood Materials: According to FSC-STD-40-004 chain-of-custody requirements.

NOTE: Coordinate and edit to the correct Section number below.

- E. Prototypes per SECTION 014000 or 014300, and as follows. Provide materials or assemblies of each unit type for review and approval prior to benchmarking, manufacturing or fabrication production indicating each different:

1. Each different joint connection detail
2. Each different support, and exposed fastener
3. Bends, angles and corners
4. Finishes
5. Special grain patterns and acceptable wood defects.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, Storage and Handling per industry and fabricator guidelines, SECTION 016000, and as follows:
1. Delivery and Acceptance Requirements
 - a. Deliver materials to Project site in an undamaged condition, in original bundles and bearing intact labels.
 - b. Inspect shipped materials on delivery to ensure compliance with requirements of Contract Documents and to ensure that products are undamaged and properly protected.
 - 1). Reject damaged goods, and accept properly ordered, protected and undamaged goods.
 2. Storage and Handling Requirements
 - a. Protect wood materials and accessories from soiling, damage, and deterioration, handling with proper care in proportion to the fragility and hazard of each item and its finished surfaces.
 - b. Protect materials during shipping, handling, storage and installation from exposure to harmful conditions including, but not limited to, weather, vandalism, extreme changes in temperature, dryness or humidity, denting, chipping, gouging, warping, peeling, moisture, construction operations, and other damage.
 - c. Store product materials from exposure to harmful conditions including, but not limited to, weather, vandalism, extreme changes in temperature, direct sunlight, dryness or humidity, water, construction operations, and other damage.
 - 1). Store certified materials separately for auditing.
 3. Packaging Waste Management
 - a. Require that manufacturers, fabricators, suppliers and shippers provide least amount of packaging that adequately and properly protects, supports and contains the items shipped, and is reusable, returnable or recyclable.

NOTE: Delete warranty statement below if no treated lumber is to be used.

1.7 WARRANTY

- A. Manufacturer Warranty: Contractor shall provide Wood Treatment manufacturer's twenty (20) year limited warranty against structural damage due to termites, carpenter ants and fungal decay.

PART 2 - PRODUCTS

2.1 MANUFACTURERS / FABRICATORS

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

- A. Fabricator or Supplier List of FSC Certified Sustainable **Millwork** or Molding: Subject to compliance with requirements, provide products by one of the following:
1. R.K. Miles, Inc., Manchester Center, VT; 802.362.1952x614; [SmartWood Certification](#)
 2. Lumberjack Lumber, Inc., White River Junction, VT; www.lumberjackwood.com; SCS-COC-001477 C

3. Vermont Wildwoods, Marshfield, VT; www.vermontwildwoods.com; SCS-COC-001477 R

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

4. Boyce Highlands Inc., Concord, NH; 603.753.1042; [SmartWood Certification](#)
5. Forest Products Associates, Greenfield, MA; www.forestproductsassociates.com; SCS-COC-001477 G
6. Holt & Bugbee Company, Tewksbury, MA; 800.325.6010; [SmartWood Certification](#)
7. Katahdin Forest Products, Inc., Oakfield, ME; 207.757.9342; [SmartWood Certification](#)
8. Residents' Committee to Protect the Adirondacks (CoC), North Creek, NY; 518.251.4257x14; [SmartWood Certification](#)

- B. Manufacturers List of FSC Certified Sustainable **Plywood**: Subject to compliance with requirements, provide products by one of the following:

1. Newport Furniture Parts Corp dba Newport Panels Corporation & Newport Gliders, Newport, VT; 802.334.5428x104; [SmartWood Certification](#)

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

2. Atlantic Plywood Corporation, Woburn, MA; 585.458.4180; [SmartWood Certification](#)
3. Cows Building Supply, Inc., North Amherst, MA; 413.549.0001; [SmartWood Certification](#)
4. Hammond Lumber Company, Belgrade, ME; 207.495.1127; [SmartWood Certification](#)

- C. Fabricator or Supplier List of Sustainable VT **Millwork** or Molding: Subject to compliance with requirements, provide products by one of the following:

1. Breznick Woodworking, Londonderry, VT; www.finewoodenfurniture.com
2. C. W. Hasert, Cabinetmakers, Rutland, VT; www.cwhasertcabinetmakers.com
3. Knight Kitchens, North Clarendon, VT; www.knightkitchens.com
4. Koenig Cedar Co., South Burlington, VT; www.koenigcedar.com; SCS-COC-001477 M
5. Shelburne Fine Woodworking, Shelburne, VT; www.sfwvermont.com
6. Vermont Custom Cabinetry, Westminster, VT; www.vermontcabinetry.com
7. Vermont Furniture Works, Stowe, VT; www.vtfurnitureworks.com

NOTE: Coordinate and edit to the correct Section numbers below.

- D. Substitution Limitations: Manufacturers of equivalent products shall be considered when submitted in accordance with SECTION 013000 or SECTION 013300, and SECTION 016000 or 016200.

- E. Product Options

1. Wood Species:
 - a. Ash
 - b. Alder
 - c. Birch
 - d. Cedar
 - e. Cherry
 - f. Fir Hemlock
 - g. Maple, Hard
 - h. Maple, Soft
 - i. Oak, Red
 - j. Oak, White
 - k. Pine
 - l. Walnut
 - m. **[***]**
2. Material Type:

- a. Solid wood boards
- b. Wood veneer on finger-jointed wood
- c. Finger-jointed wood
- d. MDF wood composite
- 3. Wood Molding Types:
 - a. Base or baseboard
 - b. Window casings
 - c. Door casing
 - d. Crown, cove, bed or cornice molding
 - e. Chair rail
 - f. Picture rail
 - g. Mantel
- 4. Molding Profile Types:
 - a. Astragal
 - b. Back band
 - c. Bar rail
 - d. Base
 - e. Base cap
 - f. Base shoe
 - g. Batten
 - h. Bed
 - i. Brick molding
 - j. Chamfer strip
 - k. Casing
 - l. Chair rail
 - m. Corner guard
 - n. Coves
 - o. Crown
 - p. Drip cap
 - q. Flat stools
 - r. Full Round
 - s. Glass bead
 - t. Half round
 - u. Inside corner
 - v. Jamb stock
 - w. Lattice
 - x. Mullion
 - y. Panel
 - z. Plinth blocks
 - aa. Picture
 - bb. Ply cap
 - cc. Quarter round
 - dd. Rosettes
 - ee. S4S
 - ff. Screen
 - gg. Shelf cleat
 - hh. Shingle
 - ii. Square
 - jj. Stops, Door
 - kk. Stops, Glass
 - ll. Wainscot cap
- 5. Joinery
 - a. Miter
 - b. Cope
 - c. Scarf
 - d. Straight cut with corner blocks

6. Length Type
 - a. Random
 - b. Specified
7. Finish
 - a. Paint
 - b. Clear coating
 - c. Stain and clear coating
8. Accessories
 - a. Wood putty
 - b. Caulk or sealant
 - c. Fasteners: Nails, Staples, Screws
 - d. Adhesive glue

2.2 DESCRIPTION

A. Regulatory Requirements

1. Hardwood Grades: NHLA American Hardwood Lumber [Grades](#)
2. Softwood Grades: NeLMA (WWPA) [Grade](#)

B. Sustainability Characteristics

GREEN NOTE. Finger-jointed lumber provides an efficient use of the timber resource allowing mills to combine shorter pieces of wood into dimensional, structural lumber.

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 System](#) 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:

- a. Rating: Certified
- b. Rating: Silver
- c. Rating: Gold
- d. Rating: Platinum

NOTE. Select one of the following Versions:

- e. Version: [LEED-NC](#) v. 2.2 (New Construction)
- f. Version: [LEED-EB](#) v. 2.0 (Existing Building)
- g. Version: [LEED-CI](#) v. 2.0 (Commercial Interiors)
- h. Version: [LEED for Schools](#), Version 2007
- i. Version: [LEED for Retail](#), v. 2 (July 2008) Draft (Commercial Interiors)
- j. Version: [LEED for Health Care](#)

2.3 PERFORMANCE / DESIGN CRITERIA

A. Performance Capacities

1. NHLA [Grade](#)
 - a. Select
 - b. No. 1 common
 - c. No. 2 Common
2. NeLMA (WWPA) [Grade](#)
 - a. C Select
 - b. D Select
 - c. 2 & Better Commons

- d. 3 Common
- e. 4 Common
- f. 5 Common
- g. 1A Furniture
- h. 2A Furniture
- i. Merchantable
- 3. Moisture Content
 - a. 6 to 9 percent for hardwoods per NHLA
 - b. National Grading Rule
 - 1). S-GRN, S-DRY, and MC 15. S-GRN (surfaced green)
- 4. Hardness per Janka Test, pounds per square inch (psi)
- 5. Movement in service requirement

B. Design Criteria

- 1. Solid wood grain pattern cut
 - a. Plain sawn (flat-sawn or flat-grained)
 - b. Quarter sawn (straight-grained, edge grained or straight-grained)
 - c. Rift sawn
- 2. Wood veneer
 - a. Rotary-cut veneer (peeled)
 - b. Sliced veneer
 - c. Sawn veneer (thick)
- 3. Wood finish
 - a. Transparent Finish
 - 1). Grade
 - 2). Species
 - b. Color Contrast of Clear Finished Wood: Unless specifically called out, do NOT mix sapwood and heartwood where visible or semi-visible.

2.4 MATERIALS

A. General:

- 1. Hardwood
 - a. Open Grain "Ring-Porous" Hardwood Species: Elm, oak, and ash have distinct figure and grain patterns.
 - b. Close Grain "Diffuse-Porous" Hardwood Species: Cherry, maple, birch, and yellow poplar have small, dense pores resulting in less distinct figure and grain.
 - c. Provide solid wood lumber and veneers per performance requirements. Do not provide finger-jointed wood unless clearly indicated in the Contract Documents.
- 2. Softwood
 - a. Provide solid wood lumber and veneers per performance requirements. Do not provide finger-jointed wood unless clearly indicated in the Contract Documents.

B. Composite Wood Panel Products: Refer to SECTION 061603.

- 1. Structural Plywood: Per NIST – [US DoC PS 1](#)
- 2. Particleboard (Including Chipboard, Flakeboard, Waferboard, Strandboard): Per ANSI A208.1
- 3. Medium-Density Fiberboard (MDF): Per ANSI A208.2
- 4. Hardboard: Per CPA / ANSI A135.4

2.5 WOOD TREATMENTS

RED NOTE: The USA phased out the use of CCA (chromated-copper-arsenate) treated wood on December 31, 2003. Hexavalent chromium and arsenic pentoxide heavy-metal compounds are

known toxins, carcinogens and teratogens that does harm to people, pets and the environment.

- A. Refer to SECTION 061003, CERTIFIED ROUGH CARPENTRY.

NOTE: Borate is considered safe for humans and other mammals, but is not for use in high-moisture areas.

Use boron-based preservatives for above-ground applications only.

2.6 ASSEMBLY / FABRICATION

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

2.7 FINISHES

- A. Shop Finishing

1. Wood Finishing Standards

- a. AWI [finish system](#)
- b. HMA basics of hardwood [finishing](#)
 - 1). Moisture-cured urethane: Two (2) coats
 - 2). Oil-based urethane: Three (3) coats
 - 3). Water-based urethane: Four (4) coats
 - 4). Tung oil: Applied per manufacturer instructions.

2. Wood Finishing Systems

- a. Non-Petroleum Based Finish Systems
 - 1). Manufacturer / Product: Vermont Natural Coatings / PolyWhey™
 - a). Non-Petroleum-Based Binder: Whey protein
 - b). VOC Level: < 180g/L
 - c). Container: Recyclable; made from post consumer materials
 - d). UV resistant, non-yellowing
 - 2). Manufacturer / Product: Sutherland Welles Ltd. / Loc-Lamin® Wood Finishing System; Morrisville, VT; www.sutherlandwelles.com
 - a). Botanical Polymerized Tung Oil
 - b). Exterior Application: Added UV absorbers, UV light stabilizers, and mildewcide/ algaecide
- b. Varnishes
 - 1). Tung Oil: Spar formulation of phenolic and alkyd resins
 - 2). Alkyd polyester resin
 - 3). Polyurethane resin
 - 4). Quick-drying or VT styrene resin

NOTE: Coordinate and edit to the correct Section number below.

- B. Field Finishing: Per SECTION 099000 or 099100 or 099300 or 099600.

2.8 ACCESSORIES

RED NOTE: Avoid specifying bright chromium plated metal finishes, the process which uses carcinogenic hexavalent chromium in a non-recyclable arsenic heavy metal salt bath.

- A. Fasteners: Of appropriate type, length and durability for wood product used to securely fasten to the substrate or other wood product for the intended life, exposure, and use of the unit.

PART 3 - EXECUTION

3.1 FIELD CONDITIONS

NOTE: Coordinate and edit to the correct Section number below.

- A. Ambient Conditions per manufacturer's recommendations, SECTION 017000 or 017100 or 017116, and as follows:
1. Environmental Limitations: Do not deliver or install wood products until building is enclosed, wet work is complete, and HVAC system is operating and consistently maintaining temperature and relative humidity (RH) at occupancy levels, and in accordance with manufacturer's recommendations.

NOTE: Delete item below if enhanced ventilation mode not done.

- B. Enhanced Ventilation Mode: Initial mechanical ventilation flushing cycle of 3 ACH used to reduce initial material VOC chemical off-gasses, CO² levels, and suspended particulate contaminant levels.
1. Maintain RH from 30 to 60 percent and allow for expansion/contraction in installed wood materials.

C. Existing Conditions

NOTE: Coordinate and edit to the correct Section number below.

1. Field measurements per SECTION 017000 or 017100 or 017123.
2. Locate concealed framing, blocking and reinforcements that support woodwork and document on Shop Drawings before work is enclosed. All preparatory support work shall be subject to inspection and approval of Architectural Woodworker and other trades.
3. Establish dimensions as accurately as project progress allows, provide scribes for site fitting where necessary.

3.2 EXAMINATION

NOTE: Coordinate and edit to the correct Section number below.

- A. Examination per SECTION 017000 or 017100 or 017116, and as follows:
1. Acceptance of Conditions: Carefully examine installation areas with Installer/Applicator present, for compliance with requirements affecting Work performance.
 - a. Verify that field measurements, surfaces, substrates, structural support, utility connections, tolerances, levelness, plumbness, humidity, moisture content level, cleanliness and other conditions are as required by the manufacturer, and ready to receive Work.
 - b. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

NOTE: Coordinate and edit to the correct Section numbers below.

- A. Preparation per SECTION 017000 or 017100 or 017123, and as follows:
1. Layout installation by marking extents of each item, and anchoring / fastening locations coordinated with blocking or other structural support.
 - a. Marks shall be covered up and hidden by installation.
 - b. GC to locate areas out-of-level and correct.

2. Protect adjacent conditions per SECTION 017000 or 017100, and as follows:
 - a. Protect adjacent substrates, installed work and existing items from damage by construction operations with temporary but effective means.
3. Surface Preparation for Coating System:
 - a. Remove hardware and hardware accessories, plates, and similar items in places that are not to be coated, or provide surface-applied protection prior to surface preparation and painting.
 - 1). Remove items if necessary for complete sealing or finishing of items and adjacent surfaces.
 - 2). Clean surfaces, before applying paint or surface treatments, removing oil, grease and all other foreign substances.
 - 3). Schedule cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly-coated surfaces.
 - 4). Following completion of coating operations in each space or area, items shall be reinstalled in the same manner that they were removed.
 - b. Unfinished Wood Surfaces: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper. Sand smooth surfaces exposed to view and dust off.
 - 1). Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer before application of primer.
 - 2). Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - 3). When transparent finish is required, backprime with spar varnish.
4. Product Preparation: Handle products in accordance with manufacturer's instructions and warranty requirement including, but not limited to:
 - a. Remove shipping / storage protection
 - b. Acclimatize product to installation location.
 - c. Strictly adhering to manufacturer's handling and installation safety requirements.

B. Door and Window Openings

1. Examine if rough openings are square, plumb and correctly sized.
 - a. Correct rough openings more than 1/2 inch in. out of plumb and adjust sole plate.
 - b. Shim rough opening to doorframe as needed to make plumb and compensate for twist.

3.4 INSTALLATION

NOTE: Coordinate and edit to the correct Section number below.

- A. Installation per manufacturer's written instructions, SECTION 017000 or 017300 or 017316, and the following:
1. General:
 - a. Place finish carpentry to indicated levels and lines, with members plumb, aligned, cut, and fitted.
 - b. Fit finish carpentry to other construction; scribe and cope as needed for accurate fit.
 - 1). Provide flush hairline joints.
 - 2). Fit scribe wood to irregularities of adjacent surfaces.
 - c. Shim using concealed shims.
 - d. Allow for expansion and contraction movement of wood material joints due to moisture.
 - e. Abut and align top and face edge surfaces in one true plane, with internal supports placed to prevent deflection. Plane solid wood when necessary to make top and face planes aligned and flush.
 - f. Fasten or anchor materials and units in a concealed manner with fasteners appropriate

to use and anticipated durability.

- 1). Do NOT use chromium-plated metal fasteners and anchors.
 - 2). Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials.
 - 3). Make tight connections between members.
 - 4). Install fasteners without splitting wood; pre-drill hardwood and countersink nail heads, fill flush and sand smooth, unless otherwise indicated.
 - 5). Place fasteners, when exposed, aligned in straight rows parallel with edges of members for exposed work, with fasteners evenly spaced, and with adjacent rows staggered.
- g. Wood with Transparent Finish: Match color and grain pattern.
2. Trim
- a. Inside Corner: Butt one side-piece to wall, and cope second side piece to fit tight to profile of the first piece.
 - b. Outside Corner: Miter both pieces.

RED NOTE: Pre-occupancy whole building baking and/or enhanced ventilation mode to eliminate material off-gassing typically causes open joints, warped paneling/doors, and other unwarrantable visual defects by changing the material moisture content of installed wood products.

3.5 FIELD QUALITY CONTROL

NOTE: Coordinate and edit to the correct Section number below.

- A. Site Tests and Inspections: Per SECTION 014000 or 014500 or 014523, and as follows:
1. Allow and facilitate unscheduled inspections of timber source stands, complete forestry operations, and sawmill to meet FSC or other sustainability standards.
- B. Non-Conforming Work per General Conditions and as follows:
1. Remove, Repair and Reinstall or Restore in Place damaged items.
 - a. Finish touch-up damaged surface finishes.
 - b. Apply EPA registered treatment to water-damaged treated lumber.
 2. Replace damaged materials or items with New if repair not acceptable to Architect.

3.6 CLEANING

NOTE: Coordinate and edit to the correct Section number below.

- A. Waste Management per SECTION 017000 or 017400 or 017419, and as follows:
1. Disposal Requirements:
 - a. Handle hazardous waste in strict accordance with manufacturers' recommendations and AHJ rules and regulations for materials regulated under RCRA (Resource Conservation and Recovery Act).
 - b. On-site incineration not allowed.
 2. Coordinate take-back program with manufacturer, if applicable.
 - a. Store and return pallets, containers and packaging to manufacturer or fabricator or recycler for reuse or recycling.
 - b. Store scrap materials to be returned to manufacturer for recycling into new product.

NOTE: Coordinate and edit to the correct Section number below.

- B. Provide Progress Cleaning per SECTION 017000 or 017400 or 017413, and as follows:
1. Work Areas: Continuously clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

- a. Clean and maintain completed construction until Substantial Completion.
- 2. Site: Continuously maintain Project site free of waste materials and debris.

NOTE: Coordinate and edit to the correct Section number below.

- C. Provide Final Cleaning immediately prior to Substantial Completion inspection per SECTION 017000 or 017400 or 017423.

3.7 CLOSEOUT ACTIVITIES

NOTE: Coordinate and edit to the correct Section number below.

- A. Substantial Completion Requirements per SECTION 017000 or 017700.

3.8 PROTECTION

- A. Protect installed work from weather, vandalism and construction operations damage until Final Completion or Owner occupancy, whichever comes first.

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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