

SECTION 125083

CERTIFIED CUSTOM WOOD FURNITURE

CSI 3-PART **LONG-FORM** GUIDE SPECIFICATION  
USE FOR CONTRACT DOCUMENT (CD) SPECIFICATION ISSUES  
EDIT TO SUIT PROJECT

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section consists of custom furniture made from certified sustainable wood, and includes but is not limited to the following:

**NOTE: Edit to the type of furniture required for the project from the list below and delete that not selected.**

1. Seating
    - a. Chair
    - b. Stool
    - c. Footstool
    - d. Bench
  2. Surfaces
    - a. Desk
    - b. Table
      - 1). Dining room
      - 2). Kitchen
      - 3). Folding, trestle, card
      - 4). Drop-leaf, gate-leg
      - 5). Coffee
      - 6). End
      - 7). Nightstand
  3. Storage
    - a. Dresser, chest (of drawers)
    - b. Credenza, sideboard
    - c. Armoire, wardrobe
    - d. Bookcase
    - e. Display cabinet, cupboard, china cabinet
    - f. Filing cabinet
    - g. Hall tree, hat stand
  4. Sleeping
    - a. Bed frame
    - b. Headboard
  5. Finishes
  6. Accessories including, but not limited to, hardware, fasteners, and inlays.
- 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 062003, CERTIFIED FINISH CARPENTRY: Millwork, molding and trim.
4. SECTION 064003, CERTIFIED ARCHITECTURAL WOODWORK: Built-in wood casework.
5. SECTION 099300, STAINING AND TRANSPARENT FINISHING: Staining and transparent coating.

## 1.2 PRICE AND PAYMENT PROCEDURES

- A. Allowances: Work of this Section is affected by Allowances. Refer to SECTION 012000, PRICE AND PAYMENT PROCEDURES or SECTION 012100, ALLOWANCES.

NOTE: The number of each type of piece, wood species to be used and availability, type and quality of joinery, and the finish can significantly affect the final cost.

- B. Unit Prices: Work of this Section is affected by Unit Prices. Refer to SECTION 012000, PRICE AND PAYMENT PROCEDURES or SECTION 012200, UNIT PRICES.

## 1.3 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.
4. RH. Relative humidity.

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 certified forests, trees and lumber meeting FSC or PEFC AND PEFC member principles and criteria from forests complying with responsibly managed forest standards that meet broad social, economic and environmental goals.
2. Engineered Wood Products: Wood fibers and/or particles that have been bonded with synthetic resins under heat and pressure that are formed into panels or boards. Refer to SECTION 061603 for information regarding certified Hardboard, HDO, MDF, MDO, Plywood, OSB and Particleboard.
3. FSC: Forest Stewardship Council; [www.fsc.org](http://www.fsc.org)
  - a. [FSC Forest Management Certification](#)
  - b. [FSC CoC](#)
  - c. [FSC Controlled Wood](#)
    - 1). FSC Pure
    - 2). FSC Mixed
    - 3). FSC Recycled
4. [HAP](#). Hazardous Air Pollutant
5. HMA Hardwood Moldings [Glossary](#)
6. [LEED®](#). Leadership in Energy and Environmental Design, a set of USGBC rating programs applicable to construction projects.
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>
8. Planks: Wood boards a minimum 3 inches in width to as wide as the tree.

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

9. [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).
10. 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>, FSC [www.fsc.org/index.php?id=pc](http://www.fsc.org/index.php?id=pc), ATFM [http://65.109.144.60/cms/test/26\\_34.html](http://65.109.144.60/cms/test/26_34.html) and SFI <http://www.sfi-program.org/files/pdf/sfi-standard-2005-2009-sept%2008%20update.pdf>.
  11. Sustainable Forest Management: 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.
  12. 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.
  13. VOC. Volatile Organic Compounds are chemical compounds that have a high vapor pressure and low water solubility. They include a variety of chemicals, some of which may have short- and long-term adverse health effects when concentrated indoors.
- C. Referenced Standards per SECTION 014000 and as follows:
1. ALSC. American Lumber Standard Committee; [www.alsc.org](http://www.alsc.org)
    - a. Lumber Grading Rules
  2. ANSI. American National Standards Institute; [www.ansi.org](http://www.ansi.org)
  3. APA. APA – The Engineered Wood Association; [www.apawood.org](http://www.apawood.org)
    - a. U.S. Product Standard PS 1 for Construction and Industrial Plywood
  4. ASTM. ASTM International; [www.astm.org](http://www.astm.org)
  5. AWI. Architectural Woodwork Institute
    - a. AWI / AWMAC - Quality Standards, 8<sup>th</sup> Edition, Version 1.0, 2003.
    - b. AWI / AWMAC / WI – Architectural Woodwork Standards – 2009, 1<sup>st</sup> 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. BAAQMD. Bay Area Air Quality Management District; [www.baaqmd.gov](http://www.baaqmd.gov)

**NOTE: Although it does not directly apply to custom furniture makers the BIFMA and level information below is provided as a 'green & sustainable' resource that contains a comprehensive overview of environmental issues affecting furniture makers.**

7. BIFMA. (Business and Institutional Furniture Manufacturer's Association) BIFMA International; [www.bifma.org](http://www.bifma.org)
  - a. **level** Sustainability Standard; <http://levelcertified.org/>
  - b. BIFMA e3-2008 - Furniture Sustainability Standard; <http://bifma.org/public/SusFurnStdArchive/Draft/2009-02-20%20e3.pdf>
8. CARB. California Air Resources Board, a department of the California Environmental Protection Agency; [www.arb.ca.gov](http://www.arb.ca.gov)

**NOTE: CARB regulations (required by LEED™) 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.**

**CARB regulations apply 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 were effective beginning January 1, 2009.**

9. [CPA](#). Composite Panel Association; <http://www.pbmdf.com/>
  - a. [CARB Certification Program](#)
  - b. [EPP](#). Environmentally Preferable Product Grademark Program
10. EPA. U.S. Environmental Protection Agency; [www.epa.gov](http://www.epa.gov)
11. FSC. Forest Stewardship Council; Certified Sustainably Managed Lumber; [www.fsc.org](http://www.fsc.org);  
<http://www.fscus.org/>
  - a. Certifier: Rainforest Alliance 'SmartWood' Program (SW); <http://www.smartwood.org>
  - b. Certifier: Scientific Certification Systems 'Forest Conservation Program' (SCS FCP);  
<http://www.scs-certified.com>
  - c. Certifier: Bureau Veritas Certification (BVC); <http://certification.us.bureauveritas.com/>
  - d. Certifier: Price Waterhouse Cooper LLC (PwC);  
<http://www.pwc.com/extweb/pwcpublications.nsf/docid/0cca106f2a7b9d5585256fc50051263a>
  - e. Withdrawn Certifier: SGS Systems & Services Certification USA;  
[http://www.us.sgs.com/forestry\\_us](http://www.us.sgs.com/forestry_us)

NOTE: Key strengths of the FSC network and organization is its transparency and ability to pioneer approaches and adaptations to certification. FSC as a standard is more demanding especially in participatory approaches in forest management planning and in the identification and protection of threatened species. FSC also sets detailed requirements for the timber production methods. FSC is 6 to 12 times more prescriptive than PEFC and has more NGO credible influence.

The VFF Certified Ecoforestry is equivalent to FSC for Vermont.

PEFC is more rigid towards contractors who are assessed during a group certification when working in certified forests. PEFC group certification is based on a management system that requires internal revisions at the group and local levels. PEFC allows more forest producer influence and is less stringent.

12. [HMA](#). Hardwood Manufacturers Association; [www.hardwoodinfo.com](http://www.hardwoodinfo.com)
13. ICC. International Code Council; [www.iccsafe.org](http://www.iccsafe.org)
14. ICC/ES. International Code Council / Evaluation Service; [www.icc-es.org](http://www.icc-es.org)
15. ISO/IEC. International Organization for Standardization, International Electrotechnical Commission; [www.iec.ch/](http://www.iec.ch/)
16. [NeLMA](#). Northeastern Lumber Manufacturers Association. [www.nelma.org](http://www.nelma.org)
  - a. Standard Grading Rules for Northeastern Lumber 2006
17. NEMA. National Electrical Manufacturer's Association; [www.nema.org](http://www.nema.org)
  - a. [ANSI/NEMA LD3](#) – High Pressure Decorative Laminates (HPDL)
18. [NESHAP](#). 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>
19. NFPA. National Fire Protection Association; [www.nfpa.org](http://www.nfpa.org)
20. NHLA. National Hardwood Lumber Association; [www.natlhardwood.org](http://www.natlhardwood.org)
21. [PEFC](#). Programme for the Endorsement of Forest Certification schemes, Geneva-based; [PEFC Annex 4](#) Chain of Custody; (SFI, CSA, and ATFS are endorsed by PEFC.)
  - a. Member: [SFI](#). Sustainable Forestry Initiative, Washington DC; [www.sfi-program.org](http://www.sfi-program.org)
  - b. Member: [ATFS](#). American Tree Farm System Certified; [www.treefarmssystem.org](http://www.treefarmssystem.org)
  - c. Member: [CSA](#). 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>
22. SBA. Structural Board Association; [www.osbguide.com](http://www.osbguide.com)
23. SCAQMD. South Coast Air Quality Management District; [www.aqmd.gov](http://www.aqmd.gov)
24. UL. Underwriters Laboratories Inc.; [www.ul.org](http://www.ul.org)
25. United States Department of Commerce Standard [PS20-99](#)
  - a. Procedures for the Development of Voluntary Product Standards
26. USDA. United States Department of Agriculture

- a. [North American Hardwoods](#)
- 27. USGBC. United States Green Building Council; [www.usgbc.org](http://www.usgbc.org)
- 28. VFF. Vermont Family Forests; [www.familyforests.org](http://www.familyforests.org)
  - a. VFF Certified Ecoforestry; <http://www.familyforests.org/ecoforestry/>

#### 1.4 ADMINISTRATIVE REQUIREMENTS

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

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: Delete item below if requiring a prototype mockup.

- 2. Coordinate Shop Drawings with work of each affected trade ensuring hold-to or guaranteed dimensions are enforced.

NOTE: Delete item below if NOT providing a Prototype Mockup for Architect's review and approval.

- 3. Coordinate Architect's review of prototype mockup.

NOTE: Select from one of the following choices best suited based on Prototype size and locations of shop, office and site. Delete items not chosen.

- a. Architect to visit woodworking fabricator's shop to review Prototype Mockup.
- b. Transport Prototype Mockup to and from Architect's office for review.
- c. Transport Prototype Mockup to and from project site for Architect's review.

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

B. Sequencing: Per SECTION 010000 or 011100, and as follows:

- 1. Certified wood tracked from forest, mill, and wood fabricator to the jobsite, and stored separately.

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

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

GREEN NOTE: To incorporate project site cleared trees allow 3 or more months within the project schedule to accomplish proper air and/or kiln drying of cut timber.

#### 1.5 SUBMITTALS

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

- A. Product Data per SECTION 013000 or 013300 and as follows: Submit wood fabricator's printed descriptions of furniture, materials, components and systems, joinery, glues, adhesives, finishes, use limitations, recommendations and use information.

NOTE: Choose between using the AWI /AWMAC / WI standards for Shop Drawing submittals or as defined by the referenced Sections. Delete items not selected.

- B. Shop Drawings per AWI Architectural Woodwork Standards - 2009, Section 1, Submittals.

NOTE: Coordinate and edit to the correct Section number below. Delete item above or below.

- C. Shop Drawings per SECTION 013000 or 013300 and as follows: Submit, sketches, plans, elevations, and details indicating materials, dimensions, joinery, finishes, hardware, cutouts and if provided, holes, power, cabling, wiring, and built-in appliances and equipment.
1. For wood veneered furniture with a transparent finish indicate by elevation veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and flitch sequence for each leaf.
  2. Shop Drawings shall not be copies or modified copies of the Contract Drawings.

**NOTE: Provide large-scale sections and details, OR a Prototype Mockup for Architect's review and approval. Delete the approach not used.**

3. Provide details and sections indicating each different aspect of joinery, and drawer construction.
  - a. Indicate sections at a min. 3/4" = 1'-0" (1:20) scale and details a minimum half-size (1:2) scale.

**NOTE: Select between the following three items. Delete the items not chosen.**

4. Prototype Mockup: Architect to visit shop to view each initial piece prior to production.
5. Prototype Mockup: Architect to view each initial piece prior to production in place at the jobsite.
6. Prototype Mockup: Architect to view each initial piece prior to production. Fabricator shall bring each prototype to Architect's office for review.
  - a. Production shall not proceed without Architect's acceptable review.

**NOTE: Current cutting edge Shop Drawings are based on Architect's 3-D BIM Drawing files. Delete items 2 through 6.a. if using BIM Drawing process.**

7. Use 3-D BIM (Building Information Modeling) Drawings as base for final Shop Fabrication Drawings.

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

- D. Samples per SECTION 013000 or 013300 and as follows:
1. Initial for Selection: Submit printed color charts or sample chains indicating fabricator's complete range for each type of material finish exposed to view.
  2. Final Selection: Submit wood for transparent finish samples for acceptance.
    - a. Wood Planks: Wood boards for each species and cut finished one (1) side and one (1) edge 5 inches (125mm) wide by 24 inches (600mm) long.
    - b. Wood Veneer Flitches: Minimum three (3) representative wood veneer flitch samples (flitch numbered sets) for each species and cut for transparent finish.
    - c. Wood Veneer Panels: Wood veneer-faced and finished panel products, 12 by 24 inches (300mm by 600mm) for each species, cut and core selected. Include one (1) veneer seam and panel joint.
- E. Quality Assurance Submittals per SECTION 014000 and as follows:
1. Certificates: Submit with fabricator's signature certifying that each product and/or system meets the requirements of the performance characteristics, physical criteria, and applicable standards specified.
    - a. AWI Quality Certification Program Certificate
    - b. Material recycled content
    - c. Fire-retardant treatment
  2. Test and Evaluation Reports: Submit certified test results by a recognized testing laboratory in accordance with specified test methods for each product and/or system indicating physical, chemical and performance characteristics.
    - a. Product VOC and formaldehyde content

3. 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.

**NOTE: Edit LEED Requirements below to suit project.**

- F. Sustainable Design (LEED) Submittals: Submit the following in accordance with the requirements of SECTION 018113, LEED REQUIREMENTS:

1. LEED Credit MR, Materials & Resources. Submit in accordance with completed LEED 2009-NC 3.0 Submittal Templates, with SECTION 017419, CONSTRUCTION WASTE MANAGEMENT requirements, and other required paperwork as follows:

**NOTE: Furniture may be included, providing it is included consistently in MR Credits 3–7.**

- a. MR 3.1: Materials Reuse: 5 percent
  - b. MR 3.2: Materials Reuse: 10 percent
    - 1). Submit product data indicating percentage by cost, of the total value of salvaged (reclaimed), refurbished or reused materials on the project.
  - c. MR 4.1: Recycled Content: 10 Percent (post-consumer + 1/2 pre-consumer)
  - d. 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.
  - e. MR 5.1: Regional Materials, Regionally Extracted, Processed & Manufactured Products, 10 Percent
  - f. 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
  - g. 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.
  - h. 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 IEQ, Indoor Environmental Quality. Submit completed LEED 2009-NC 3.0 Submittal Templates and required paperwork as follows:
    - a. IEQ 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. IEQ 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. IEQ 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.

G. 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. Bonds: Contractor shall require the architectural woodworker to furnish the Owner with a two (2) year maintenance bond, to the full value of the architectural woodwork sub-contract, certifying that the architectural woodwork has been manufactured in accordance with the AWI standards incorporated.
3. Executed Warranty Documentation: Manufacturers' material warranties and installers workmanship warranty.
4. Record Documents: Drawings, Specifications, and Product Data.

NOTE: Edit LEED Requirements below to suit project.

5. Sustainable Design Closeout Documentation: Submit completed USGBC LEED® [Worksheet Templates](#) for the following credits:
  - a. MR 3.1, MR 3.2, MR 4.1, MR 4.2, MR 5.1, MR 5.2, MR 6, MR 7
  - b. IEQ 4.1, IEQ 4.2, IEQ 4.4

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Spare Parts: Provide five (5) percent additional sets of each different hardware type and finish.

1.7 QUALITY ASSURANCE

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

A. Qualifications per 014000 or 014300 and as follows:

1. 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 or certified forests.

B. Certifications

1. Provide furniture per AWI Architectural Woodwork Standards.

NOTE: Include more rigorous third party inspection language below when fabricator quality is unknown or suspect and owner wishes to confirm quality.

- a. Grade:

NOTE: Edit below to select grade quality standard, deleting items not chosen.

- 1). Premium

- 2). Custom
- 3). Economy
- 4). Laboratory
- b. Provide jobsite and/or shop inspections by a local AWI Chapter appointed inspector.
- c. Provide draft Shop Drawings to the local AWI Chapter for review, and make corrections prior to submitting to the Architect.

**NOTE: Edit below to suit project selecting acceptable and deleting unacceptable certifications.**

2. Wood timber and manufactured wood products shall be sourced from sustainably managed forests as certified by SmartWood, 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.**

C. Sustainability Standards and Certifications:

1. Certified wood furniture shall be made from certified sustainably harvested or recycled wood using:
  - a. Non-toxic, no HAP, low-VOC glues, adhesives and finishes with no added formaldehyde.
  - b. Maintain dust control in shop with wood scrap, chips and dust collected and reused, recycled or converted into harnessed energy.
  - c. RoHS compliant. Hardware provided shall not contain lead, mercury, cadmium-plated, chromium-6 plated, PBB, and PBDE materials.
  - d. Cabinets and harvested forest resources shall be from within 500 miles (805 km) distance between forest, sawmill, kiln, woodworker shop, and the project site.
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.**

- D. Mockups per SECTION 014000 or 014300, and as follows: Assembled furniture required for testing, either in the field or off-site.

**NOTE: Mockups are used to verify selections made under Sample submittals, demonstrate aesthetic effects for selection and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation.**

1. Provide full-scale three-dimensional assemblies utilizing final specified materials and final production techniques constructed to be fully tested to ensure that the furniture meets the performance requirements of the Specification by application of the maximum applied loads, on site conditions, and structural movements.
2. Mock-up(s): Build Mock-up in location and size acceptable to design professional of type specified. Demonstrate the anticipated range of materials, workmanship and finish expected.
  - a. Notify design professional seven (7) days in advance of time when mock-up will be installed for approval viewing.
  - b. Obtain approval in writing before commencing work.
  - c. Mock-up (may) (may not) be included as a part of the finished project.
  - d. Protect the approved mock-up during construction period as it will be used as a benchmark to judge the finished installation.

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

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

- E. Prototypes per SECTION 014000 or 014300, and as follows: Provide materials and full or partial assemblies of each unit type for review and approval prior to fabrication production. Prototypes shall at minimum indicate each different:
1. Joint
  2. Shape, bend
  3. Wood type
  4. Structural component
  5. Finish
  6. Accessory including, but not limited to, hardware type and finish

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, Storage and Handling per industry, fabricator or manufacturer guidelines, SECTION 016000, and as follows:
1. Delivery and Acceptance Requirements
    - a. Deliver materials to Project site in an undamaged condition, 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.
    - c. Mark products with Shop Drawing location reference, unless already properly marked.
      - 1). Use removable tags or concealed markings.
  2. Storage and Handling Requirements
    - a. Protect wood materials, products and accessories during shipping, handling, storage and installation from exposure to harmful conditions, soiling, damage, and deterioration including, but not limited to, weather, sudden changes in temperature, direct sunlight, extreme dryness or excessive humidity, standing water, moisture, denting, chipping, gouging, warping, peeling, construction operations, and other damage.
      - 1). Handle items with proper care in proportion to the fragility and hazard of each item and its finished surfaces.
      - 2). 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.

## 1.9 WARRANTY

- A. Fabricator Warranty: Contractor shall provide wood furniture fabricator's guarantee against structural defects in materials and workmanship for the lifetime of the original owner beginning on the date of Substantial Completion acceptance.
1. Defective piece(s) shall be repaired or replaced at the discretion of the fabricator in a timely manner.

## 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](http://www.vtwoodnet.org/certified_wood_sources.html) .  
[http://www.vtwoodnet.org/resource\\_directory/resource\\_directory\\_detail.asp?res=fsccertified](http://www.vtwoodnet.org/resource_directory/resource_directory_detail.asp?res=fsccertified)

- A. Fabricator List of FSC Certified VT **Woodworker**. ([link](#)) Subject to compliance with requirements, provide products by one of the following:
1. Beeken Parsons, Inc., Shelburne, VT; [www.beekenparsons.com](http://www.beekenparsons.com); SCS-COC-001477 B
  2. Cotswold Furniture Makers, Stowe, VT; <http://cotswoldfurniture.com/>; SCS-COC-001477 O
  3. J.S. Benson Woodworking & Design LLC, Brattleboro, VT; 802-254-3515; SCS-COC-001477
  4. Stark Mountain Woodworking Company, New Haven, VT; [www.starkmountain.com](http://www.starkmountain.com); SCS-COC-001477 F
  5. William Laberge Cabinetmakers, Inc., Dorset, VT; [www.williamlaberge.com](http://www.williamlaberge.com); SCS-COC-001477 N
- B. Fabricator List of VT **Cabinetry and Millwork** using FSC Certified and Sustainable Materials. Subject to compliance with requirements, provide products by one of the following:
1. Fine Lines in Wood, Inc., New Haven, VT; 802.453.6451; SCS-COC-001477 H
  2. Vermont Green Cabinets, Hinesburg, VT; [www.vermontgreencabinets.com](http://www.vermontgreencabinets.com); SCS-COC-001477
- C. Other Vermont Custom Cabinet Makers. Subject to compliance with requirements, provide products by one of the following:

**GREEN NOTE:** Some of the companies below offer products made from FSC certified wood when requested.

1. Amoskeag Woodworking, Colchester, VT; [www.amoskeagwoodworking.com](http://www.amoskeagwoodworking.com)
2. Baynham Wood Products, Shelburne, VT; 802.985.9311
3. Birdseye Building Co., Richmond, VT; [www.birdseyebuilding.com](http://www.birdseyebuilding.com)
4. S. A. Fishburn, Inc. Danville, VT; [www.safishburn.net](http://www.safishburn.net)
5. Shelburne Fine Woodworking, Shelburne, VT; [www.sfwvermont.com](http://www.sfwvermont.com)
6. Steve Marshall Cabinet Maker, Burlington, VT; [www.stevemarshallcabinetmaker.com](http://www.stevemarshallcabinetmaker.com)

**GREEN NOTE:** The following list of CPA-EPP / CARB-compliant manufacturers meet the most rigorous formaldehyde emission and other environmental standards.  
At present no Vermont manufacturer of wood products have been accepted to the list.

- D. CPA [EPP Downstream Program Companies](#); Meets ANSI accreditation, uses 100 percent recycled or recovered wood fiber, formaldehyde emissions equal to or lower than CARB Phase I, ongoing testing, monthly audits, quarterly sample submission for third-party testing.

1. Custom Cabinets
  - a. Crystal Cabinet Works, Inc., Princeton, MN; 763.389.4187
  - b. Cullman Cabinets, Cullman, AL; www.cullmancabinet.com
  - c. JB Cutting Inc., Mount Clemens, MI; www.jbcutting.com
  - d. National Custom Millwork Inc., Beltsville, MD; www.gahwd.com
  - e. Tharp Cabinet Corporation, Loveland, CO; www.tharpcabinets.com

GREEN NOTE: Wood-Mode below uses wood harvested from the Northern Forest and Quebec.

- f. Wood-Mode (Brookhaven), Kraemer, PA; www.wood-mode.com
- E. Manufacturer List of Environmentally Safe Wood **Finish Coatings**: Subject to compliance with requirements, provide products by one of the following:
1. Sutherland Welles Ltd., Morrisville, VT; www.sutherlandwelles.com
  2. Vermont Natural Coatings, Hardwick, VT; www.vermontnaturalcoatings.com

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

- F. Substitution Limitations: Manufacturers of equivalent products beyond those listed above shall be considered when submitted per SECTION 013000 or SECTION 013300, and SECTION 016000, using CSI Substitution Request Form 1.5C (During the Bidding Phase) or Form 13.1 (After the Bidding Phase.) [link](#)
- G. Product Options
1. Materials:
    - a. Solid wood
    - b. Wood veneer
    - c. Wood composite
    - d. Inlay
  2. Furniture Type:
    - a. Seating
    - b. Surfaces
    - c. Storage
    - d. Sleeping
  3. Joinery type
  4. Hardware
  5. Finish

## 2.2 DESCRIPTION

- A. Regulatory Requirements
1. Hardwood Grades: NHLA American Hardwood Lumber [Grades](#)
  2. Softwood Grades: NeLMA (WWPA) [Grade](#)
- B. Sustainability Characteristics - Furniture
1. FSC certified or SFI certified
  2. Vermont sourced and produced
  3. Salvaged and reused
  4. Recycled material content
  5. Non-HAP finish and adhesive
    - a. No-VOC or low-VOC

RED NOTE: Verify that adhesive used in making agri-board or other wood composite boards used are MIC-free.

- b. MIC-free agri-board

## 2.3 PERFORMANCE / DESIGN CRITERIA

### A. Performance Criteria:

1. Design Loading:
  - a. Shelving, Trays and Cabinet Drawers: Safely support an evenly distributed load of 15psf (718 pascal), up to a maximum of 50 lb (23 kg)
  - b. Furniture Board: Minimum 45 lb (20 kg) density industrial grade
  - c. Drawer Guides: Minimum 100 lb (45 kg) rating
2. Wood Characteristics
  - a. Hardness per [USDA Janka Test](#)

NOTE: Edit below to suit project.

- b. Grain Types:
  - 1). Close: Beech, birch, maple, cherry, satinwood, gum, poplar, and most softwoods
  - 2). Open: Oak, walnut, ash, mahogany, rosewood, teak
- c. Grain Patterns: Straight, stripes, swirls, waves or curls, ripples, eyes, mottled effects
- d. Color: White, pale yellow, red, purple, black

### B. Design Requirements

NOTE: Edit below to suit project.

1. Solid wood, wood veneer, or wood composite
  - a. Transparent Finish
    - 1). Grade
    - 2). Species
  - b. Prefinished HDO
  - c. Opaque Finish
    - 1). HDO (sanded)
    - 2). MDO
    - 3). MDF
  - d. Distressed
2. Tabletops
  - a. Material Type
    - 1). Solid Wood
    - 2). Wood veneer
    - 3). HDO
    - 4). MDO with laminate veneer
    - 5). MDF with finish
    - 6). MDF with laminate veneer
3. Desks
  - a. Frame type
  - b. Doors
  - c. Backs
  - d. Fixed shelves
  - e. Adjustable shelves
  - f. Drawer front
  - g. Drawer boxes
  - h. Drawer suspension
4. Shelving units
  - a. Shelves
  - b. End panels
  - c. Back panels

- d. Edge treatment
- 5. Hardware Accessories
  - a. Hardware finish
  - b. Hinges
  - c. Pulls
  - d. Lever locks
  - e. Drawer guides
  - f. Drawer and Door locks
  - g. Adjustable shelf standards
  - h. Shelf supports
- 6. Joinery. Adhered or glued with:

NOTE: Product joinery is a strong indicator of product durability and quality. Edit below to suit level of quality for the project.

- a. Dovetails, exposed and concealed
  - b. Mortise and tenons
  - c. Dowels
  - d. Biscuits
  - e. Splines
  - f. Butts
  - g. Miters
  - h. Screws, exposed and concealed
  - i. Staples
7. Color Contrast of Clear Finished Wood: Unless specifically called out, do NOT mix sapwood and heartwood where visible or semi-visible.

C. Wood Type Furniture Design Characteristics (resource [link](#))

- 1. Alder: Excellent for turning and polishing and takes glue, paint and stain well.
  - a. Wood: Diffuse porous, moderately light, and soft.
  - b. Color: Light tan or light brown with a yellow or reddish tinge
- 2. Ash: Bends easily; good for veneering; excellent strength-to-weight ratio
  - a. Grain: Open grained, with strong grain patterns that appear as parallel lines or swirls and waves.
  - b. Color: Creamy 'bone' white or gray with a light 'honey' brown cast to a dark reddish brown
- 3. Aspen: Furniture parts, drawer slides
  - a. Grain: Straight grained, light and soft; good dimensional stability with low to moderate shrinkage.
  - b. Color: Sapwood is white, blending into a light brown heartwood.
- 4. Basswood: Used in combination with walnut and mahogany. Easy to work with tools but poor in holding nails and bending.
  - a. Grain: Close with small pores; straight and even
  - b. Color: Sapwood is white to cream, with heartwood a pale to reddish brown, with darker streaks.
- 5. Beech: Bends easily; used primarily in inconspicuous places like chair and table legs, drawer bottoms, sides and backs of cabinets; takes stain well, often to look like mahogany, maple, or cherry. A hard and heavy wood, it is difficult to work with using hand tools.
  - a. Grain:
  - b. Color: Creamy white to creamy brown or reddish, with broad rays and sometimes slightly darker streaks
- 6. Birch (Yellow Birch): Used in all aspects of furniture making; easily machined.
  - a. Grain: Close
  - b. Color: White sapwood and light reddish-brown heartwood.
- 7. Butternut (White Walnut): Similar to walnut it's often stained to look like walnut; light and easy to work with hand tools.

- a. Grain: Pronounced and leafy, coarse textured; open pores
- b. Color: Light brown, with occasional dark or reddish streaks
- 8. Cedar (Eastern red cedar): Softwood used primarily in making chests and closets; aromatic; natural insect repellent; do not stain or bleach but clear finish exposed exterior faces.
  - a. Grain: Close and pleasing
  - b. Color: Light red, with light streaks and knots
- 9. Cherry: No filler; light stain sometimes used to accentuate color; difficult to work with hand tools but easily machined. Very resistant to heartwood decay.
  - a. Grain: Close distinctive straight grain, often with a definite mottle.
  - b. Color: Sapwood is light yellow, with heartwood brownish with a greenish tinge, darkening upon exposure to a deep reddish brown with a golden luster.
- 10. Elm: Bends easily
  - a. Grain: Interlocked with distinctly contrasting light and dark-areas
  - b. Color: Sapwood is nearly white, with heartwood a light brown to brown with a reddish tinge.
- 11. Hickory: Noted for its strength, hardness, and toughness; it is used in rockers, Windsor chairs, lawn furniture, and some veneers; difficult to work with hand tools.
  - a. Grain: Indistinct open grain
  - b. Color: Sapwood is white, tinged with brown, with heartwood a pale to reddish brown.
- 12. Maple, Hard: Strong, dense, attractive hardwood, used in furniture and for butcher blocks; difficult to work with hand tools
  - a. Grain: Usually straight, but also occurs in bird's-eye, curly, or wavy patterns
  - b. Color: Light brown with reddish cast; oxidizes from light to dark over time.
- 13. Oak, Red: Good working properties, machining and gluing well; holding fasteners extremely well. Tends to split when nailed, unless predrilled, finishes well, but shrinks considerably.
  - a. Grain: Course texture with a heavy, straight-grain.
  - b. Color: Sapwood is white to very light brown, with heartwood a reddish brown.
- 14. Oak, White: Used for Mission style. Good working properties, machining and gluing well; holding fasteners extremely well. Tends to split when nailed, unless predrilled, finishes well, but shrinks considerably. Very resistant to heartwood decay.
  - a. Grain: Course texture with a heavy, straight-grain.
  - b. Color: Sapwood is white to very light brown, with heartwood a light to dark brown.
- 15. Poplar: Easy to work with hand and machine tools.
  - a. Grain: Straight
  - b. Color: Sapwood is white, sometimes with stripes; the heartwood is usually tan, but can range from greenish brown to dark green, purple, black, blue and yellow.
- 16. Sycamore: Wood is moderate in weight, hardness, stiffness, shock resistance, strength in bending, endwise compression and nail-holding ability. It has a close texture, glues well, and resists splitting due to interlocked grain.
  - a. Grain: Diffuse porous; small pores - closed grain; interlocked.
  - b. Color: Sapwood is white to light yellow, with the heartwood light to dark brown.
- 17. Walnut, Black: Heavy, hard, and stiff wood with a high shock resistance, and is very resistant to heartwood decay. Easily worked with hand tools and by machine, finishing beautifully, holding paint and stain exceptionally well, and also glues and polishes well.
  - a. Grain: Straight
  - b. Color: Sapwood is nearly white, while the heartwood is light brown to dark, chocolate brown, often with a purplish cast and darker streaks.
- 18. Willow, Black: Difficult to machine but glues well and readily accepts finishes.
  - a. Grain: Interlocked.
  - b. Color: Sapwood is light tan, with heartwood a pale reddish brown to grayish brown.

## 2.4 ASSEMBLY / FABRICATION

### A. General

1. Fabricate furniture work to dimensions, profiles, and details indicated by approved Shop Drawings.
  - a. Fit each component together to allow for wood expansion and contraction movement.
  - b. Shop assemble each unit.
  - c. Locate hardware accurately using templates or roughing-in diagrams to produce accurately sized and shaped letting of integral hardware.

B. Shop Fabrication

1. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
2. Sand edges of cutouts to remove splinters and burrs.
3. Seal cut edges of wood and engineered wood products to control moisture absorption.
4. Ease edges to radius indicated for the following:
  - a. Cabinet Corners and Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch (1.6mm).
5. Install hardware when final finishing is complete.
  - a. Adjust and align hardware so that contact points meet and moving parts operate freely.
  - b. After installation allow for final field adjustment.
6. Laminated Products
  - a. Adhesive: Nonflammable, no-HAP solvent-based

NOTE: Select adhesive item above or below, deleting the item not chosen.

- b. Adhesive: Waterbased, neoprene rubber
  - c. Adhesive Spray Equipment: High-volume/low-pressure (HVLP) air spray guns
  - d. Curing Equipment: Infrared (IR)
7. Wood Coatings:
  - a. Solvent-Based: Low-VOC and no-HAP
8. Clean shop-finished surfaces, touch-up and remove or refinish damaged or solid areas, as acceptable to Architect.
  - a. Clean and polish each piece.
  - b. Apply protection for shipping not to be removed until just prior to installation or final placement.
    - 1). Removed protection to be returned for reuse or recycling.

C. Process: Furniture Making

1. Select tree(s) and cut into logs following sustainable harvesting practices.
2. Saw logs into rough planks or posts as needed.
3. Air and/or kiln dry to proper moisture content

NOTE: Select 3 items above or the item below, deleting that not chosen.

4. Provide select dried planks and posts ready to work.
5. Prepare, shape or bend planks or posts into final assembly forms using tools and equipment as needed.
6. Machine cut each joint
  - a. Tolerance: 0.002 inch (0.051mm)
7. Assemble and glue each joint
8. Sand and otherwise prepare exposed piece areas for finishing
9. Install hardware
10. Finish: Provide a blend of linseed oil and modified natural resins, unless specified otherwise.
  - a. No metallic dryers
  - b. No petroleum-based solvents

## 2.5 FINISHES

### A. Shop Finishing

**RED NOTE: Use of polishing oils, cleaning waxes, and silicone-containing products affect future touch-up and refinishing procedures.**

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: Apply as recommended by manufacturer.

NOTE: Freshly milled lumber may demonstrate wood grain coloration that has not been oxidized by sunlight (usually darkened, i.e. mahogany & cherry) or weathered gray by rain or water splash.

A natural weathered appearance of wood grain is dependent upon the wood species, the extent of exposure to the natural elements, the number of coats of finish applied before the weathering process begins and the frequency of refinishing.

Weathered wood can usually be restored to its original appearance by sanding the weathered surface, exposing fresh wood grain, and applying the appropriate number of refinish coats.

Extreme weathering can result in open grain wood checks that allow dirt and bacteria deep into the wood causing typically black discoloration. This discoloration is especially typical at egress doorsills and is virtually impossible to remove without professional services using bleach and other chemical solvents to penetrate into the open grain of the wood.

White Oak and Mahogany are typical open grained hardwood species that demonstrate a high resistance to decay but are prone to deep discoloration when allowed to weather. Cherry has a high resistance to decay with a much tighter wood grain, and is not as prone to open grain. However, Cherry is not as hard as White Oak or Mahogany and will wear more in egress sill conditions. Cherry and Mahogany are prone to accelerated oxidation (darkening) by direct sunlight. For example, freshly milled Cherry and Mahogany will show visible darkening in minutes when exposed to direct sunlight.

Pines and Cedars are also typically used to fabricate windows and doors. However, Pines and Cedars are softwoods and typically not used when a clear fresh wood appearance is required. Only hardwoods are used for egress doorsills.

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](http://www.sutherlandwelles.com)
      - a). Botanical Polymerized Tung Oil
      - b). Exterior Application: Added UV absorbers, UV light stabilizers, and mildewcide / algacide
  - 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 modified alkyd resin

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

3. Surface Preparation for Finish 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 finishing.
    - 1). Remove items as necessary for complete sealing or finishing of items and adjacent surfaces.
    - 2). Clean surfaces before applying finish or surface treatments.
      - a). Remove oil, grease, and other contaminants.
    - 3). Following completion of finish operations, 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.
      - a). Prime edges, ends, faces, undersides, and backsides of each wood surface.
      - b). After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler, and sand smooth when dried.
    - 3). When transparent finish is required, backprime with spar varnish.
- B. Field Finishing: Per SECTION 099000 or 099100 or 099300 or 099600.

## 2.6 ACCESSORIES

RED NOTE: Provide RoHC compliant metal finishes. Avoid specifying BHMA 625 / US 26 bright chromium plated and BHMA 626 / US 26D satin chromium plated metal finishes. Both use carcinogenic hexavalent chromium in a non-recyclable arsenic heavy metal salt baths.

- A. Cabinet Hardware and Accessories: Comply with BHMA 156.9 and 156.11
  1. Exposed Hardware Finishes: Comply with BHMA A156.18
- B. Fasteners: Of appropriate type and length for wood used to securely fasten joints for the intended life and use of the unit.

## 2.7 SOURCE QUALITY CONTROL

- A. Tests and Inspections:

NOTE: Edit Prototype Review below to suit project and preferences.

NOTE: By completing a Prototype Mockup Review the Section and Detail parts of the Shop Drawing requirement can be eliminated.

NOTE: Delete item below if not providing a Prototype Mockup for Architect's review and approval.

1. Prototype Review:
  - a. Notify Architect when initial Prototype Mockup units are complete and ready for inspection.
  - b. Architect will visit fabricator's shop if within one (1) hour drive otherwise deliver unit to Architect's office or to project site for Architect's review.
  - c. Do not proceed with fabrication work until Architect's acceptance and conditional or unconditional release.
  - d. Rejected units shall be removed and modified as noted or otherwise disposed.
  - e. Accepted Benchmark Prototype shall remain accessible for viewing during normal

business hours until Final Completion.

- 1). Benchmark Prototype shall remain unmodified except as requested by Architect's conditional review.
- 2). Benchmark Prototype accepted unconditionally may be incorporated into the work when meeting all other requirements.

### 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 wood furniture until building is enclosed, wet work is complete, overhead work is complete, area is clean, and HVAC system is operating and consistently maintaining temperature and relative humidity at occupancy levels, and in accordance with fabricator's recommendations.

#### 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 present, for compliance with requirements affecting Work performance.
    - a. Verify that conditions are as required by the fabricator, 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. Product Preparation: Handle products in accordance with fabricator's instructions and warranty requirements including, but not limited to:
    - a. Remove shipping / storage protection per fabricator's recommendations.
    - b. Acclimatize product to installation location.
    - c. Strictly adhering to fabricator's handling and installation safety requirements.

#### 3.4 INSTALLATION

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

- A. Installation per fabricator's written instructions, Owner's directions, and SECTION 017000 or 017300 or 017316.

#### 3.5 ADJUSTING

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

- A. Adjusting per SECTION 017000 or 017500 or 017513, and as follows:
  1. Adjust each moving part until operation is smooth and as required.

### 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. Coordinate take-back program with fabricator, or recycler, as applicable.
    - a. Store and return pallets, containers and packaging for reuse or recycling.
    - b. Store scrap materials for recycling into new product or to convert into usable energy.

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

- B. Provide Final Cleaning immediately prior to Substantial Completion inspection per SECTION 017000 or 017400 or 017423.
  - 1. Protection: Remove fabricator's and other installed protection immediately prior to Substantial Completion inspection, unless fabricator requires otherwise.

### 3.7 CLOSEOUT ACTIVITIES

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

- A. Substantial Completion Requirements per SECTION 017000 or 017700.
- 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.
  - 2. Replace damaged materials or items with New if repair not acceptable to Architect.

### 3.8 PROTECTION

- A. Protect materials and casework from construction operations, including damage by work of other trades, until date of Final Completion or Owner occupancy, whichever occurs 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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**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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