

SECTION 064003

CERTIFIED ARCHITECTURAL WOODWORK

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

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section consists of exterior and interior sustainable architectural woodwork, and includes but is not limited to the following:
1. Architectural Wood Casework
 - a. Wood Veneer-Faced Architectural Cabinets
 - b. Plastic-Laminate-Clad Architectural Cabinets
 2. Paneling
 - a. Solid Lumber
 - b. Wood-Veneer
 - c. Plastic-Laminate-Faced Wood Paneling
 3. Accessories including, but not limited to, fasteners, hardware, edging, cableways
- 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 105616, FABRICATED WOOD STORAGE SHELVING
 6. SECTION 112616, WOOD UNIT KITCHENS
 7. SECTION 123200, MANUFACTURED WOOD CASEWORK
 8. Products installed but not furnished or supplied under this Section.
 - a. SECTION 062003, CERTIFIED FINISH CARPENTRY: Millwork, molding and trim.
 - b. SECTION 123619, WOOD COUNTERTOPS

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. NAF. No Added Formaldehyde

3. CoC. Chain-of-Custody
4. 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 certified forests, trees and lumber meeting FSC or 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: Refer to SECTION 061003 for definitions of Hardboard, HDO, MDF, MDO, Plywood, OSB and Particleboard.
3. FSC: Forest Stewardship Council; www.fsc.org/pc.html
4. **HAP**. Hazardous Air Pollutant
5. HMA Hardwood Moldings [Glossary](#)
6. HDF. High Density Fiberboard (≥ 53 psi)
7. MDF. Medium Density Fiberboard (< 53 psi)
8. **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.

9. Northern Forest: Timber stands that range from the NY Adirondacks through Vermont and New Hampshire and 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.

10. **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).
11. 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 issued by the Northern Forest Alliance <http://www.northernforestalliance.org/about/sustainforest.htm>, FSC www.fsc.org/pc.html, ATFM 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>.
12. 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 the following 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.

13. 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.
14. 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

NOTE: AWI/AWMAC/WI JSC standards do not cover wood species that exhibit unusual characteristics including hickory, pecan, butternut, knotty pine, wormy chestnut, pecky cypress and watted walnut.

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. AWWPA. 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. 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;
<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: 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**. 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. KCMA. Kitchen Cabinet Manufacturers Association; www.kcma.org
 - a. ESP. Environmental Stewardship Program ([Standard](#)) ([Certified companies](#))
17. **NeLMA**. Northeastern Lumber Manufacturers Association. www.nelma.org
 - a. Standard Grading Rules for Northeastern Lumber 2006
18. NEMA. National Electrical Manufacturer's Association
19. **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>
20. NFPA. National Fire Protection Association; www.nfpa.org
21. NHLA. National Hardwood Lumber Association; www.natlhardwood.org
22. **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.sfiprogram.org
 - b. Member: [ATFS](#). American Tree Farm System Certified;
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>
23. SBA. Structural Board Association; www.osbguide.com
24. SCAQMD. South Coast Air Quality Management District; www.aqmd.gov
25. SEFA. Scientific Equipment and Fixture Association. www.sefalabs.com
26. SPIB. Southern Pine Inspection Bureau; www.spib.org
27. UL. Underwriters Laboratories Inc.; www.ul.org
28. United States Department of Commerce Standard [PS20-99](#)

- a. Procedures for the Development of Voluntary Product Standards
- 29. USGBC. United States Green Building Council; www.usgbc.org
- 30. [WI](http://www.wicnet.org/publications/2003manual.asp). 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. Verify each certified material chain-of-custody from original material resource to project site.
- 2. Coordinate hardware and plumbing templates with cabinet fabricator.

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 fabricator's shop to review Prototype Mockup.
- b. Deliver Prototype Mockup to Architect's office for review.
- c. Deliver Prototype Mockup to project site for Architect's review.

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. Cabinet Fabricator:
 - a. Certified wood tracked and stored separately.
 - b. Maintain dust control.
 - c. Wood scrap, chips and dust reused, recycled or converted into harnessed energy.
 - d. Uses non-toxic, no HAP, and low or no-VOC adhesives and finishes.
 - e. Does not use cadmium or hexavalent chromium-plated materials.
 - f. Harvested forest resource and cabinets within 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, treatment systems, joinery, adhesives, hardware, finishes, use limitations, recommendations and installation information.

NOTE: Choose to use the AWI /AWMAC / WI standards for submittals or as defined by the Sections referenced. Delete the one not selected.

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

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

- C. 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, hanging strips and other attachment requirements, cutouts and holes, power, cabling, wiring, built-in appliances and equipment.

1. Field Measurements: Indicate verified field measurements on the Shop Drawings.
2. For wood casework with 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.
3. Use UDS standard notation for elevations, sections and details.
4. Shop Drawings shall not be copies of the Contract Drawings.

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

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

NOTE: Select between the following two items, either review the Prototype Mockup at the fabrication shop or in the field at the jobsite.

7. Architect to visit shop to view each initial Prototype Mockup piece prior to production.
8. Architect to view each initial Prototype Mockup piece prior to production in situ on the job.
 - a. Production shall not proceed without Architect's review and acceptance.

NOTE: Current cutting edge Shop Drawings are based on Architect's 3-D BIM Drawing files. Delete items 5 through 8.a. if using BIM process.

9. Use 3-D BIM Drawings as base for final Shop 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 and/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 products for acceptance, those required prior to manufacturing to verify close tolerances, shapes and/or specifically required aesthetics.
 - a. 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. Minimum three (3) representative wood veneer flitch samples (flitch numbered sets) for each species and cut for transparent finish.
 - c. 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 manufacturer's signature certifying that each product and/or system meets the requirements of the performance characteristics, physical criteria, and applicable standards specified.
 - a. JSC Quality Certification Program Certificate
 - b. Fire-retardant treatment
 - c. Material recycled content
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. 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 (USGBC [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 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.

- 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 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 and / or installed in accordance with the AWI / AWMAC / WI JSC standards.
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 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, Regionally Extracted, Processed & Manufactured Products, 10 Percent
 - d. MR 5.2: Regional Materials, Regionally Extracted, Processed & Manufactured Products, 20 Percent
 - 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 MAINTENANCE MATERIAL SUBMITTALS

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

1.6 QUALITY ASSURANCE

A. Regulatory Requirements

1. 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

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

B. 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 within required project construction schedule.

- a. Fabricator shall source wood materials from certified sustainably managed forests.
- b. Fabricator shall be capable of providing Third Party Certification that wood materials were sourced from sustainably managed or certified forests.
2. Supplier: A firm capable of providing Third Party Certification that wood materials were sourced from sustainably managed forests.
3. 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.
4. 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

1. Architectural woodwork shall be manufactured and/or installed to the specified AWI/AWMAC/WIC JSC Quality Standards.

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

- a. Provide jobsite and/or shop inspections by a local AWMAC Chapter appointed inspector.
- b. Provide Shop Drawings to the local AWMAC Chapter for review and correct them prior to submitting to the Architect.
2. Wood timber and manufactured wood products shall be sourced from sustainably managed forests as certified by SmartWood, SCS, BVC, PwC, and displaying the FSC or PEFC or PEFC Member label.

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

D. Sustainability Standards and Certifications:

1. Engineered wood shall be made using non-toxic glues, no added formaldehyde (NAF), 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. Mockups per SECTION 014000 or 014300, and as follows: Assemblies 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 systems meet the performance requirements of the Specification by application of the maximum applied loads, in-situ conditions, structural movements.
2. Build Mock-up in location and size acceptable to design professional of type specified.
 - a. Notify design professional 7 days in advance of time when mock-up will be installed for approval viewing.
 - b. Demonstrate the anticipated range of materials, workmanship and finish expected.
 - c. Obtain approval in writing before commencing work. 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 to comparatively judge the finished installation

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

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

- F. 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 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.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, Storage and Handling per industry, fabricator and manufacturer 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.
 - 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 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.

1.8 WARRANTY

NOTE: Coordinate and edit warranty language below to suit Owner requirements and Fabricator offering.

- A. Fabricator Warranty: Contractor shall provide 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.

- A. Fabricator List of FSC Certified VT **Casework**. ([link](#)) Subject to compliance with requirements, provide products by one of the following:
1. Beeken Parsons, Inc., Shelburne, VT; 802.985.2913; www.beekenparsons.com; SCS-COC-001477 B
 2. Cotswold Furniture Makers, Stowe, VT; 802.253.3710; <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; 802.453.5549; www.starkmountain.com; SCS-COC-001477 F
 5. William Laberge Cabinetmakers, Inc., Dorset, VT; 802.325.2117; 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; 802.482.3659; 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 and commercial woods.

1. Amoskeag Woodworking, Colchester, VT; www.amoskeagwoodworking.com
2. Baynham Wood Products, Shelburne, VT; 802.985.9311
3. Birdseye Building Co., Richmond, VT; www.birdseyebuilding.com
4. S. A. Fishburn, Inc. Danville, VT; www.safishburn.net
5. Shelburne Fine Woodworking, Shelburne, VT; www.sfwvermont.com
6. Steve Marshall Cabinet Maker, Burlington, VT; 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. National Custom Millwork Inc., Beltsville, MD; www.gahwd.com
 - d. Tharp Cabinet Corporation, Loveland, CO; www.tharpcabinets.com

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

- e. Wood-Mode (Brookhaven), Kraemer, PA; www.wood-mode.com

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

- 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; 800.322.1245; www.sutherlandwelles.com
 2. Vermont Natural Coatings, Hardwick, VT; 802.472.8700;
www.vermontnaturalcoatings.com

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

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

G. 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
 - b. Wood veneer
 - c. Wood composite panel

- 1). HDO
 - 2). MDO with laminate veneer
 - 3). MDF with finish
 - 4). MDF with laminate veneer
3. Base Cabinets
 - a. Type: Custom
 - b. Type: Semi-custom
 - c. Frameless (European)
 - d. Framed
 4. Countertops (refer to SECTION 123600)
 5. Wall cabinets
 - a. Type: Custom
 - b. Type: Semi-custom
 - c. Frameless (European)
 - d. Framed
 6. Cabinet doors
 - a. Type: Custom
 - b. Type: Semi-custom
 - c. Frameless (European)
 - d. Framed
 7. Drawer boxes
 8. Shelving
 - a. Fixed
 - b. Adjustable
 9. Hardware
 10. Joinery type
 11. Finish
 - a. Clear coating
 - b. Stain and clear coating
 - c. Paint

2.2 DESCRIPTION

A. Regulatory Requirements

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

B. Sustainability Characteristics

1. [USGBC](#) LEED Rating: Comply with project requirements intended to achieve the following Rating, as measured and documented according to the USGBC LEED® Green Building [Rating 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. Cabinetry and countertops
 - a. FSC certified
 - b. Vermont sourced and produced
 - c. Salvaged and reused
 - d. Recycled content

RED NOTE: Verify that adhesive used in making agri-board is MIC-free.

- e. MIC-free agri-board cabinet facing
- f. Domestically produced

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

B. Design Requirements

1. Wood 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. Base Cabinets
 - a. Frame type
 - b. Cabinet doors

- c. Backs
- d. Fixed Shelves
- e. Adjustable shelves
- f. Toe kick
- g. Removable panels
- h. Drawer boxes
- i. Drawer front
- j. Drawer suspension
- k. Access panels
- l. Chase walls
- 3. Countertops (refer to SECTION 123600)
 - 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
- 4. Wall cabinets
 - a. Frame type
 - b. Cabinet doors
 - c. Backs
 - d. Fixed shelves
 - e. Adjustable shelves
 - f. Valence
 - g. Removable panels
 - h. Drawer front
 - i. Drawer boxes
 - j. Drawer suspension
 - k. Access panels
 - l. Chase walls
- 5. Wall Paneling
- 6. Shelving units
 - a. Shelves
 - b. End panels
 - c. Back panels
 - d. Edge treatment
- 7. Scribe strips
- 8. 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
- 9. Joinery
 - a. Dovetail, exposed and concealed
 - b. Butted
 - c. Mitered
 - d. Mortise and tenon
 - e. Dowels
 - f. Biscuits
 - g. Screws, exposed and concealed
 - h. Staples
 - i. Adhesive
- 10. Color Contrast of Clear Finished Wood: Unless specifically called out, do NOT mix sapwood and heartwood where visible or semi-visible.

2.4 ACCESSORIES

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

2.5 ASSEMBLY / FABRICATION

A. General

- 1. Fabricate units to dimensions, profiles, details, plumbing, hardware, appliances, telecommunications and electrical work indicated by approved Shop Drawings.
 - a. Fit components together to allow for expansion and contraction movement due to changes in environmental conditions.
 - b. Shop assemble each unit in as large a component as practicable to minimize field joining.
 - c. Locate openings accurately using templates or roughing-in diagrams to produce accurately sized and shaped openings.
 - d. Locate hardware accurately using templates or roughing-in diagrams to produce accurately sized and shaped letting of properly operating hardware.
 - e. Disassemble components only as necessary for shipment and installation.
 - f. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - g. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting.
 - 1). Verify that various parts fit as intended, adjust as needed, and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.

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

Or below

- 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. When 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 cabinet and countertop unit.
 - b. Apply protection for shipping not to be removed until just prior to installation.

2.6 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 as recommended.
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.

2.7 ACCESSORIES

A. Cabinet Hardware and Accessories: Comply with BHMA 156.9 and 156.11

RED NOTE: 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 bath.

1. Exposed Hardware Finishes: Comply with BHMA A156.18

B. Fasteners: Of appropriate type and length for wood product used to securely fasten to the substrate for the intended life and use of the unit.

2.8 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 and/or Mock-Up 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.
 - 1). If rejected units are complete and usable, deliver them to a building material reuse center, if within one hour's drive of project site, or facilitate reuse utilizing a web-based "freecycle" service.
 - 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.
- B. 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 at occupancy levels, and in accordance with manufacturer's recommendations.

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

- C. 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.

- D. 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, including cabinets, counters, cases, and paneling. 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.
5. Verify field dimensions and squareness of adjacent walls prior to installation.

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. Keep finish materials parallel to walls and floors.
 - 1). Exception: Cabinets and doors shall be plumb.
 - b. Install casework plumb, level, true and aligned without distortions.
 - c. Shim using concealed shims.
 - d. Where casework abuts other finished work, scribe and apply filler strips for a continuous tight fit with concealed fasteners. Fit scribe strips to irregularities of adjacent surfaces.
 - e. Allow for expansion and contraction movement of wood material joints due to moisture.
 - f. Abut and align top and edge surfaces in one true plane, with internal supports placed to prevent deflection.
 - 1). Provide flush hairline joints in tops.
 - g. 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 exposed fasteners aligned in straight rows parallel with edges of exposed members with fasteners evenly spaced, and with adjacent rows staggered.
 - h. Wood with Transparent Finish: Match color and grain pattern.
 2. Tolerances: Provide joint widths not more than 1/16 inch wide at any location, filled and flush with abutting edges. Horizontal alignment of top surface of all joints for their entire length shall be within 1/32 inch. Front edges of all abutting pieces shall align.

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 stands and complete forestry operations, kiln, sawmill, and fabricator 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.
2. Replace damaged materials or items with New if repair not acceptable to Architect.

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

- C. Manufacturers' or Fabricators' Field Services per SECTION 014000 or 014300 or 014333, and as follows: Manufacturer's or Fabricators' field representative(s) shall give product use recommendations, and perform site visits to inspect product installation in accordance with instructions and warranty requirements.

3.6 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 cabinet door and drawer until operation is smooth and as required.

3.7 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.
 - 1. Protection: Remove manufacturer's and other installed protection immediately prior to Substantial Completion inspection, unless manufacturer requires otherwise.

3.8 CLOSEOUT ACTIVITIES

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

- A. Substantial Completion Requirements per SECTION 017000 or 017700 and as follows:
 - 1. Perform Closeout Procedures per SECTION 017000 or 017700.
 - 2. Perform required Demonstration and Training with Owner's designated staff per SECTION 017900.

3.9 PROTECTION

- A. Protect installed materials and casework from construction operations 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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