

SECTION 061703

CERTIFIED SHOP FABRICATED STRUCTURAL WOOD

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 includes but is not limited to the following Certified Wood products:
1. Shop-Fabricated Structural Wood Framing
 - a. Metal Web Wood Joists
 - b. Wood Roof and Floor Trusses
 2. Manufactured Engineered Wood / Structural Composite Lumber (SCL)
 - a. Glue-Laminated Construction Framing
 - b. Microllam or Laminated Veneer Lumber (LVL)
 - c. Laminated Strand Lumber (LSL)
 - d. Parallam or Parallel Strand Lumber (PSL)
 - e. Oriented Strand Lumber (OSL)
 - f. Rim Boards
 - g. Prefabricated Wood I-Joists
 3. Accessories including, but not limited to, metal connector plates, structural connectors, fasteners, blocking, curbing, miscellaneous framing and bracing.
- 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 components.
 4. SECTION 061603, CERTIFIED WOOD SHEATHING: Composite wood panel components.

1.2 REFERENCES

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

NOTE: Edit Definitions and References below to suit project.

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

- B. Definitions per SECTION 011000, SECTION 014000, and as follows:
1. Certified Wood: Independent third party (FSC) verified wood from forests complying with responsibly managed forest standards that meet broad social, economic and environmental goals.

2. [Glued Laminated Timber \(Glulam\)](#): A product manufactured by end joining individual pieces of dimension lumber or boards together with structural adhesives. These long-length laminations are then face bonded together with adhesives to create the desired shape.
3. FSC: Forest Stewardship Council; 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. Heavy Timber: A type of construction in which fire resistance is attained by placing limitations of minimum sizes on wood structural members.
6. HMA Hardwood Moldings [Glossary](#)
7. [LEED®](#). Leadership in Energy and Environmental Design, a set of USGBC rating programs applicable to construction projects.
8. Mechanically Graded Lumber: Machine stress-rated lumber (MSR) or machine evaluated lumber (MEL) and grade stamped as conforming to the American Lumber Standard or Southern Pine Inspection Bureau and ASTM D6570.
9. [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.

10. Northern Forest: Timber stands that range from the NY Adirondacks through Vermont and New Hampshire up into Maine. <http://www.northernforestalliance.org/explore.htm>
11. S4S. Lumber that is dressed/surfaced on all four (4) sides.
12. S2S. Lumber that is dressed/surfaced on two (2) sides.
13. Sheathing: Structural plywood, OSB, and wafer-board panels, and non-structural cellulose-fiber panels.
14. Shop-Fabricated Structural Wood and Structural Composite Lumber (SCL): A composite of wood elements manufactured or fabricated for structural use.
 - a. Laminated Veneer Lumber ([LVL](#)): Made from thin wood veneers with the veneer grain parallel to the long direction bonded together into a large billet sawn to desired dimensions.
 - b. Parallel Strand Lumber ([PSL](#)): A high-strength structural composite made from long strands of wood chopped from wood veneer glued into billets and sawn to size.
 - c. Oriented Strand Lumber ([OSL](#)): Made from flaked wood strands with a high length-to-thickness ratio, combined with an adhesive, oriented and formed into a large mat or billet and pressed into various shapes.
 - d. Wood [I-Joists](#): A structural member manufactured using sawn or structural composite lumber flanges and structural panel webs, bonded together with exterior exposure adhesives, forming an "I" cross-sectional shape.
 - e. Metal Web Wood Joists
 - f. [Rim Boards](#): Fill the space between the sill plate and the bottom wall plate, or between the top plate and bottom plate in multi-floor construction. They can be made from plywood, OSB, Glulam, LVL, LSL, or OSL.
 - g. [Shop Fabricated Metal-Plate-Connected Wood Trusses](#): Planar structural units consisting of metal-plate-connected members fabricated from dimension lumber, cut and assembled before delivery to the site.
 - 1). [Truss configurations](#)
 - 2). [Truss glossary](#)
 - 3). [Why trusses fail](#)

15. [SCL](#). Structural Composite Lumber (LVL, LSL and OSL) are engineered wood products created by layering dried and graded wood veneers or flakes with waterproof adhesive into blocks of material known as billets.
16. Structural Panels: A panel manufactured from veneers, wood strands or wafers, or a combination of veneer and wood strands or wafers, bonded together with waterproof synthetic resins or other suitable bonding systems and intended for use in structural applications.
17. 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, 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>.
18. 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.
19. 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.
20. [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
 - a. [Lumber Grading Rules](#)
2. ANSI. American National Standards Institute; www.ansi.org
 - a. ANSI/AF&PA (NDS) National Design Specification for Wood Construction
 - b. ANSI/AITC Standard A190.1 for Structural Glued Laminated Timber
3. APA. APA – The Engineered Wood Association; www.apawood.org
 - a. U.S. Product Standard PS 1 for Construction and Industrial Plywood
 - b. APA Glulam Design Specification
 - c. APA EWS Y117
 - d. APA PRI-400 (LVL)
 - e. APA PRP-108 (Rim Boards)
 - f. APA PRR-401 (LVL)
4. ASME. American Society of Mechanical Engineers; www.asme.org
 - a. ASME [B18.6.1](#), Wood Screws (Inch Series)
 - b. ASME [B18.6.4](#), Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws, Inch Series
5. ASTM. ASTM International; www.astm.org
 - a. A153 / A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - b. A307, Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength
 - c. A563, Standard Specification for Carbons and Alloy Steel Nuts
 - d. A780, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
 - e. D2559, Standard Specification for Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions
 - f. D3737, Standard Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam)
 - g. D5055, Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists

- h. D5456, Standard Specification for Evaluation of Structural Composite Lumber Products
- i. D5664, Standard Test Method for Evaluating the Effects of Fire-Retardant Treatments and Elevated Temperatures on Strength Properties of Fire-Retardant Treated Lumber
- 6. AWC. American Wood Council; www.awc.org
 - a. [ASD / LRFD Manual](#) for Engineered Wood Construction
 - b. National Design Specifications for Wood Construction ([NDS](#))
- 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; www.fsc.org/pc.html; <http://www.fscus.org/>
 - a. Certifier: Rainforest Alliance 'SmartWood' Program. <http://www.smartwood.org>
 - b. Certifier: Scientific Certification Systems (SCS) 'Forest Conservation Program' (FCP); <http://www.scscertified.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
- 12. ICC. International Code Council; www.iccsafe.org
- 13. ICC/ES. International Code Council / Evaluation Service; www.icc-es.org
 - a. ICC-ES report ESR-1940
- 14. ISO/IEC. International Organization for Standardization, International Electrotechnical Commission; www.iec.ch/
- 15. [NeLMA](#). Northeastern Lumber Manufacturers Association. www.nelma.org
 - a. Standard Grading Rules for Northeastern Lumber 2006
- 16. NFPA. National Fire Protection Association; www.nfpa.org
- 17. NHLA. National Hardwood Lumber Association; www.natlhardwood.org
- 18. [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
 - 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>
- 19. SBA. Structural Board Association; www.osbguide.com
- 20. SCAQMD. South Coast Air Quality Management District; www.aqmd.gov
- 21. TPI. Truss Plate Institute; www.tpinst.org

- a. ANSI / [TPI 1-2007](#): National Design Standard for Metal Plate Connected Wood Truss Construction
 - b. [DSB-89](#): Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses
22. UL. Underwriters Laboratories Inc.; www.ul.org
23. United States Department of Commerce Standard [PS20-99](#)
- a. Procedures for the Development of Voluntary Product Standards
24. USGBC. United States Green Building Council; www.usgbc.org

1.3 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 certified wood component resource to structural wood shop fabricator and glulam manufacturer.

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

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

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

- C. Sequencing: Per SECTION 010000 or 011100.

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, metal connector plates, structural connectors, fasteners, blocking, curbing, miscellaneous framing and bracing, preservative and fire treatment systems, performance criteria, adhesives, finishes, use limitations, recommendations and installation information.

NOTE: Provide Shop Drawings for Shop-Fabricated Structural Wood Products and Glue Laminated Beams. Delete Shop Drawing and Sample requirements otherwise.

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

- B. Shop Drawings per SECTION 013000 or 013300 and as follows: Submit fabrication and assembly drawings showing structural members and indicating materials, member sizes, design values, materials and dimensional relationship of components, assembly configuration, erection sequence, piece numbering, metal plate connectors, extent of fire retardant or preservative treatment, bearing and anchorage details and requirements.
- 1. Drawings for installed products indicated to comply with design loads shall include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

- a. Provide truss fabricator's design and engineering data for the required trusses including stress diagrams under the signature, seal and registration number of a qualified structural engineer.
2. Field Measurements: Indicate verified field measurements on the Shop Drawings.
3. Shop Drawings shall not be copies or modified copies of the Contract Drawings.

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

C. Samples per SECTION 013000 or 013300 and as follows:

1. Initial for Selection: Submit printed color charts or sample chains indicating manufacturer's complete range for each type of material finish exposed to view that is not yet selected by Architect or specified.
2. Final Selection: Submit a minimum 8 inch (200mm) long full sized sample of each different profile (grain and species for clear finishes) and end bearing condition with proposed finishes, and fasteners.

D. Quality Assurance Submittals per SECTION 014000 and as follows:

1. 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. Submit design analysis and test reports indicating shop-fabricated structural wood performance characteristics and compliance with requirements.
 - b. Indicate fire-retardant treated wood and wood composites that comply with building code in effect for Project.
 - c. Indicate rot-resistant preservative-treated wood and wood composites that comply with standards and other requirements.
 - d. Engineered wood products
 - e. Shop-Fabricated Structural Wood
 - f. Glue-Laminated Construction
2. Qualification Statements: Submit a letter, on printed letterhead and signed by an officer of the firm, for each listed quality assurance qualification listed, attesting to meeting each requirement called out.

NOTE: Edit LEED Requirements below to suit project.

E. 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 2009-NC v.3 Submittal Templates in accordance with SECTION 017419, CONSTRUCTION WASTE MANAGEMENT, and other required paperwork as follows:
 - a. MR 4.1: Recycled Content: 10 Percent (post-consumer + 1/2 pre-consumer)
 - b. MR 4.2: Recycled Content: 20 Percent (post-consumer + 1/2 pre-consumer)
 - 1). Submit product data indicating percentage by weight of recycled content with a statement indicating costs for each.
 - c. MR 5.1: Regional Materials, Regionally Extracted, Processed & Manufactured Products, 10 Percent
 - d. MR 5.2: Regional Materials, Regionally Extracted, Processed & Manufactured Products, 20 Percent
 - 1). Submit product data indicating name of the manufacturer, product cost, distance between the project site and the manufacturer, and the distance between the project site and the extraction site for each raw material
 - e. MR 6: Rapidly Renewable Materials

- 1). Submit the product name, material manufacturer, total product cost for each tracked material, total product cost for each tracked material, percentage of product by weight, for each material that meets the rapidly renewable criteria.
- f. MR 7: FSC Certified Wood
 - 1). Submit certificates of chain-of-custody signed by manufacturers certifying materials and products specified are made from certified wood obtained from forests certified by a Forest Stewardship Council accredited certification body.
 - 2). Submit evidence sawmill is certified for chain-of-custody by an FSC-accredited certification body.
2. LEED Credit IEQ, Indoor Environmental Quality. Submit completed LEED 2009-NC v.3 Submittal Templates and required paperwork as follows:
 - a. IEQ 4.1: Low Emitting Materials, Adhesives & Sealants, 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). 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.

- F. Closeout Submittals per SECTION 017000 or 017800, unless noted otherwise.
1. Operation and Maintenance Data: Including, but not limited to, methods for maintaining installed products.

NOTE: Provide Executed Warranties for shop-fabricated structural wood products and Glue Laminated Beams. Delete this requirement otherwise.

2. Executed Warranty Documentation: Manufacturers' material warranties and installers workmanship warranty.
3. Record Documents: Drawings, Specifications, and Product Data.

NOTE: Edit LEED Requirements below to suit project.

4. Sustainable Design Closeout Documentation: Submit completed USGBC LEED® worksheet templates for the following credits:
 - a. 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

1.5 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Engineered wood shall display the APA trademark assuring the product is manufactured in

conformance with APA performance standards shown in the mark.

- a. Rim Boards shall be manufactured per APA EWS Rim Boards and PS 1 or PS 2 or APA Standard PRP-108.
 - 1). Glulam Rim Boards shall be resawn grade manufactured per APA EWS Rim Boards and ANSI A190.1.
2. Provide fire retardant treatment which complies with the following regulatory requirements:
 - a. FHA Minimum Property Standard #2600.
 - b. HUD Materials Release (1261)
 - c. FRT Plywood per AWWA C27, and rated Class A per ASTM E84.
3. Truss Standards: Comply with ANSI/AF&PA (NDS) National Design Specifications for Wood Construction and TPI standards as follows:
 - a. Quality Standard for Metal Plate Connected Wood Trusses
 - b. Commentary and Recommendations for Handling and Erecting Wood Trusses
 - c. Commentary and Recommendations for Bracing Wood Trusses
 - d. Design Specification for Metal Plate Connected Wood Trusses
 - e. Design Specification for Metal Plate Connected Parallel Chord Wood Trusses
 - f. Truss connections shall comply with the Truss Plate Institute's "Light Metal Connected Wood Trusses".

NOTE: Delete below if providing SECTION 061800, GLUED-LAMINATED CONSTRUCTION.
Edit to suit project.

4. Glulam Standards: Marked with an APA-ES trademark
 - a. Glulam design per:
 - 1). APA Glulam Design Specification
 - 2). Form EWS Y117
 - 3). ICC-ES ESR-1940
 - 4). ANSI/AITC Standard A190.1-02
 - b. Glulam design for fire resistance per APA Form EWS Y245 and Form W305

B. Qualifications:

NOTE: Edit below to suit project.

1. Manufacturer/Fabricator of Shop-Fabricated Structural Wood and Glue-Laminated Construction: 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. Manufacturer shall source wood materials from sustainably managed forests.
 - b. Manufacturer shall be capable of providing Third Party Certification that wood materials were sourced from sustainably managed forests.
2. Erector of Shop-Fabricated Structural Wood and Glue-Laminated Construction: 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.
 - a. Manufacturer/Fabricator capable of providing field service representation during installation, approving acceptable installer and approving application method.
3. Supplier: A firm capable of providing Third Party Certification that wood materials were sourced from sustainably managed forests.
4. Testing Agency: An independent testing agency with the experience and capability to conduct the testing indicated, meeting requirements of ISO/IEC Standard 17025 or ASTM E699 and ASTM E329.
5. Engineer: Licensed by the AHJ where Project site resides.

C. Certifications:

1. Wood timber and manufactured wood products shall be sourced from sustainably managed

- forests as certified by SmartWood, SCS, SGS, BVC, SFI, ATFS or CSA and displaying the FSC or PEFC label.
2. Shop Fabricated Wood Frame Modular Dwelling Units have been erected in compliance with HUD Minimum Property Standards (MPS)

D. Sustainability Standards and Certifications:

1. Engineered wood shall be made using non-toxic glues, no added formaldehyde, and 100 percent recycled fibers or certified sustainably harvested wood.
2. Adhesive and Sealant VOC Limits: According to South Coast Air Quality Management District [Rule 1168](#) and [GS-36](#) for aerosols.
3. VOC Limits: As tested using U.S. EPA Reference Test Method 24 and as defined by
 - a. South Coast Air Quality Management District Rules: In areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur.
 - 1). SCAQMD [Rule 1113](#), Architectural Coatings
 - 2). SCAQMD [Rule 1168](#), Adhesive and Sealant Applications
 - b. Bay Area Air Quality Management District Regulation: For containers larger than 16 oz., for areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - 1). BAAQMD [Regulation 8, Rule 51](#)
 - c. California Air Resources Board: For areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - 1). CARB for containers 16 oz. or less.
 - d. Green Seal Standards:
 - 1). [GS-11](#), Low Odor or Low VOC Paint
 - 2). [GC-03](#), Anti-Corrosive Paints, Second Edition, January 7, 1997
4. Composite wood and agrifiber products shall contain no added urea-formaldehyde resins.
5. Certified Wood Materials: According to FSC-STD-40-004 chain-of-custody requirements.

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

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

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

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, Storage and Handling per industry and fabricator guidelines, SECTION 016000, and as follows:

1. Delivery and Acceptance Requirements
 - a. Deliver materials to Project site in an undamaged condition, in original bundles and bearing intact labels.
 - b. Inspect shipped materials on delivery to ensure compliance with requirements of Contract Documents and to ensure that products are undamaged and properly protected.
 - 1). Reject damaged goods, and accept properly ordered, protected and undamaged goods.
 - 2). Immediately report damage to fabricator/manufacturer.
2. Storage and Handling Requirements

- a. Protect wood materials and accessories from soiling, damage, and deterioration during shipping, handling, storage and installation from exposure to harmful conditions including, but not limited to, weather, extreme changes in temperature, excessive dryness or humidity, denting, gouging, warping, peeling, moisture, construction operations, and other damage.
 - 1). Store certified materials separately for auditing.
 - b. Handle with care and to comply with TPI and BCSI recommendations to minimize lateral strain, and avoid damage from excessive bending, overturning, toppling when removing truss banding, or other cause.
3. Packaging Waste Management
- a. Request 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.

1.7 WARRANTY

- A. **Manufacturer Warranty:** Contractor shall provide manufacturer's limited lifetime warranty that Wood I-Beam Joists, Laminated Veneer Lumber, Glue Laminated (Glulam) Beams and engineered Rim Boards are manufactured in complete accordance with industry standards and will, as manufactured, be free from defects in materials and workmanship for the expected life of the structure in which they are installed beginning with Date of Substantial Completion.
- B. **Manufacturer Warranty:** Contractor shall provide Wood Treatment manufacturer's twenty (20) year limited warranty against structural damage due to termites, carpenter ants and fungal decay.

PART 2 - PRODUCTS

2.1 MANUFACTURERS / FABRICATORS

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

- A. Shop-Fabricated Engineered Lumber in VT List:
 1. Allen Lumber, Barre-Montpelier-St. Johnsbury-Waitsfield, VT;
www.allenlumbercompany.com
 2. LTM, Inc., Essex Junction, VT; 802.879.7578
 3. Vermont Timber Works, N. Springfield, VT; www.vermonttimberworks.com
- B. Shop-Fabricated Structural Wood Fabricators in VT List:
 1. Andrew Corp., West Dover, VT; www.andrewcorpvt.com
 2. Berry Hill Timber Frames, Cambridgeport, VT; www.bhtimberframes.com
 3. Green Frame Inc., New Haven, VT; www.greentimberframe.com
 4. Hunger Mountain Timber Frames, Middlesex, VT
 5. Joint Effort Timber Framing, Jeffersonville, VT; 802.644.6644
 6. Liberty Head Post & Beam, Inc., Huntington, VT; www.libertyheadpostandbeam.com
 7. North Woods Joinery, Cambridge, VT; www.nwjoinery.com
 8. Old School Builders, Glover, VT; www.oldschoolbuilders.com
 9. Timber Creek Post and Beam, Inc., Cuttingsville, VT; www.timbercreekinc.com
 10. Treetop Builders, Inc., Underhill Center, VT; www.treetopbuilders.com
 11. Vermont Country Builders, Londonderry, VT; www.vermontcountrybuilders.com
 12. Vermont Frames, Hinesburg, VT; www.vermontframes.com
 13. Vermont Pinnacle Timber, Stowe, VT; www.vtpinnacletimber.com
 14. Vermont Timber Works, N. Springfield, VT; www.vermonttimberworks.com
 15. White River Timber Framing, Inc., Middlebury/New Haven, VT; www.wrtf.com

16. Winterwood Timber Frames, Chelsea, VT; www.winterwoodtimberframes.com

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

C. Shop-Fabricated Structural FSC Wood Fabricators List:

1. Laminated Veneer Lumber (LVL)
 - a. Roseburg Forest Products [RigidLam®](#) LVL
 - b. Standard Structures, Inc., Windsor, CA
2. Rimboard
3. Laminated Structural Lumber
 - a. Standard Structures, Inc., Windsor, CA
4. I-Joists
 - a. Standard Structures, Inc., Windsor, CA
5. Trusses
 - a. Standard Structures, Inc., Windsor, CA (verify FSC)
6. Parallam
 - a. Structurlam Products Ltd., Penticon, BC, Canada / [Parallam® PSL](#)

**NOTE: Delete below if providing SECTION 061800, GLUED-LAMINATED CONSTRUCTION.
Edit to suit project.**

7. Glulam (AITC [list](#) of FSC manufacturers)
 - a. Alamco Wood Products, LLC, Minnesota
 - b. Boise Cascade, Engineered Wood Products, Emmett, ID; www.BoiseBuilding.com
 - c. Boozer Laminated Beam Co., Inc., Alabama
 - d. D. L. Truss, LLC., Pennsylvania
 - e. EnWood Structures, LLC, North Carolina
 - f. Filler King Company, Idaho
 - g. G-L Industries, Inc., Utah
 - h. Laminated Timbers, Inc., Kentucky
 - i. QB Corporation, Idaho
 - j. Rigidply Rafters, Inc., Richland, PA; <http://www.rigidply.com/>
 - k. Sentinel Structures, Inc., Wisconsin
 - l. Structural Wood Systems, Alabama
 - m. Timberweld Manufacturing, Montana
 - n. Unadilla Laminated Products, New York
 - o. Unit Structures, LLC, Arkansas
 - p. Standard Structures, Inc., Windsor, CA
 - q. Structurlam Products Ltd., Penticon, BC, Canada

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

D. Substitution Limitations: Manufacturers of equivalent products beyond those listed above shall be considered when submitted per SECTION 013000 or 013300, and SECTION 016000, using CSI Substitution Request Form 1.5C (During the Bidding Phase) or Form 13.1 (After the Bidding Phase.) [link](#)

E. Product Options

**NOTE: Delete below if providing SECTION 061800, GLUED-LAMINATED CONSTRUCTION.
Edit to suit project.**

1. Glulam beams
 - a. Layup:
 - 1). Balanced
 - 2). Unbalanced
 - b. Tapered

- c. Pitched and tapered curved
- d. Appearance Classification:
 - 1). Framing
 - 2). Framing-L
 - 3). Industrial
 - 4). Industrial-L
 - 5). Architectural
 - 6). Premium
- e. Finish:
 - 1). Stained
 - 2). Painted

2.2 DESCRIPTION

A. Regulatory Requirements

1. CPA [EPP Certified](#) MDF, Particleboard and Hardboard; ≤ 0.20 ppm formaldehyde emissions per ASTM E1333.
2. No Added Urea-Formaldehyde (NAF) MDF, Particleboard and Hardboard.
3. Ultra-Low Emitting (ULEF) MDF, Particleboard and Hardboard.

B. Sustainability Characteristics

1. Finger-jointed lumber provides an efficient use of the timber resource allowing mills to combine shorter pieces of wood into dimensional, structural lumber.
2. I-joists have a very high strength-to-weight ratio and provide structural support for floors and roofs using one half the amount of wood that is required for traditional solid sawn joists.

RED NOTE: MDI (polymeric diphenyl methane di-isocyanate), an EPA toxic material, and the less toxic but more commonly used Phenol-Formaldehyde liquid and powdered resins are used to manufacture OSB, Plywood and other Engineered Wood Products.

3. OSB consists of small wood chips that can be harvested from fast growing trees, as opposed to the larger dimensional timber required for the manufacture of plywood.

GREEN NOTE: Although EPS foam is derived from a limited petroleum resource, it takes only one quart of oil to create forty quarts of expanded foam, which is in effect, mostly air. EPS foam core contains no CFC's, HCFC's, or formaldehyde.

4. Structural panel systems have a core of expanded polystyrene (EPS) and OSB sheathing, these panels are structural, energy efficient and simple to erect.
5. [USGBC](#) LEED® Rating: Comply with project requirements intended to achieve the following Rating, as measured and documented according to the USGBC LEED® Green Building [Rating and Version](#) indicated:

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

NOTE. Select one of the following Ratings:

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

NOTE. Select one of the following Versions:

- e. Version: [LEED 2009-NC](#) v. 3 (New Construction)
- f. Version: [LEED 2009-EB](#) v. 3 (Existing Building)
- g. Version: [LEED 2009-CI](#) v. 3 (Commercial Interiors)

- h. Version: [LEED 2009 for Schools](#)
 - i. Version: [LEED for Retail](#), v. 2 (July 2008) Draft (Commercial Interiors)
 - j. Version: [LEED for Health Care](#)
6. Applicable LEED Credits: Performance requirements of the following LEED Categories and Credits apply to this Section and shall be met:
- a. Materials & Resources (MR) Credits: 4.1, 4.2, 5.1, 5.2, 6, 7
 - b. Indoor Environmental Quality (IEQ) Credits: 4.1, 4.2, 4.4

2.3 PERFORMANCE / DESIGN CRITERIA

A. Performance Capacities

1. Moisture Content

**NOTE: Delete below if providing SECTION 061800, GLUED-LAMINATED CONSTRUCTION.
Edit to suit project.**

- a. Glulam: Maximum 16 percent kiln-dried lumber at time of fabrication
- #### 2. Movement in service requirement

B. Design Criteria

- 1. Shop Fabricated Wood Trusses: Per ANSI / AF&PA NDS
 - a. Design loads. Refer to Drawings.
 - 1). I-joists. Calculate the following:
 - a). Moment values, shear values, and end reactions
 - b). Allowable shear and end reactions. (Indicate if with or without web stiffeners.)
 - c). Maximum end reaction
 - d). Deflection calculations, including both bending and shear deformation.
 - b. Live load and dead load per IBC 2000 edition
 - c. Design and provide uplift anchors at each metal plate connected wood truss and girder truss.
 - d. Lumber Stress Rating: Per ANSI / AF&PA NDS
 - e. Lumber Moisture Content: Minimum 7 percent at time of manufacture.
 - f. Fire Retardant Treatment (if applicable): Per AWPA C20.
- 2. Metal Connector Plates: Minimum 0.036 inch thick (20 gage), ASTM A653/A653M grade 33 steel, with G60 galvanized coating per ASTM A924/A924M.
 - a. Provide for unrestrained wood shrinkage, perpendicular to the grain, when drilling for fasteners, and when connecting, anchoring and bearing.

RED NOTE: Connection failures include not designing for shrinkage, improper beam notching, eccentric loading, and not providing for moisture drainage.

- b. Provide drain holes or slots in box-type connectors and maintain a minimum 1/2 inch (13mm) gap between wood and concrete/masonry materials to prevent moisture build-up.
- c. Minimize exposure of end grain.

NOTE: For architecturally required concealed or semi-concealed connections provide a concealed kerf plate detail.

- d. Whenever possible transfer loads in compression bearing.

**NOTE: Delete below if providing SECTION 061800, GLUED-LAMINATED CONSTRUCTION.
Edit to suit project.**

Select the method used, deleting that not selected.

- 3. Glulams beam design per ASTM D3737, ANSI / AF&PA NDS and/or APA EWS (ANSI/AITC

A190.1-1992), using:

- a. End-use lay-up combination per APA EWS Table 1 or 2
- b. Stress rating per ASTM D3737
- c. Stress class per APA EWS Table 3
- d. Required stress for in-service design loads:
 - 1). F_b (extreme fiber stress in bending) = $\geq 2,400$ psi
 - 2). F_v (horizontal shear) = ≥ 200 psi
 - 3). F_{cperp} (compression perpendicular to grain) = ≥ 650 psi
 - 4). E or MOE (modulus of elasticity) = $\geq 1,800,000$ psi
 - 5). F_t (tension parallel to grain) = $\geq 1,100$ psi
 - 6). F_c (compression parallel to grain) = $\geq 1,350$ psi
- e. Reference design values per ANSI / AF&PA NDS:
 - 1). Bending
 - 2). Axial loading
- f. Inches of camber or radius of curvature per APA Form EWS S550

2.4 OPERATION

- A. Operation Sequences: Select trees and cut logs; ship to sawmill; debark and saw or cut or peel logs into timbers, boards or veneers; ship to kiln operator and kiln dry or stack on-site to air-dry;

2.5 MATERIALS

A. General:

1. Hardwood

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

2. Softwood

- a. Provide solid wood lumber and veneers per performance requirements. Do not provide finger-jointed wood unless clearly indicated in the Contract Documents.

B. Structural and Framing Lumber:

1. S4S surfaced dry lumber per [US DoC PS20](#) and applicable [grading rules](#) of the inspection agency, as certified by ALSC's Board of Review for wood species as included in the Work by:
 - a. NeLMA Grading Rules: Northeastern Lumber Manufacturers Association.
 - b. NHLA Rules: National Hardwood Lumber Association.
2. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
3. For exposed lumber, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by inspection agency.

C. Metal Connector Plates: Metals and thickness as indicated, but not less than thickness indicated below:

1. Hot Dip Galvanized Sheet Steel per ASTM A446: Grade A, G60, 0.036 inch thick.
2. Electrolytic Zinc Coated Steel Sheet per ASTM A591: Coating Class C, with minimum structural quality equivalent to ASTM A446m Grade A, 0.047 inch thick.
3. Aluminum-Zinc Alloy Coated Steel Sheet per ASTM A792; Coating Designation AZ 50, with structural quality equivalent to ASTM A446, Grade A, minimum coated metal thickness of 0.036 inch.

4. Stainless Steel per ASTM A167: Type 304, with minimum structural quality equivalent to ASTM A446, Grade A, 0.035 inch thick.

D. Fasteners and Anchorage: Of size type, material and finish suited to application shown.

E. Fire Retardant Treatment: Refer to SECTION 061003.

2.6 MANUFACTURED UNITS

- A. Engineered Wood Products: Provide products acceptable to AHJ, with allowable design stresses as published by manufacturer that meet or exceed those indicated.

NOTE: Engineered Lumber efficiently utilizes forest resources, however binders and glues containing Formaldehyde can prohibit recycling and contribute to poor indoor air quality.

ASTM D6007 or ASTM E1333 are methods to determine glue-laden product's affect on indoor air quality (Formaldehyde specific).

ASTM D6330 is a test to determine non-formaldehyde VOC inputs.

1. Wood Truss Construction Elements: Per Truss Plate Institute (TPI)
 - a. Trussed Rafters
 - b. Trussed Joists
2. Structural Glued Laminated Timber: Per APA and ICC-ES
 - a. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D5456 and manufactured with an exterior-type adhesive complying with ASTM D2559.
 - b. Parallel-Strand Lumber: Structural composite lumber made from wood strand elements with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D5456 and manufactured with an exterior-type adhesive complying with ASTM D2559.

NOTE: Delete below if providing SECTION 061800, GLUED-LAMINATED CONSTRUCTION.

- c. Glulam: A type of structural timber product composed of several layers of dimensioned lumber glued designed per ANSI / AITC 117 (softwood) or AITC 119 (hardwood).
 3. I-Joists: Prefabricated I-shaped units made with solid or structural composite lumber flanges and wood-based structural panel webs, let into and bonded to flanges.
 - a. Provide units complying with ASTM D5055 for material requirements, established and monitored structural capacities.
 - b. Provide factory marked units complying with APA PRI-400 indicating nominal joist depth, joist class, span ratings, mill identification, and compliance with APA standard.
 4. Rim Boards: Load-bearing product used to brace I-joists at bearing ends complying with APA PRR-401.

2.7 MISCELLANEOUS MATERIALS

- A. Multipurpose Construction Adhesive: Non-HAP formulation complying with ASTM D3498 that is recommended for use by adhesive manufacturer.

NOTE: Select one of the following deleting the other.

1. Use adhesives that comply with LEED Credit EQ 4.1 requirements.
 2. Use adhesives that have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. Glue: Non-HAP aliphatic-resin, polyurethane, or phenol-resorcinol wood glue recommended by manufacturer for general carpentry use.

1. Use glues that comply with LEED Credit EQ 4.1 requirements.

2.8 ASSEMBLY / FABRICATION

- A. Lumber moisture content
 1. Construction grade requires from 12 to 14 percent moisture content.
 2. Furniture grade requires from 6 to 8 percent moisture content.
- B. Ease edges of lumber less than 1 inch (25mm) in nominal thickness to 1/16 inch (1.5mm) radius and edges of lumber 1 inch (25mm) or more in nominal thickness to 1/8 inch (3mm) radius.
- C. Expansion / Contraction Movement: Assemble wood products using details that allow for expansion and contraction due to changes in environmental conditions.
- D. Fabricate and assemble trusses to provide units of configuration indicated with closely fitted joints and connector plates securely fastened to wood members.

2.9 ACCESSORIES

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

- A. Fasteners: Of appropriate type, length and durability for wood product used to securely fasten to the substrate for the intended life and use of the unit.
- B. Framing Anchors:
 1. Manufacturer: Simpson, or an A/E approved equivalent.

PART 3 - EXECUTION

3.1 FIELD CONDITIONS

- A. Do not install rough carpentry materials that are wet, moisture damaged, or mold damaged.
 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, warping, or irregular shape.
 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.
 3. Remove damaged materials and replace with Architect acceptable materials.
- B. Existing Conditions
 1. 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.

3.2 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.

- 1). Test substrates as required by manufacturer to verify proper conditions.
 - a). Moisture content
 - 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. 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. 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.

3.4 ERECTION / INSTALLATION: WOOD TRUSS

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

- A. Installation per TPI, fabricator's written instructions, SECTION 017000 or 017300 or 017316, and the following:
1. Connect wood trusses to wood framing or blocking with hot dipped galvanized framing anchors.
 2. Provide temporary supports and bracing. Provide permanent 2x6 cross bracing.
 3. Suspend conduits, piping & mechanical equipment from 2-2x6's spanning between top or bottom chord truss panel points with joist hangers at each end. Exercise caution so as not to damage or overload trusses.
 4. DO NOT CUT OR REMOVE TRUSS MEMBERS.
 5. Remove metal plate connected wood trusses that are damaged or do not meet requirements and replace with trusses that do meet requirements.

3.5 ERECTION / INSTALLATION: ENGINEERED WOOD

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

- A. Installation per fabricator's written instructions, SECTION 017000 or 017300 or 017316, and the following:
1. General:
 - a. Place rough carpentry to indicated levels and lines, with members plumb, aligned, cut, and fitted.
 - b. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit.
 - c. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - d. Install wood framing per ANSI / AF&PA [NDS-2005](#), unless otherwise noted.
 - e. Install engineered wood products per manufacturer's written instructions.

- f. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated, and as required by AHJ.
 - g. Fasten or anchor materials and units in a concealed manner with fasteners appropriate to use and anticipated durability. Attach rough carpentry work to substrate securely by anchoring and fastening as indicated, complying with ICC Table 2304.9.1, Fastening Schedule, and ICC-ES / [ESR-1539](#), which may supercede the ICC National Evaluation Report [NER-272](#).
 - 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; do not countersink nail heads, unless otherwise indicated.
 - 5). Place fasteners, when exposed, aligned in straight rows parallel with edges of members for exposed work, with fasteners evenly spaced, and with adjacent rows staggered.
2. Special Techniques
- a. Select preservative treated wood members in accordance with appropriate untreated lumber and plywood span tables.
 - 1). Provide ventilation of building cavities as required by code.
 - b. Install preservative treated wood in accordance with requirements of applicable codes and related Division 06 Sections.
 - 1). Avoid milling operations that could adversely affect preservative characteristics of borate preservative treated wood.
 - c. End Cut Treatment: Treat end cuts of borate preservative treated wood members over 2 inches (51mm) in thickness with field-applied end-coat prior to installation for Spruce-Pine-Fir (SPF) and Douglas Fir (DF) only.
 - d. Sill Plate: Where applicable, provide sill plate of preservative treated wood.
 - e. Fasten wood and wood products though sound wood, sorting and selecting to avoid characteristic imperfections like knots and checks.

NOTE: For installation of specific rough carpentry types refer to manufacturer written instructions and ANSI / AF&PA NDS-2005.

3.6 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. Metal Plate Connected Wood Truss Inspection:
 - a. Damaged or cut truss members.
 - b. Loose or missing connector plates.
 - c. Permanent bridging and bracing.
 - d. Bearing conditions and anchors.
- B. Non-Conforming Work per General Conditions and as follows:
1. Remove, Repair and Reinstall or Restore in Place damaged items.
 - a. Finish touch-up damaged surface finishes.
 - b. Apply EPA registered treatment to water-damaged treated lumber.
 2. Replace damaged materials or items with New if repair not acceptable to Architect.

3.7 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. Reuse and Recycling:
 - a. Store and return pallets, containers and packaging to manufacturer or recycler for reuse or recycling.
 - b. Store scrap materials to be returned to manufacturer for recycling into new product. Coordinate take-back program with manufacturer, if applicable.

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

- B. Provide Progress Cleaning per SECTION 017000 or 017400 or 017413.
- C. Provide Final Cleaning immediately prior to Substantial Completion inspection per SECTION 017000 or 017400 or 017423.

3.8 CLOSEOUT ACTIVITIES

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

3.9 PROTECTION

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

END OF SECTION

NOTE: Please [contact us](#) with comments, additions and deletions about this GuideSpec so we can make it better.

VERMONT SUSTAINABLE JOBS FUND

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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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