

SECTION 061703

CERTIFIED SHOP FABRICATED STRUCTURAL WOOD

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

EDIT TO SUIT PROJECT

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section includes but is not limited to the following Certified Wood products:

NOTE: Edit items below to suit project and delete items not chosen.

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.

1.2 SUBMITTALS

- A. Product Data: 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: 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:

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: Test and Evaluation Reports for wood treatments; and Qualification Statements.

NOTE: Edit LEED Requirements below to suit project.

E. Sustainable Design (USGBC [LEED®](#)) Submittals:

1. LEED Credit MR, Materials & Resources. Submit completed LEED 2009-NC v.3 Submittal Templates, product data, and other required paperwork as follows:
 - a. MR 4.1, 10% Recycled Content
 - b. MR 4.2, 20% Recycled Content
 - c. MR 5.1, 10% Regional Materials
 - d. MR 5.2, 20% Regional Materials
 - e. MR 6, Rapidly Renewable Materials
 - f. MR 7, FSC Certified Wood: Submit chain-of-custody certificates
2. LEED Credit IEQ, Indoor Environmental Quality. Submit completed LEED 2009-NC v.3 Submittal Templates, and required paperwork as follows:
 - a. IEQ 4.1, Low Emitting Materials, Adhesives & Sealants: Submit VOC Data
 - b. IEQ 4.2: Low Emitting Materials, Paints & Coatings, VOC Data
 - c. IEQ 4.4: Low Emitting Materials, Indoor Composite Wood & Agrifiber, No Added Urea-Formaldehyde Content

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

F. Closeout Submittals: Operation and Maintenance Data, and Record Documents.

NOTE: Edit LEED Requirements below to suit project.

1. Sustainable Design Closeout Documentation: Submit completed USGBC LEED® [Worksheet Templates](#) for the following credits:
 - a. MR 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

1.3 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Engineered Wood: APA trademark displayed

- a. Rim Boards: 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. Fire Retardant Treatment:
 - 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 per Truss Plate Institute (TPI) standards.

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/Fabricator/Supplier shall be capable of providing Third Party Certification that wood materials were legally harvested 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. 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.
4. 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:

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

1. Adhesive and Sealant VOC Limits: According to South Coast Air Quality Management District [Rule 1168](#) and [GS-36](#) for aerosols.
2. 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
 - 3. Composite wood and agrifiber products shall contain no added urea-formaldehyde resins.
 - 4. Certified Wood Materials: According to [FSC-STD-40-004 CoC](#) requirements.
- E. Prototypes: Provide materials or assemblies of each unit type for review and approval prior to benchmarking, manufacturing or fabrication production.
- 1.4 DELIVERY, STORAGE, AND HANDLING
- A. Delivery, Storage and Handling per TPI, Building Component Safety Information (BCSI), and manufacturer's written recommendations, and DIVISION 01 requirements.
- 1.5 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

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

E. Product Options

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

1. Glulam beams
 - a. Layup: Balanced or unbalanced
 - b. Tapered
 - c. Pitched and tapered curved
 - d. Appearance Classification
 - e. Finish: Stained or 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. [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: NOTE: Each LEED Version requires a different credit total to achieve the desired LEED Rating.

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

- a. Rating: Certified, Silver, Gold, or Platinum
- b. Version: [LEED 2009-NC](#) v. 3 (New Construction)
2. Applicable LEED Credits: Performance requirements of the following LEED Categories and Credits apply to this Section and shall be met:
 - a. MR: 4.1, 4.2, 5.1, 5.2, 6, 7
 - b. IEQ: 4.1, 4.2, 4.4

2.3 MATERIALS

A. Hardwood or Softwood, as indicated: 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](#) per NeLMA or NHLA.
2. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
 - a. 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. Fasteners and Anchorage: Of size type, material and finish suited to application shown.

1. 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.
2. Metal Connector Plates: Steel type and thickness as indicated.
3. Framing Anchors Manufacturer: Simpson, or an A/E approved equivalent.

- D. Fire Retardant Treatment: Refer to SECTION 061003.
- E. Multipurpose Construction Adhesive: Non-HAP formulation complying with ASTM D3498 that is recommended for indicated use by adhesive manufacturer.
- F. Glue: Non-HAP aliphatic-resin, polyurethane, or phenol-resorcinol wood glue recommended by manufacturer for general carpentry use.

2.4 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 - Rafters & Joists: Per Truss Plate Institute (TPI)
- 2. Structural Glued Laminated Timber: Per APA and ICC-ES
 - a. Laminated-Veneer Lumber: Per ASTM D5456 using exterior-type adhesive per ASTM D2559.
 - b. Parallel-Strand Lumber: Per ASTM D5456 using exterior-type adhesive per ASTM D2559.

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

- c. Glulam: Per ANSI / AITC 117 (softwood) or AITC 119 (hardwood).
- 3. I-Joists: Per ASTM D5055 and APA PRI-400
- 4. Rim Boards: Per APA PRR-401

PART 3 - EXECUTION

3.1 EXAMINATION, PREPARATION AND INSTALLATION

- A. Examination, preparation and installation per industry standards, fabricator's or manufacturer's written instructions, and DIVISION 01 requirements.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected and installation area properly prepared.
 - 2. Layout installation by marking extents of each item, and anchoring / fastening locations coordinated with blocking or other structural support.
 - 3. Product Preparation: Handle products in accordance with manufacturer's instructions and warranty requirement.
 - 4. WOOD TRUSSES: Per TPI, and fabricator's written instructions.
 - a. Connect wood trusses to wood framing or blocking with framing anchors.
 - b. Provide temporary supports and bracing. Provide permanent cross bracing.
 - c. Suspend conduits, piping & mechanical equipment from framing 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.
 - d. DO NOT CUT OR REMOVE TRUSS MEMBERS.
 - e. Remove metal plate connected wood trusses that are damaged or do not meet requirements and replace with trusses that do meet requirements.
 - 5. ENGINEERED WOOD: Per ANSI / AF&PA [NDS-2005](#), and manufacturer's written instructions.

- a. Place rough carpentry to indicated levels and lines, with members plumb, aligned, cut, and fitted.
- b. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

3.2 FIELD QUALITY CONTROL

- A. Field Inspections: Each connection, bracing, and bearing condition.

3.3 CLEANING, MAINTENANCE AND PROTECTION

- A. Provide Progress Cleaning, Waste Management, and Provide Final Cleaning per DIVISION 01 requirements.
- B. Provide Initial Maintenance per manufacturer's recommendations.

3.4 CLOSEOUT ACTIVITIES

- A. Substantial Completion Requirements per DIVISION 01 requirements.

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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