

SECTION 06 15 43
CROSS LAMINATED TIMBER PANELS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to work of this section.

1.02 SUMMARY

- A. This Section includes Cross Laminated Timber (CLT) Roof and Floor Panels as shown on the drawings.
- B. Related Sections:
 - 1. Division 06 Section "Glued Laminated Construction", "Rough Carpentry", "Exterior Rough Carpentry".

1.03 REFERENCES

- A. ANSI D3737-07 Structural Glued Laminated Timber.
- B. AITC 405 and ASTM D2559-00 Standards for Wood Adhesives.
- C. ANSI A190.1-2002 Structural Glued-laminated.
- D. APA Standard for Performance Related CLT- ANSI/APA PRG 320/2012.

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include panel location plans, dimensions, shapes and sections, openings, support conditions, connections.
 - 1. Indicate lifting connections.
 - 2. Indicate locations, tolerances, and details of anchorage to supporting structure.
 - 3. Include and locate openings larger than 10 inches.
 - 4. Indicate location of CLT panel by same identification mark placed on panel.
 - 5. Indicate relationship of CLT panels to adjacent materials.
 - 6. Clearly indicate stress grade, service grade, appearance grade.
 - 7. Provide three dimensional models of all interfaces, CLT panels, secondary timber members, plus all connections.
- C. CLT supplier to provide a fully accurate three-dimensional (3D) model of the interfaces (supports, abutments, etc.), CLT panels, secondary timber members, plus all connections prior to submission of shop drawings. Model to be generated using CADWorkv22, or approved alternate (compatible with AutoCAD 2011). 3D model to use as-built foundation X, Y, Z coordinates for CLT panel bases.
- D. Structural design calculations: When required by contract drawings provide CLT structural design calculations, by a registered Professional Engineer.
- E. Samples:
 - 1. Submit 1 sample of CLT panel; approximately 12 by 12 by 3.9 inches for field applied coatings by others.
- F. APA Product Report and Certified ANSI PRG 320 certificate.
- G. Local/Regional Materials: Indicate location of manufacturing facility including name, address

and distance between manufacturing facility and the product site.

- H. VOC Content: Product data and material safety data sheets (MSDS) for the CLT adhesive used on the interior of the building indicating chemical composition and VOC content.

1.05 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 - 1. Certified by APA The Engineered Wood Association for compliance with ANSI/APA PRG 320/2011 and passed all of its testing standards.
- B. Design Standards: Comply with the National Design Specification for Wood Construction NDS 2005 applicable to types of CLT panels indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Support units during shipment on non-staining material in same position as during storage.
- B. Store units with adequate bracing and protect units to prevent contact with soil and separated with striping (so air may circulate around all faces of members), to prevent staining, and to prevent cracking, distortion, warping or other physical damage.
 - 1. Place stored units so identification marks are clearly visible.
- C. Handle and transport units in a position consistent with their shape and design in order to avoid excessive stresses that would cause cracking or damage. Protect corners with wood blocking.
- D. Lift and support units only at designated points shown on Shop Drawings.
- E. Slit underside of membrane covering during storage at Site. Do not deface members.
- F. Cover top and sides with opaque moisture resistant membrane.
- G. Maintain protection of CLT panel at all times during construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products as indicated on drawings by the following manufacturer;
 - 1. Structurlam Products Ltd, 2176 Government Street, Penticton, B.C., Canada V2A 8B5
Kris Spickler, 916-797-5588, kspickler@structurlam.com

2.02 MATERIALS

- A. Wood Species –No.1/No.2 Spruce-Pine-Fir for Cross Laminated Timber (CLT) panels.
- B. Adhesives in compliance with ANSI A190.1, DIN 68141 and EN301 and EN302.
 - 1. Acceptable Product: Purbond HB E452

2.03 ACCESSORIES

- A. Steel Connectors: Galvanized Steel.
- B. Wrapping Material: Weatherproof, lightproof, stain free material. Cut holes on site and underside of wrapping to avoid accumulation of condensation.

2.04 FABRICATION

- A. Fabricate Cross Laminated Timber (CLT) members in accordance with ANSI/APA PRG 320/2011 except where specified otherwise and to following classifications. Use multiple layers

of 19mm minimum to 38mm maximum thick laminations.

- B. Service grade: interior or exterior as located on drawings.
- C. Appearance Classification:
 - 1. Non-Visual (where panels are concealed):
 - a. Shake and checks allowed, shall not exceed 36" or ¼ of the length.
 - b. Heart or blue stain allowed, not limited.
 - c. Knots well-spaced, quantity not limited.
 - d. Minimal wane on face.
 - e. Side pressure on exposed face not required.
 - 2. Visual (where panels are in view in final construction):
 - a. Utilize SPF, J Grade lumber or DF L3 Grade lumber
 - b. Knots: NLGA Select Structural limitation. Select tight knot.
 - c. Pitch streaks not permitted.
 - d. Wane on face not permitted.
 - e. Side pressure on exposed faces required.
- D. Cross Laminated Timber (CLT) members to be fabricated with ¼" chamfers on long sides.
- E. Cross Laminated Timber (CLT) members to be joined at panel edges using a continuous spline as indicated on drawings.
- F. Mark members for identification during erection. Ensure that marks will be concealed in final assembly for appearance grade members. Clearly mark top surface.
- G. Coat all cuts, holes and slots.
- H. Field apply sealer to all sides of laminated members. Double coat ends of laminated members.
- I. All structural steel connecting CLT panel elements to each other and shall be detailed, and if supplied, test fitted in the shop by the CLT supplier.

PART 3 EXECUTION

3.01 EXAMINATION:

- A. Prior to fabrication, check all dimensions relating to this section of work. Report any discrepancies to Engineer.
- B. Prior to site erection, examine all site conditions and ensure an acceptable condition.

3.02 INSTALLATION

- A. Erect CLT panels in accordance with final reviewed shop drawings.
- B. Make adequate provision for possible erection stresses. Set panel level and plumb to correct positions. Securely brace panels and anchor in place to maintain plumb until permanently secured by finished structure.
- C. Fit CLT panels closely and accurately, without trimming, cutting or other modifications, unless approved in writing by Engineer.
- D. Site cutting or boring of CLT panels, other than shown on shop drawings not permitted without written consent of Engineer.

3.03 CLEANING

- A. Clean exposed surfaces of CLT panels after erection and completion of field touch up.
 - 1. Perform cleaning procedures, if necessary, according to CLT manufacturer's written recommendations, Protect other work from staining or damage due to cleaning operations.
 - 2. Do not use cleaning materials or processes that could change the appearance of exposed CLT panels or damage adjacent materials.

Part 4 ALTERNATES AND/OR EQUALS

4.01 Base Bid

Due to the customized detailing and engineering characteristics of the wall and/or roof and/or floor framing assembly, it is a requirement that CrossLam by Structurlam Products Ltd. be used in the base bid.

4.02 Alternate Manufacturers

Other manufacturers' bids are to be listed in the alternate section of your proposal. All framing plans, detailing and calculations for the alternate bids will be reviewed by the owner, architect and engineer for structural performance, possible conflicts with related trades, and compatibility with the overall building requirements and building code.

4.03 Alternate Products

Alternate products will only be permitted if written approval and acceptance is obtained by both architect and owner at least 7 days prior to the bid date.

4.04 Acceptable Alternates

At the discretion of the specifier of record, accepted alternates, meeting ANSI PRG 320, will be listed on the final addendum prior to the bid date.

END OF SECTION