

1. General

1.1 **SCOPE**

- .1 Work of this Section shall conform to requirements of Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections.

1.2 **RELATED REQUIREMENTS**

- .1 Section 061500 – Wood Decking
- .2 Section 061800 – Glued Laminated Construction

1.3 **REFERENCES**

- .1 All referenced standards shall be the current edition or the edition referenced by the applicable Building Code in force at the time of building permit application, as noted on Structural Drawings.
- .2 Canadian General Standards Board (CGSB):
 - .1 CAN/CGSB 51.34 M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction
 - .2 CAN/CGSB-51-GP-51M, Polyethylene Sheet for Use in Building Construction
 - .3 CAN/CGSB-71.26-M88, Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems
- .3 Canadian Standards Association (CSA):
 - .1 CSA B111 74(R2003), Wire Nails, Spikes and Staples
 - .2 CSA G164 M92(R2003), Hot Dip Galvanized of Irregularly Shaped Articles
 - .3 CSA O80 Series-08, Wood Preservation
 - .4 CSA O112 Series-M1977 (R2006), Adhesives for Wood
 - .5 CSA O121 08, Douglas Fir Plywood
 - .6 CAN/CSA O141-05(R2009), Softwood Lumber
 - .7 CSA O151-09, Canadian Softwood Plywood
 - .8 CSA O153–M1980(R2008), Poplar Plywood
 - .9 CSA O325.0-92 (R2003), Construction Sheathing
 - .10 CSA O437 Series – 93(R2006), Standards on OSB and Waferboard
 - .11 CSA O452 Series – 94(R2001), Design Rated OSB
- .4 Canadian General Standards Board (CGSB):
 - .1 NLGA-07, Standard Grading Rules for Canadian Lumber.

1.4 **SUBMITTALS**

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit manufacturer's printed product literature, specifications and

datasheet.

1.5 **QUALITY ASSURANCE**

- .1 Regulatory Agency Approvals:
 - .1 Lumber shall be graded and stamped by an agency certified by Canadian Lumber Standards Administrative Board.
 - .2 Plywood shall be graded and stamped in accordance with applicable CSA standards.
 - .3 Panel products shall be marked with a recognized, visible grade stamp

1.6 **DELIVERY, STORAGE AND HANDLING**

- .1 Delivery and Acceptance Requirements:
 - .1 Protect materials from weather in transit and on job site.
- .2 Storage and Handling Requirements:
 - .1 Store materials a minimum of 150 mm off the ground on raised supports. Cover materials with waterproof covering. Provide adequate air circulation and ventilation under covering.
 - .2 Do not store seasoned materials in wet or damp areas.
 - .3 Protect edges and corners of sheet materials from damage during handling and storage.
- .3 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 – Waste Management and Disposal.

1.7 **CERTIFICATES**

- .1 For products treated with preservative or fire-retardant by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
- .2 Information listed in AWPA M2 applicable to specified treatment.
- .3 Moisture content after drying following treatment with water-borne preservative or fire retardant.
- .4 Indicate acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.

2. Products

2.1 **DESCRIPTION**

- .1 Sustainability Characteristics:
 - .1 Provide materials that have been extracted, harvested, recovered and processed within minimum distances required to the final point of manufacture. Provide materials from a manufacturing facility within minimum distance required from Project site and delivered to Project site by acceptable transportation method.

2.2 LUMBER

- .1 Grades: Use CLS grade-marked lumber conforming to the Standard Grading Rules for Canadian Lumber published by the National Lumber Grades Authority.
- .2 Lumber: to CAN/CSA 0141, softwood, S-P-F, S4S, surface-dry, graded and stamped in accordance with current National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber.
 - .1 Moisture Content: maximum 19% at time of installation.
 - .2 Finger jointed lumber is not acceptable.
 - .3 Co-ordinate with Section 01 35 18 - LEED Requirements.
- .3 Furring, Blocking, Nailing Strips, Grounds, Rough Bucks, Cants, Curbs Fascia Backing and Sleepers: S4S, "Standard" or better grade for board, post and timber sizes, "Standard" light framing or better for dimension sizes.

2.3 ENGINEERED WOOD PRODUCTS

- .1 Provide engineering wood products with the structural capacity that meets or exceeds the requirements shown on drawings and as set forth in the Ontario Building Code. Manufacturers published values shall be determined by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- .2 Laminated Veneer Lumber: A composite of wood veneers with the grain primarily parallel to the member length, manufactured with an exterior type adhesive complying with ASTM D2559. The product shall have allowable design values determined in accordance with ASTM D5456.
- .3 Parallel Strand Lumber: A composite of wood strand elements with the grain primarily parallel to the member length, manufactured with an exterior type adhesive complying with ASTM D2559. The product shall have allowable design values determined in accordance with ASTM D5456.

2.4 PANEL PRODUCTS

- .1 Provide panel products manufactured with phenol-formaldehyde or formaldehyde-free adhesives.
- .2 Canadian Softwood Plywood: to CSA O325, 10 mm thick S1S, with no knot fillers detrimental to areas to receive finish, thickness as indicated on Drawings.
- .3 Douglas Fir Plywood: to CSA 0121, thickness as indicated on Drawings.
- .4 Poplar Plywood: to CSA 0153, standard construction, thickness as indicated on Drawings.
- .5 Oriented Strand Board (OSB): OSB panels to CSA O437, Grade O-2, thickness as indicated on drawings. Grade stamp shall indicate span rating. Grade O-2 material may be used thickness for thickness on the same spans as plywood.
- .6 Underlayment: Douglas Fir plywood, exterior, sanded grade, G1S, wood inlay patches only, plugged crossbands, thickness as indicated on Drawings.

2.5 FASTENING DEVICES AND HARDWARE

- .1 Nails and Spikes: to CSA B111:
 - .1 Use common spiral nails and spiral spikes except where indicated otherwise.
 - .2 Use hot dip galvanized finished steel for exposed exterior work, highly humid interior areas and for pressure - preservative and fire-retardant treated lumber.
- .2 Underlayment Fasteners: to CSA B111:
 - .1 Nails: galvanized, annular ringed, length to provide minimum 85% penetration into subfloor, but not enough to anchor underlayment to joists.
 - .2 Staples: chisel point, non-divergent, double-coated, length ensuring minimum 85% penetration into subfloor but not penetration through.
- .3 Bolt, nut, washer, screw and pin type fasteners: hot dip galvanized finish to CSA G164.
- .4 Metal Framing Anchors”
 - .1 General: Provide products with allowable structural capacity to support the loads from members as shown on the drawings. Manufacturers published values shall be determined from empirical data and rational engineering analysis, and shall be supported by comprehensive testing performed by a qualified testing company.
 - .2 Galvanized Steel: Hot-dip, zinc coated steel sheet complying with ASTM A653/A653M, G60 (Z180) coating designation. Minimum thickness 1.3 mm.
 - .3 Joist Hangers: U-shaped joist hangers with 50 mm long seat and 32 mm wide nailing flanges at least 85% of joist depth.
 - .4 Top Flange Hangers: U-shaped joist hangers, full depth of joist, formed from 50 mm wide metal strap with tabs bent to extend over and be fastened to support member.
 - .5 Joist Ties: 32 mm wide flat straps with holes for fasteners for tying joists together over supports, 400 mm long.
 - .6 Rafter Tie-Downs: 38 mm wide bent strap tie for fastening rafters or roof trusses to wall studs below. Tie fastens to side of rafter or truss, face of top plates and side of stud below.
 - .7 Floor to Floor Ties: Flat straps with holes for fasteners for tying upper floor wall studs to band joists and lower floor studs, 32 mm wide by 900 mm long.
 - .8 Hold-Downs: Brackets for bolting to wall studs and securing to foundation walls with anchor bolts or to other hold-downs with threaded rods, and designed with the first two bolts placed seven bolt diameters from the reinforced base.

2.6 PRESSURE PRESERVATIVE TREATED WOOD

- .1 Pressure Preservative Treated lumber:
 - .1 Lumber graded and stamped in accordance with applicable grading rules and standards of associations or agencies approved to grade lumber by Canadian Lumber Standards Accreditation Board in accordance with CAN/CSA O80.20M.
 - .2 Species: Pine or Spruce-Pine
 - .3 Grade: No.2 or better structural posts and lumber, pieces may be grade stamped or shipment certified by letter of compliance.

- .4 Grading authority: NLGA, paragraph 131CC
 - .5 Material having twisted grain or structural defects affecting integrity of lumber will not be acceptable for this project.
 - .7 Use only material with radius edges, minimum 6 mm.
 - .8 Kiln dry lumber materials to 8% moisture content or less.
 - .2 Pressure Preservative Treated Plywood: Treated in accordance with CAN/CSA O80.9M using water-borne preservative to obtain minimum net retention of 4 kg/m³ of wood. Plywood or laminated materials shall be manufactured with exterior grade adhesives. After treatment, plywood shall be kiln dried to moisture content of 8% or less.
 - .3 Water-borne preservative treated wood shall have maximum moisture content of 19% after treatment.
 - .4 Fire-Retardant: to CSA O80.20
 - .5 Provide coatings that do not contain chemical listed in GS-II.
3. Execution
- 3.1 **ROUGH CARPENTRY WORK**
- .1 Accurately frame and properly assemble rough carpentry work. Include necessary nails or other connectors.
- 3.2 **APPLICATION OF SURFACE APPLIED WOOD PRESERVATIVE**
- .1 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of surface applied wood preservative before installation.
- 3.3 **ERECTION OF FRAMING MEMBERS**
- .1 Install members true to line, levels and elevations. Space uniformly.
 - .2 Construct continuous members from pieces of longest practicable length.
 - .3 Install spanning members with "crown-edge" up.
 - .4 Install blocking to facilitate installation of finishing materials, fixtures, specialty items and trim.
 - .5 Install Engineered wood products to comply with manufacturers written instructions, drawings and details.
- 3.4 **WOOD FURRING AND BLOCKING**
- .1 Install wood plates where indicated. Erect plumb and true. Rigidly support and securely anchor to masonry, concrete, and metal stud framing..
 - .2 Provide and install wood strapping or furring indicated on drawings.
 - .3 Strapping: Shimmed out plumb, square and true to line. Use 19 mm x 64 mm at 406 mm o.c. , unless indicated otherwise.
 - .4 Furring: As indicated.
 - .5 Install at least one row of solid blocking to wood stud walls not more than 2440 mm

- high, two rows if over 2440 mm high.
- .6 Install blocking behind all sheathing and wallboard joints, and where required for items to be fixed to walls.

3.5 ROOF AND WALL SHEATHING

- .1 Install roof and wall sheathing in accordance with requirements of the Alberta Building Code except as follows:
- .1 Install roof and wall sheathing with panel end joints located on solid bearing, staggered at least 800 mm.
 - .2 Fasten roof and wall sheathing panels using common spiral or annular grooved nails spaced 150 mm o.c. along edges and 300 mm o.c. along intermediate supports. Use of staples is not acceptable.

3.6 PANEL TYPE SUBFLOORING

- .1 Install subflooring with panel end joints located on solid bearing, staggered at least 800 mm.
- .2 Apply subflooring adhesive on wood framing to support panel-type subflooring. Place continuous single-bead on each framing member and double-bead on framing members supporting panel joints. Comply with adhesive manufacturer's installation instructions.
- .3 Fasten subfloor panels using common spiral or annular-grooved nails spaced 150mm o.c. along edges and 300mm o.c. along intermediate supports. Use of staples is not acceptable.

3.7 PANEL TYPE UNDERLAYMENT

- .1 Install only when environmental conditions in installation area conform to requirements for flooring installation. Install to manufacturer's printed recommendations.
- .2 Acclimatize wood underlayment in installation area for at least 24 hours before installation. Store on edge, spaced to permit air movement between faces. Test moisture content of underlayment and subfloor to ensure they are within acceptable range recommended by underlayment manufacturer.
- .3 Install underlayment panels over subflooring with grade stamp down.
- .4 Install with face grain at right angles to subfloor panels. Stagger underlayment panel joints. Offset underlayment and subfloor joints minimum 150mm.
- .5 Lightly abut panels to eliminate joint gaps. Sand panel joints level until joints cannot be felt by hand.
- .6 Leave 3 to 6 mm gap between underlayment and abutting vertical surfaces such as columns and perimeter walls.
- .7 Fully fasten one panel at a time.
- .8 Nail or staple panels every 50 mm along edges, minimum 6 mm and maximum 10 mm from edges, and every 100 mm over remainder of panels. Do not use screws. Do not fasten underlayment to joists.

- .9 When stapling, ensure panels at staple gun are in firm contact with subfloor and that staples are installed parallel to panel face grain.

3.8 TELEPHONE AND ELECTRICAL EQUIPMENT BACKBOARDS

- .1 Provide backboards for mounting telephone and electrical equipment as indicated. Use 19 mm thick Canadian Softwood Plywood/S1S or Douglas Fir Plywood/G1S on 19 x 38 mm furring around perimeter and at maximum 300 mm intermediate spacing.
- .2 Prior to installing back boards ensure that backboards are back primed as specified in Section 09 91 05.

3.9 CARPENTRY IN CONNECTION WITH ROOFING

- .1 Construct wood curbs for roof mounted equipment, anchors and for roof penetrations, except drains.
- .2 Mechanically fasten plywood facing to parapets, and walls at roof-wall/parapet junctions.
- .3 Screw top 38 x 89 mm plates of building control joint box to plywood sides. For roofing control joint box use nails. Leave 25 mm gap between top plate ends every 2.4 m.
- .4 Support edges of plywood backslope sheets. Bevel edge of sheets that meet structural deck.
- .5 Attach curbs, control joint boxes, blocking and framing directly to structure.

3.10 MISCELLANEOUS

- .1 Install wood stud framing for temporary weather closure and cladding. Construct to resist wind pressures.
- .2 Install bracing to masonry walls and piers during construction until structure provides sufficient lateral support.
- .3 Install support for masonry lintels.
- .4 Install plywood shims at window openings.

END OF SECTION