

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1    The list of works listed in this section is indicative and non-limitative. It does not exclude works described in other sections of the specifications, shown on drawings or necessary for a complete execution of the works in the spirit of the plans.
- .2    Section 02 41 16            Demolition of structure
- .3    Section 04 05 00            Masonry – common works results
- .4    Section 05 50 00            Metal Works
- .5    Section 06 17 53            Shop fabricated wood trusses
- .6    Section 06 18 00            Glued laminated construction
- .7    Section 06 20 00            Finish carpentry
- .8    Section 07 21 13            Board insulation
- .9    Section 07 21 16            Blanket insulation
- .10   Section 07 21 23            Loose fill insulation
- .11   Section 07 21 29.02          Sprayed insulation- mineral fibre
- .12   Section 07 21 29.03          Sprayed insulation –polyurethane foam
- .13   Section 07 26 00            Vapour retarders
- .14   Section 07 61 00            Sheet metal roofing
- .15   Section 07 62 00            Sheet metal flashing and trim
- .16   Section 07 52 00            Modified bituminous membrane roofing
- .17   Section 07 92 00            Joint sealant
- .18   Section 08 03 14            Historic works – Wood door repairs
- .19   Section 08 52 05            Wood sash windows
- .20   Section 08 11 00            Metal doors and frames
- .21   Section 08 11 16            Aluminum doors and frames.
- .22   Section 08 44 13            Glazed curtain walls and aluminium framing
- .23   Section 08 50 00            Windows

**1.2            REFERENCES**

- .1    American National Standards Institute/National Particleboard Association (ANSI/NPA)
  - .1    ANSI/NPA A208.1-2009, Particleboard.
- .2    ASTM International
  - .1    ASTM A123/A123M-09, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

- .2 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvaneal) by the Hot-Dip Process.
- .3 ASTM C578-11a, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- .4 ASTM C1289-11, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- .5 ASTM D1761-06, Standard Test Methods for Mechanical Fasteners in Wood.
- .6 ASTM D5055-11, Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.
- .7 ASTM D5456-11, Standard Specification for Evaluation of Structural Composite Lumber Products.
- .3 AWWA American Wood Protection Association – Standard, C-20/C-27, UC1 T1 for grade A use.
- .4 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-11.3-M87, Hardboard.
  - .2 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
  - .3 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction and amendment.
  - .4 CAN/CGSB-71.26-M88, Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.
- .5 CSA International
  - .1 CAN/CSA-A123.2-03(R2008), Asphalt Coated Roofing Sheets.
  - .2 CAN/CSA-A247-M86(R1996), Insulating Fiberboard.
  - .3 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
  - .4 CSA O112.9-10, Evaluation of Adhesives for Structural Wood Products (Exterior Exposure).
  - .5 CSA O121-08, Douglas Fir Plywood.
  - .6 CAN/CSA O122-06(R2011), Structural Glued-Laminated Timber.
  - .7 CSA O141-05(R2009), Softwood Lumber.
  - .8 CSA O151-09, Canadian Softwood Plywood.
  - .9 CSA O153-M1980(R2008), Poplar Plywood.
  - .10 CSA O325-07, Construction Sheathing.
  - .11 CSA O437 Series-93(R2011), Standards on OSB and Waferboard.
  - .12 CAN/CSA-Z809-08, Sustainable Forest Management.
- .6 Forest Stewardship Council (FSC)
  - .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.
- .7 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber 2010.
- .8 Sustainable Forestry Initiative (SFI)

- .1 SFI-2010-2014 Standard.
- .9 The Truss Plate Institute of Canada
  - .1 Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses 2007.
- .10 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S706-09, Standard for Wood Fibre Insulating Boards for Buildings.

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for wood products and accessories. Data sheets must include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by competent professional engineer registered or licensed in Province of Québec, Canada.
- .4 Sustainable Design Submittals:
  - .1 Regional Materials: submit evidence that project incorporates required percentage 20% of regional materials and products, showing their cost, distance from project to furthest site of extraction or manufacture, and total cost of materials for project.
  - .2 Wood Certification: submit manufacturer's Chain-of-Custody Certificate number for CAN/CSA-Z809.
  - .3 Low-Emitting Materials:
    - .1 Submit listing of adhesives and sealants as well as paints and coatings used in building, showing compliance with VOC and chemical component limits or restriction requirements.

### **1.4 QUALITY ASSURANCE**

- .1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.
- .3 Sustainable Standards Certification:
  - .1 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.

## **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect wood from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, packaging materials as specified in Construction Waste Management Plan and Waste Reduction Work plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## **1.6 WORKS TO EXECUTE**

- .1 Put in place all rough carpentry elements which complete the works of structural carpentry and allow completing of all finishing works.
- .2 The rough carpentry must allow to complete the works: of floor structure, of wall structure, of partition structure, of roof structure, of gable window framing, of perimeter of openings framing, of support panels, of insertion pieces in masonry works, of parapet structure, of frame for mechanical casing on roof and other similar works.

## **1.7 ACCEPTABLE PRODUCTS AND MATERIALS**

- .1 Where a particular brand name is stipulated, see Instructions to Bidders for procedure for requesting approval of substitute materials and products

## **Part 2 Products**

### **2.1 FRAMING STRUCTURAL AND PANEL MATERIALS**

- .1 Description:
  - .1 Lumber: softwood, S4S, (surfaced on 4 sides) moisture content 19% (S-dry) or less in accordance with following standards:
    - .1 CSA O141.
    - .2 NLGA Standard Grading Rules for Canadian Lumber.
  - .2 Fireproof Lumber (UL) : softwood, S4S, (surfaced on 4 sides) moisture content 19% (S-dry) or less in accordance with following standards:
    - .1 Conforming to standard AWWA C-20/C-27, UC1 T1 for Class A use according to ASTM D-3201.
- .2 Glued end-jointed (finger-jointed) lumber NLGA "Special Products Standard" SPS.

- .3 Light-frame trusses in accordance with "Truss Design and Procedures for Light Metal Connected Wood Trusses", The Truss Plate Institute of Canada.
- .4 Structural Composite Lumber (SCL) in accordance with ASTM D5456.
- .5 Framing and board lumber: in accordance with NBC.
- .6 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
  - .1 S2S are not acceptable.
  - .2 Board sizes: "Standard" or better grade.
  - .3 Dimension sizes: "Standard" light framing or better grade.
  - .4 Post and timbers sizes: "Standard" or better grade.
- .7 Plywood, OSB and wood based composite panels: to CSA O325.
- .8 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .9 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .10 Poplar plywood (PP): to CSA O153, standard construction.
- .11 Interior mat-formed wood particleboard: to ANSI/NPA 208.1.
- .12 Mat-formed structural panel boards (OSB wafer): to CAN O437.
- .13 Douglas fir plywood « FIREPROOF : flame spread index determined by UL regarding surfaces, of 25 or less for flame spread and smoke development, in a test of 30 minutes. Must be labelled or sealed by UL attesting that the product has been classified for its resistance to flame and it's conformity with standards AWPA C20/C27, UC1, T1, UCFA (For class A use).
- .14 Insulating fiberboard sheathing: to CAN/CSA-A247 and CAN/ULC-S706.
- .15 Glass fibre board sheathing: non-structural, rigid, faced, fibreglass, insulating exterior sheathing board.
- .16 Isocyanurate sheathing: to ASTM C1289, faced.
  - .1 Conforming to section 07 21 13 – Board insulation
- .17 Expanded polystyrene sheathing: to ASTM C578.
  - .1 Conforming to section 07 21 13 – Board insulation
- .18 Gypsum sheathing: to ASTM C1396/C1396M.
  - .1 Conforming to section 09 21 16 – Gypsum board assemblies.

## 2.2 ACCESSORIES

- .1 Exterior wall sheathing paper: to CAN/CGSB-51.32 spunbonded olefin reinforced.
- .2 Polyethylene film: to CAN/CGSB-51.34, Type 1, and 0.15 mm thick.
- .3 Roll roofing: to CAN/CSA A123.2, Type S.
  - .1 Air seal: closed cell polyurethane or polyethylene.
    - .1 Conforming to section 09 21 16 – Gypsum board assemblies

- .4 Sealants: in accordance with Section 07 92 00 - Joint Sealants.
  - .1 Sealants: VOC limit 250 g/L maximum to SCAQMD Rule 1168.
- .5 Subflooring adhesive: to CAN/CGSB-71.26, cartridge loaded.
  - .1 Adhesives: VOC limit 30 g/L maximum to standard GS-36 of SCAQMD Rule 1168.
- .6 General purpose adhesive: to CSA O112.9.
  - .1 VOC limit [70] [200] g/L maximum to GS-36S of SCAQMD Rule 1168.
- .7 Nails, spikes and staples: to CSA B111.
- .8 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .9 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.
- .10 Joist hangers: minimum (1.5) mm thick sheet steel, galvanized ZF001 coating designation.
- .11 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal or fibre as indicated on drawings, formed to prevent dishing. Bell or cup shapes not acceptable.
- .12 Adjustable Z Bar according to dimensions indicated on drawings made of galvanized metal according to standard ASTM A123/A123M and ASTM A653.
- .13 Neoprene band of required width and length as indicated on drawings.
- .14 Roof sheathing H-Clips: formed "H" shape, thickness to suit panel material, extruded 6063-T6 aluminum alloy type approved by Departmental Representative.
- .15 Fastener Finishes:
  - .1 Galvanizing: to ASTM A123/A123M and ASTM A653, use galvanized fasteners for exterior work, interior highly humid areas and fire-retardant treated lumber.
  - .2 Stainless steel: grade 316.
- .16 Wood Preservative:
  - .1 Acceptable wood preservative product by « WOOD BLISS » company.
  - .2 Replacement materials: approved by addenda according to Instructions to tenderers.
    - .1 Fire retardant wood preservative, assuring protection against termites. It is a product without solvent, water-dilutable and made of a base of renewable mineral raw materials and vegetal raw materials: potassium carbonate, silicate solution, cellulose, lignin and starch.  
Wood treatment is biodegradable at 100 %. It's use and disposal are no problem for the environment.  
Wood treatment allows food contact. There is no toxic risk even with direct contact.

Wood treatment does not cause any problems to bees which are very sensitive useful insects.

Wood treatment is exempt of toxic substance because none has been added to it.

- .2 Protection product against fungi: Dilution in proportions 1/3, two applications (wait that first application has dried before proceeding to second application).

According to scope and depth of fungi, then treat with wood treatment concentrate.

Through a mechanical process of crystallization, the wood treatment destroys fungi, fixes itself in the place it and reconsolidates the wood.

After a few weeks, a light white coat (crystallization) may appear. It's the sign of efficiency of the product. For wood exposed to view, remove the crystalline coat, and wax, lacquer or tint the wood.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### **3.2 PREPARATION**

- .1 Treat wood elements with wood preservative, before installing them in masonry walls.
- .2 Shake the product before and **during** use. Wear gloves and protect your eyes (also protect your eye glasses from splashings). Apply at intervals of 12h in two applications with brush, by spraying or by immersion, and by injection in the galleries. It is essential that the preservative treatment reaches the infested parts. Impregnate all wood surfaces, y including cut sections (no planing after treatment). Do not leave excess Wood Bliss® on horizontal surfaces. Outdoors, a protection against moisture is required ('Galtane' (natural oil based) tinting, no water base tinting).
- .3 Do not apply under 5°C. Do not superpose treated wood pieces: they would stick together. Protect metal surfaces, glazed surfaces (Windows, eye glasses...), Natural stones, aluminum, lacquered surfaces, ground...

- .4 In case of splashings, rinse immediately and abundantly with water. After treatment, a light whitish coating may appear. This is the sign of efficiency of the product (crystallization). For wood pieces exposed to view: remove the crystalline coat, wax, lacquer or tint (no water based lacquer or tinting).
- .5 Apply preservative by dipping, or by brush. Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.
- .6 Treat material as indicated as follows:
  - .1 Wood cants, fascia backing, curbs, nailers and sleepers on roof deck.
  - .2 Wood sleepers supporting wood subflooring over concrete slabs in contact with ground or fill.
  - .3 Joists, rafters and support stringers.

### 3.3 MATERIAL USAGE

- .1 Roof sheathing:
  - .1 Douglas fir Plywood, DFP or Canadian softwood plywood (CSP):, sheathing grade, or Poplar plywood (PP), sheathing grade, standard, with straight edges for wall panels and tongue and groove for all floor and roof panels, of thickness as indicated on drawings.
  - .2 Structural panels of agglomerated large particles under pressure (Oriented strand board OSB) conforming to standard CAN O437.
  - .3 Construction sheathing product: end use mark. CSA 0325.
  - .4 Mat-formed structural panel board, grade R-1 and O-1.
- .2 Exterior wall sheathing:
  - .1 Douglas fir Plywood, DFP or Canadian softwood plywood (CSP): sheathing grade, or Poplar plywood (PP), sheathing grade, standard, with straight edges, of thickness indicated on drawings.
  - .2 Structural panels of agglomerated large particles under pressure (Oriented strand board OSB) of thickness indicated on drawings.
  - .3 Insulating fiberboard, Type II-Sheathing, multiple-ply, uncoated inside and surface coated outside, panel edge square, of thickness as indicated on drawings.
  - .4 Glass fibre sheathing, of thickness as indicated on drawings.
  - .5 Polyisocyanurate sheathing, of thickness as indicated on drawings.
  - .6 Expanded polystyrene sheathing, Type II, square edges, of thickness as indicated on drawings.
  - .7 Gypsum sheathing, square panel edge, of thickness as indicated on drawings.
  - .8 Construction sheathing product: end use mark W16.
  - .9 Mat-formed structural panel board, grade O-1 and O-2.



- .3 Subflooring:
  - .1 Douglas fir Plywood, DFP or Canadian softwood plywood (CSP):, sheathing grade, or Poplar plywood (PP), sheathing grade, standard, with and tongue and groove edges, of thickness indicated on drawings.
  - .2 Structural panels of agglomerated large particles under pressure (Oriented strand board OSB) of thickness indicated on drawings.
  - .3 Particleboard: conforming to ANSI/NPA 208.1, Grade D-3, of thickness as indicated on drawings.
  - .4 Construction sheathing product: end use mark W16.
  - .5 Mat-formed OSB structural panel board, grade O-1 and O-2.
- .4 Underlay:
  - .1 Douglas fir Plywood, DFP or Canadian softwood plywood (CSP):, sheathing grade, or Poplar plywood (PP), sheathing grade, standard, grade O-1 et O-2 with square edges, of thickness as indicated on drawings.
  - .2 Structural panels of agglomerated large particles under pressure (Oriented strand board OSB) of thickness indicated on drawings.
  - .3 Hardboard, of thickness as indicated on drawings.
  - .4 Particleboard, ANSI/NPA 208.1, Grade PBU of thickness as indicated on drawings.
  - .5 Construction sheathing product: end use mark F16..
  - .6 Mat-formed OSB structural panel board, grade O-1 and O-2.
- .5 Combined subfloor and underlay:
  - .1 Douglas fir Plywood, DFP or Canadian softwood plywood (CSP):, sheathing grade, or Poplar plywood (PP), sheathing grade, standard, grade O-1 et O-2 with square edges, of thickness as indicated on drawings.
  - .2 Structural panels of agglomerated large particles under pressure (Oriented strand board OSB) of thickness indicated on drawings.
  - .3 Construction sheathing product: end use mark F16.
  - .4 Mat-formed OSB structural panel board, grade O-1 and O-2.
- .6 Electrical equipment mounting boards:
  - .1 Douglas fir Plywood, DFP or Canadian softwood plywood (CSP, grade O-1 square edges of thickness as indicated on drawings.

### 3.4 INSTALLATION

- .1 Install members true to line, levels and elevations, square and plumb.
- .2 Construct continuous members from pieces of longest practical length.
- .3 Install spanning members with "crown-edge" up.
- .4 Select exposed framing for appearance. Install lumber and panel materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.

- .5 Install combined subfloor and underlay with panel end-joints located on solid bearing, staggered at least 800 mm.
  - .1 In addition to mechanical fasteners, floor panels secure floor subflooring to floor joists using glue and screws. Place continuous adhesive bead in accordance with manufacturer's instructions, single-bead on each joist and double-bead on joists where panel ends butt.
- .6 Install roof sheathing in accordance with requirements of NBC.
- .7 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding, electrical equipment mounting boards, and other work as required.
- .8 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.
  - .1 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .9 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .10 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized or steel fasteners as indicated on drawings.
- .11 Install sleepers as indicated.
- .12 Do not work particle panels without taking necessary precautions. Use dust collectors and high quality respirator masks when cutting or sanding wood panels.
- .13 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .14 Countersink bolts where necessary to provide clearance for other work.
- .15 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

### **3.5 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse/recycling] in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

### **3.6 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by rough carpentry installation.

**END OF SECTION**