

**Part 1 General**

**1.1 REFERENCES**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI/NPA A208.1-[1999], Particleboard, Mat Formed Wood.
- .2 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A653/A653M-[05a], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.
  - .2 ASTM C36/C36M-[03], Standard Specification for Gypsum Wallboard.
  - .3 ASTM C578-[05a], Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
  - .4 ASTM C1289-[05a], Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
  - .5 ASTM D1761-[88(2000)], Standard Test Methods for Mechanical Fasteners in Wood.
  - .6 ASTM D5055-[05], Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.
  - .7 ASTM D5456-[05a], Standard Specification for Evaluation of Structural CompoSite Lumber Products.
- .1 Canada Green Building Council (CaGBC)
  - .1 LEED Canada Reference Guide for Green Building Design and Construction 2009
- .2 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.
  - .4 CAN/CGSB-71.26-[M88], Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.
- .3 Canadian Standards Association (CSA International)
  - .1 CSA A123.2-[03], Asphalt Coated Roofing Sheets.
  - .2 CAN/CSA-A247-[M86], Insulating Fiberboard.
  - .3 CSA B111-[1974(R2003)], Wire Nails, Spikes and Staples.
  - .4 CAN/CSA-G164-[M92(R2003)], Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .5 CSA O112 Series-[M1977(R2006)], CSA Standards for Wood Adhesives.
  - .6 CSA O121-[M1978(R2003)], Douglas Fir Plywood.
  - .7 CSA O122-[06], Structural Glued-Laminated Timber.
  - .8 CSA O141-[05], Softwood Lumber.
  - .9 CSA O151-[04], Canadian Softwood Plywood.
  - .10 CSA O153-[M1980(R2003)], Poplar Plywood.
  - .11 CAN/CSA-O325.0-[92(R2003)], Construction Sheathing.
  - .12 CSA O437 Series-[93(R2006)], Standards on OSB and Waferboard.

- .4 Forest Stewardship Council (FSC)
  - .1 FSC-STD-01-001-[2004], FSC Principle and Criteria for Forest Stewardship.
  - .2 FSC-STD-20-002-[2004], Structure and Content of Forest Stewardship Standards V2-1
  - .3 FSC Accredited Certified Bodies.
- .5 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber [2005].
- .6 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
  - .1 SCAQMD Rule 1113-[04], Architectural Coatings.
  - .2 SCAQMD Rule 1168-[05], Adhesives and Sealants Applications.
- .7 Truss Design and Procedures for Light Metal Connected Wood Trusses, Truss Plate Institute of Canada.
- .8 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S706-[97], Mineral Fibre Thermal Insulation for Buildings.

## **1.2 SUBMITTALS**

- .1 Submit Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.

## **1.3 QUALITY ASSURANCE**

- .1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood, in accordance with CSA standards.

## **1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 74 00 – Cleaning & Waste Management.
- .2 Place materials defined as hazardous or toxic waste in designated containers.
- .3 Ensure emptied containers are sealed and stored safely for disposal away for public.
- .4 Use chemical hardeners that are non-toxic, biodegradable and have zero or low VOC's.
- .5 Dispose of surplus chemical and finishing materials in accordance with Federal, Provincial and Municipal regulations.

## **Part 2 Products**

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

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
  - .1 CSA O141.

- .2 NLGA Standard Grading Rules for Canadian Lumber.
- .3 Forestry Stewardship Council (FSC) certified.
- .2 Framing and board lumber: in accordance with NBC.
- .3 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
  - .1 S2S is acceptable for all Work.
  - .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.

## **2.2 PANEL MATERIALS**

- .1 Indoor Environmental Quality
  - .1 SCAQMD Rule 1168, Adhesives and Sealants Applications.
- .2 Plywood, OSB and wood based compoSite panels: to CAN/CSA-O325.0.
- .3 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .4 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .5 Poplar plywood (PP): to CSA O153, standard construction.
- .6 Interior mat-formed wood particleboard: to ANSI 208.1.
- .7 Mat-formed structural panelboards (OSB wafer): to CAN3-O437.0.
- .8 Insulating fiberboard sheathing: to CAN/CSA-A247.
- .9 Glass fibre board sheathing: non-structural, rigid, faced, fiberglass, insulating exterior sheathing board.
- .10 Isocyanurate sheathing: to ASTM C1289, faced.
- .11 Expanded polystyrene sheathing: to ASTM C578.
- .12 Gypsum sheathing: to ASTM C36/C36M.
- .13 Electrical equipment mounting boards:
  - .1  $\frac{3}{4}$ " Plywood G1S, DFP or CSP grade, square edge.

## **2.3 ACCESSORIES**

- .1 Exterior wall sheathing paper: to CAN/CGSB-51.32 single ply, spunbonded olefin type coated impregnated as indicated.
- .2 Polyethylene film: to Section 07 26 00 – Vapour Retarders.
- .3 Sill Gasket Air seal: closed cell polyurethane or polyethylene.
- .4 Sealants: Section 07 92 00 – Joint Sealants.
- .5 General purpose adhesive: to CSA O112 Series.

- .6 Nails, spikes and staples: to CSA B111.
- .7 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .8 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.
- .9 Joist hangers: minimum 1 mm thick sheet steel, galvanized ZF001 coating designation.
- .10 Roof sheathing H-Clips: formed "H" shape, thickness to suit panel material, type approved by Contract Administrator.

## **2.4 FASTENER FINISHES**

- .1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for exterior Work, pressure-preservative, fire-retardant, treated lumber.

## **Part 3 Execution**

### **3.1 INSTALLATION**

- .1 Comply with requirements of NBC 2010 Part 3 supplemented by following paragraphs.
- .2 Install members true to line, levels and elevations, square and plumb.
- .3 Construct continuous members from pieces of longest practical length.
- .4 Install spanning members with "crown-edge" up.
- .5 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.
- .6 Install wall sheathing in accordance with manufacturer's printed instructions.
- .7 Install roof sheathing in accordance with requirements of NBC.
- .8 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.
- .9 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.
- .10 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other Work.
- .11 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized fasteners.
- .12 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

**3.2 ERECTION**

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to provide clearance for other Work.
- .3 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

**3.3 SCHEDULES**

- .1 Roof sheathing:
  - .1 Plywood, DFP or CSP sheathing grade (SHG) T&G edge, 16 mm thick, unless otherwise indicated.
- .2 Electrical equipment mounting boards:
  - .1 Plywood, DFP or CSP grade, (G1S) select square edge 16 mm thick, unless otherwise indicated.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI A208.1-[99], Particleboard.
  - .2 ANSI A208.2-[02], Medium Density Fibreboard (MDF).
  - .3 ANSI/HPVA HP-1-[2004], Standard for Hardwood and Decorative Plywood.
- .2 American Society for Testing and Materials International (ASTM)
  - .1 ASTM E1333-[96(2002)], Standard Test Method for Determining Formaldehyde Concentrations in Air and Emissions Rates from Wood Products Using a Large Chamber.
- .3 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
  - .1 Architectural Woodwork Quality Standards Illustrated, 8th edition, Version 1.0 [2003].
- .4 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-11.3-[M87], Hardboard.
- .5 Canadian Plywood Association (CanPly)
  - .1 The Plywood Handbook [2005].
- .6 Canadian Standards Association (CSA International)
  - .1 CSA B111-[74(R2003)], Wire Nails, Spikes and Staples.
  - .2 CAN/CSA-G164-[M92(R2003)], Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3 CSA O121-[M89(R2003)], Douglas Fir Plywood.
  - .4 CAN/CSA O141-[91(R1999)], Softwood Lumber.
  - .5 CSA O151-[04], Canadian Softwood Plywood.
  - .6 CSA O153-[M1980(R2003)], Poplar Plywood.
  - .7 CSA Z760-[94], Life Cycle Assessment.
- .7 Forest Stewardship Council (FSC)
  - .1 FSC-STD-01-001-[2004], FSC Principle and Criteria for Forest Stewardship.
- .8 National Hardwood Lumber Association (NHLA)
  - .1 Rules for the Measurement and Inspection of Hardwood and Cypress [1998].
- .9 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber [2005].
- .10 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
  - .1 SCAQMD Rule 1113-[04], Architectural Coatings.
  - .2 SCAQMD Rule 1168-[05], Adhesives and Sealants Applications.
- .11 Underwriters Laboratories of Canada (ULC)

- .1 CAN4-S104-[80(R1985)], Standard Method for Fire Tests of Door Assemblies.
- .2 CAN4-S105-[85(R1992)], Standard Specification for Fire Door Frames, meeting the Performance Required by CAN4-S104.
- .1 Canada Green Building Council (CaGBC)
  - .1 LEED Canada Reference Guide for Green Building Design and Construction 2009

## 1.2 SUBMITTALS

- .1 Shop Drawings Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Indicate details of Construction, profiles, jointing, fastening and other related details.
  - .2 Indicate materials, thickness, finishes and hardware.

## 1.3 QUALITY ASSURANCE

- .1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood, in accordance with CSA standards and AWMAC custom grade.
- .3 Wood fire rated frames and panels: listed and labelled by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 and CAN4-S105 for ratings specified or indicated.

## 1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements
  - .1 Protect materials against dampness during and after delivery.
  - .2 Store materials in ventilated areas, protected from extreme changes of temperature or humidity.

## 1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 00 – Cleaning & Waste Management.
- .2 Place materials defined as hazardous or toxic waste in designated containers.
- .3 Ensure emptied containers are sealed and stored safely for disposal away for public.
- .4 Use chemical hardeners that are non-toxic, biodegradable and have zero or low VOC's.
- .5 Dispose of surplus chemical and finishing materials in accordance with Federal, Provincial and Municipal regulations.

## Part 2 Products

### 2.1 LUMBER MATERIAL

- .1 Softwood lumber: unless specified otherwise, S4S in accordance with following standards:

- .1 CAN/CSA-O141.
- .2 NLGA Standard Grading Rules for Canadian Lumber.
- .3 AWMAC premium grade, moisture content as specified.
- .2 Machine stress-rated lumber is acceptable.
- .3 Hardwood lumber: in accordance with following standards:
  - .1 National Hardwood Lumber Association (NHLA).
  - .2 AWMAC custom grade, moisture content as specified.

## 2.2 PANEL MATERIAL

- .1 Douglas fir plywood (DFP): to CSA O121, standard construction.
  - .1 Urea-formaldehyde free.
- .2 Canadian softwood plywood (CSP): to CSA O151, standard construction.
  - .1 Urea-formaldehyde free.
- .3 Hardwood plywood: to ANSI/HPVA HP-1.
  - .1 Urea-formaldehyde free.
- .4 Poplar plywood (PP): to CSA O153, standard construction.
  - .1 Urea-formaldehyde free.
- .5 Particleboard: to ANSI A208.1.
  - .1 Urea-formaldehyde free.
- .6 Hardboard: to CAN/CGSB-11.3.
  - .1 Urea-formaldehyde free.
- .7 Medium density fibreboard (MDF): to ANSI A208.2, density 640-800 kg/m<sup>3</sup>.
  - .1 Urea-formaldehyde free.
    - .1 Medium density fibreboard
      - .1 Forestry Stewardship Council (FSC) certified.
      - .2 Urea-formaldehyde free.
- .8 Low density fibreboard: to CSA-A247M.
  - .1 Urea-formaldehyde free.
- .9 Decorative overlaid composite panels.
  - .1 Decorative overlay, heat and pressure laminated with suitable resin to 12.7 mm thick particleboard MDF core.
  - .2 Overlay bonded to both faces where exposed two sides, and when panel material require surface on one side only, reverse side to be overlaid with a plain (buff) balancing sheet.
  - .3 Edge finishing: matching melamine and polyester overlay edge strip with self-adhesive.

## 2.3 ACCESSORIES

- .1 Nails and staples: to CSA B111; galvanized to CAN/CSA-G164 for exterior Work, interior humid areas and for treated lumber; plain finish elsewhere.

- .2 Wood screws: electroplated, type and size to suit application.
- .3 Splines: wood, plastic, metal.
- .4 Adhesive: recommended by manufacturer.
- .1 Adhesives: maximum VOC limit 30g/L.

### **Part 3 Execution**

#### **3.1 INSTALLATION**

- .1 Do finish carpentry to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.
- .2 Scribe and cut as required, fit to abutting walls, and surfaces, fit properly into recesses and to accommodate piping, columns, fixtures, outlets, or other projecting, intersecting or penetrating objects.
- .3 Form joints to conceal shrinkage.

#### **3.2 CONSTRUCTION**

- .1 Fastening:
  - .1 Position items of finished carpentry Work accurately, level, plumb, true and fasten or anchor securely.
  - .2 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.
  - .3 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round smooth cut hole and plug with wood plug to match material being secured.
  - .4 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.
- .2 Standing and running trim
  - .1 Butt and cope internal joints of baseboards to make snug, tight, joint. Cut right angle joints of casing and base with mitred joints.
  - .2 Fit backs of baseboards and casing snugly to wall surfaces to eliminate cracks at junction of base and casing with walls.
  - .3 Make joints in baseboard, where necessary using a 45° scarf type joint.
  - .4 Install door and window trim in single lengths without splicing.
- .3 Panelling:
  - .1 Secure panelling and perimeter trim using adhesive recommended for purpose by manufacturer. Fill nail holes caused by temporary fixing with filler matching wood in colour.
  - .2 Secure panelling and perimeter trim using concealed fasteners.
  - .3 Secure panelling and perimeter trim using counter sunk screws plugged with matching wood plugs.
- .4 Shelving.

- .1 Install shelving on shelf brackets, where indicated.
- .5 Hardware.
  - .1 Install cabinet and miscellaneous hardware as indicated.

**END OF SECTION**