

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.
- .3 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.
- .4 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.
 - .13 CAN/CSA-Z809-08 (R2013)- Sustainable forest management.

- .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 identification: 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.

Part 2 Products

2.1 FRAMING AND STRUCTURAL MATERIALS

- .1 Lumber: unless specified otherwise, softwood, No. 1 or No. 2 grade, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
 - .1 CAN/CSA-O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
- .2 Framing and board lumber: in accordance with NBC.
- .3 Furring, blocking, nailing strips, grounds, rough bucks, fascia backing and sleepers:
 - .1 Board sizes: "Standard" or better grade.
 - .2 Dimension sizes: "Standard" light framing or better grade.
 - .3 Post and timbers sizes: "Standard" or better grade.
- .4 Pressure treated material to be Alkaline Copper Quaternary (ACQ).

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 Insulating fiberboard sheathing: to CAN/CSA-A247.
- .6 Gypsum sheathing, Section 06 16 43 – Gypsum Sheathing.

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 O112.9.
- .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 ASTM A123/A123M, ASTM A653, use galvanized fasteners for exterior Work, interior highly humid areas and fire-retardant treated lumber.

2.5 WOOD PRESERVATIVE

- .1 Surface-applied wood preservative: clear or copper naphthenate or 5% pentachlorophenol solution, water repellent preservative.

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.

3.1 SCHEDULES

- .1 Roof sheathing:
 - .1 Plywood, DFP or CSP sheathing grade (SHG) T&G edge, 16 mm thick, unless otherwise indicated.
- .2 Exterior wall sheathing:
 - .1 Plywood, DFP or CSP sheathing grade or (SHG) grade, T&G edge, 16 mm thick, unless otherwise indicated.
 - .2 Expanded polystyrene sheathing, Type 1, RSI indicated, shiplapped edges, thickness as indicated.
 - .3 Gypsum sheathing, Section 06 16 43 – Gypsum Sheathing.
- .3 Subflooring:
 - .1 Plywood, DFP or CSP sheathing grade (SHG) T&G edge, 19 mm thick, unless otherwise indicated.
- .4 Electrical equipment mounting boards:
 - .1 Plywood, DFP or CSP grade, (G1S) select square edge 16 mm thick, unless otherwise indicated.

- .5 Underlay:
 - .1 Plywood, DFP or CSP sheathing grade (Select), square edge 6 mm thick, unless otherwise indicated.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 ASTM International (ASTM):
 - .1 ASTM C 297, Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions
 - .2 ASTM C473, Standard Test Methods for Physical Testing of Gypsum Panel Products.
 - .3 ASTM C518, Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - .4 ASTM C1002, Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products offr Metal Plaster Bases to Wood Studs or Steel Studs.
 - .5 ASTM C1177, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - .6 ASTM C1396, Standard Specification for Gypsum Board.
 - .7 ASTM C1280, Standard Specification for Application of Gypsum Sheathing.
 - .8 ASTM D3273, Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - .9 ASTM D6329, Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers.
 - .10 ASTM E72, Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
 - .11 ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials.
 - .12 ASTM E96, Standard Test Methods for Water Vapor Transmission of Materials.
 - .13 ASTM E 119, Test Method for Fire Tests of Building Construction and Materials.
 - .14 ASTM E 1677, Standard Specification for an Air Retarder (AR) Material or System for Low-Rise Framed Building Walls.
- .2 Gypsum Association (GA): GA-253 Application of Gypsum Sheathing.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-[M86(R1988)], Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .2 CAN/CGSB-71.25-[M88], Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.
- .4 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S101, Fire Endurance Tests of Building Construction and Materials
 - .2 CAN/ULC-S102, Surface Burning Characteristics of Building Materials and Assemblies.
 - .3 CAN/ULC-S114, Standard Method of Test for Determination of Non-Combustibility in Building Materials
- .5 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A82.27: Gypsum Board

- .2 CAN/CSA-A82.31: Gypsum Board Application

1.2 SUBMITTALS

- .1 Submit Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: Manufacturer's specifications and installation instructions for each product specified.

1.3 WARRANTY

- .1 Provide products that offer twelve months of coverage against in-place exposure damage (delamination, deterioration and decay).
- .2 Manufacturer's Warranty:
 - .1 Five years against manufacturing defects.

Part 2 Products

2.1 MANUFACTURERS AND PRODUCTS

- .1 Georgia-Pacific Gypsum LLC (or approved equal in accordance with B7):
 - .1 Fiberglass-Mat Faced Gypsum Sheathing: DensGlass Sheathing.
 - .2 Fiberglass-Mat Faced Gypsum Sheathing, Type X for Fire Rated Designs: DensGlass Fireguard Sheathing.

2.2 MATERIALS

- .1 Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177:
 - .1 Thickness: 1/2"
 - .2 Width: 4 feet.
 - .3 Length: Maximum practical length
 - .4 Weight: 1.9 lb/sq. ft.
 - .5 Edges: Square.
 - .6 Surfacing: Fiberglass mat on face, back, and long edges.
 - .7 Racking Strength (Ultimate, not design value) (ASTM E72): Not less than 540 pounds per square foot, dry.
 - .8 Flexural Strength, Parallel (ASTM C473): 80 lbf, parallel.
 - .9 Humidified Deflection (ASTM C1177): Not more than 2/8 inch.
 - .10 Permeance (ASTM E96): 23 perms.
 - .11 R-Value (ASTM C518): 0.56.
 - .12 Mold Resistance (ASTM D3273): 10, in a test as manufactured.
 - .13 Microbial Resistance (ASTM D6329, GREENGUARD 3-week protocol): Will not support microbial growth.
 - .14 Acceptable Products:
 - .1 13mm (1/2") DensGlass Sheathing by Georgia-Pacific Gypsum (or approved equal).

- .2 Fire-Rated Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177, Type X:
 - .1 Thickness: 5/8 inch.
 - .2 Width: 4 feet.
 - .3 Length: Maximum practical length
 - .4 Weight: 2.5 lb/sq. ft.
 - .5 Edges: Square.
 - .6 Surfacing: Fiberglass mat on face, back, and long edges.
 - .7 Racking Strength (Ultimate, not design value) (ASTM E72): Not less than 654 pounds per square foot, dry.
 - .8 Flexural Strength, Parallel (ASTM C1177): 100 lbf, parallel.
 - .9 Humidified Deflection (ASTM C1177): Not more than 1/8 inch.
 - .10 Permeance (ASTM E96): Not more than 17 perms.
 - .11 R-Value (ASTM C518): 0.67.
 - .12 Mold Resistance (ASTM D3273): 10, in a test as manufactured.
 - .13 Microbial Resistance (ASTM D6329, GREENGUARD 3-week protocol): Will not support microbial growth.
 - .14 Acceptable Products:
 - .1 16mm (5/8") DensGlass Fireguard Sheathing by Georgia-Pacific Gypsum (or approved equal).

2.3 ACCESSORIES

- .1 Screws: ASTM C1002, corrosion resistant treated.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions:
 - .1 Inspection: Verify that project conditions and substrates are acceptable, to the installer, to begin installation of Work of this section.

3.2 INSTALLATION

- .1 General: In accordance with GA-253, ASTM C1280 and the manufacturer's recommendations.

3.3 PROTECTION

- .1 Protect gypsum board installations from damage and deterioration until date of Substantial Completion.

END OF SECTION