1 General

1.1 RELATED SECTIONS

.1 Section 07 21 16 – Mineral Wool Batt Insulation

1.2 REFERENCES

.1 American National Standards Institute (ANSI)
- .1 ANSI A208.1-1999, Particleboard, Mat Formed Wood.

.2 American Society for Testing and Materials (ASTM)
- .1 ASTM A653/A653M-01a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealled) by the Hot-Dip Process.
- .2 ASTM C36/C36M-01, Specification for Gypsum Wallboard.
- .3 ASTM D1761-00, Standard Test Methods for Mechanical Fasteners in Wood.

.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.

.2 Canadian Standards Association (CSA)
- .1 CSA B111-1974, Wire Nails, Spikes and Staples.
- .2 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CSA O112 Series-M1977, CSA Standards for Wood Adhesives.
- .4 CSA O121-M1978, Douglas Fir Plywood.
- .5 CAN/CSA-O141-91, Softwood Lumber.
- .6 CSA O151-M1978, Canadian Softwood Plywood.
- .7 CSA O153-M1980, Poplar Plywood.
- .8 CAN/CSA-O325.0-92(R1988), Construction Sheathing.
- .9 CAN3-O437 Series-93, Standards on OSB and Waferboard.

.3 National Lumber Grades Authority (NLGA)
- .1 Standard Grading Rules for Canadian Lumber 2000.

1.3 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.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal and the Waste Reduction Workplan, and the Waste Management plan to the maximum extent economically possible.

.2 Set aside damaged wood and dimensional lumber off-cuts for approved alternative uses (e.g. bracing, blocking, cripples, bridging). Store this separated reusable wood waste convenient to cutting station and area of work.

.3 Separate metal, plastic, wood and corrugated cardboard-packaging

.4 Do not burn scrap at the project site.

2 Products

2.1 LUMBER MATERIAL

.1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:
- .1 CSA 0141-1970.
- .2 NLGA Standard Grading Rules for Canadian Lumber, 1987 edition. This designates dry lumber and is stamped S-dry.

.2 Furring, blocking, nailing strips, grounds, rough bucks, curbs, fascia backing and sleepers
- .1 S2S is acceptable for all items.
- .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.

.3 Machine stress rated lumber is acceptable for all purposes.

.4 Glued end-joined or finger-joined lumber is not acceptable.

2.2 FASTENERS

.1 Nails, spikes and staples: to CSA B111-1974.

.2 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.

.3 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, recommended for purpose by manufacturer.

.4 Galvanizing: to CSA G164-M1981, use galvanized fasteners for exterior work, interior highly humid areas, pressure-preservative, fire-retardant treated lumber.

.5 Joist hangers: minimum 1 mm 20 ga. thick sheet steel, galvanized ZF001 coating designation, minimum 6672 N bearing strength

.4 Nailing discs: flat caps, minimum 25 mm dia., 1" dia., minimum 0.4 mm 27 ga. thick sheet metal formed to prevent dishing. Bell or cup shapes not acceptable.

3 Execution

3.1 CONSTRUCTION

.1 Comply with requirements of NBC 2005, Part 9, supplemented by the following paragraphs.

3.2 ERECTION OF FRAMING MEMBERS

.1 Install members true to line, levels and elevations.

.2 Construct continuous members from pieces of longest, practical length.

.3 Install spanning members with 'crown-edge' up.

3.3 FURRING AND BLOCKING

.1 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding and other work as required.

.2 Align and plumb faces of furring and blocking to tolerance of 1:600.

.3 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.

3.4 NAILING STRIPS, GROUNDS AND ROUGH BUCKS

.1 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work

3.5 FASTENERS

.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.

3.6 ELECTRICAL EQUIPMENT BACKBOARD

.1 Provide backboards for mounting electrical equipment as required. Use 19 mm thick plywood on 19 x 38 mm furring around perimeter and at maximum 300 mm intermediate spacing.

END OF SECTION

1 General

1.1 RELATED SECTIONS

.1 Section 06 10 00 – Rough Carpentry

1.2 REFERENCES

.1 Canadian Standards Association (CSA) (Latest Editions)
- .1 CSA-O80 Series, Wood Preservation.
- .2 CSA-O86.1, Engineering Design in Wood (Limit States Design).
- .3 CSA-O141, Softwood Lumber.
- .4 CSA-S307, Load Test Procedure for Wood Roof Trusses for Houses and Small Buildings.
- .5 CSA-S347, Method of Test for Evaluation of Truss Plates Used in Lumber Joints.
- .6 CSA-W47.1, Certification of Companies for Fusion Welding of Steel Structures.

.2 National Lumber Grades Authority (NLGA) (Latest Editions)
- .1 NLGA, Standard Grading Rules for Canadian Lumber.

1.3 DESIGN CRITERIA

.1 Design trusses, bracing bridging in accordance with CSA-O86.1 for loads indicated, Climatic Information for Building Design in Canada and minimum uniform and minimum concentrated loadings stipulated in NBC commentary.

.2 Limit live load deflections to 1/360th of span where gypsum board ceilings are hung directly from trusses.

.3 Limit live load deflections to 1/240th of span unless otherwise specified or indicated.

.2 Provide camber for trusses as indicated.

1.4 SOURCE QUALITY CONTROL

.1 Identify lumber by grade stamp of an agency certified by Canadian Lumber Standards Administration Board.

.2 Certify preservative treated wood in accordance with CSA-O80 Series.

.3 Truss plates in accordance with TPI.

1.5 QUALIFICATION OF MANUFACTURERS

.1 Fabricator for welded steel connections to be certified in accordance with CSA-W47.1.

1.6 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Each shop drawing submission showing connection details shall bear signature and stamp of professional engineer registered or licensed in Manitoba.

.3 Indicate species, sizes, and stress grades of lumber used as truss members. Show pitch, span, camber, configuration and spacing of trusses. Indicate connector types, thicknesses, sizes, locations and design value. Show bearing details. Indicate design load for members.

.4 Submit stress diagram or print-out of computer design indicating design load for joist and truss members. Indicate allowable load and stress increase.

.5 Indicate arrangement of webs or other members to accommodate ducts and other specialties.

.6 Show lifting points for storage, handling and erection.

.7 Show location of lateral bracing for compression members.

1.7 DELIVERY AND STORAGE

.1 Store joists and trusses on job site in accordance with manufacturer's instructions. Provide bearing supports and bracings. Prevent bending, warping and overturning of trusses.

2 Products

2.1 MATERIALS

.1 Pre-engineered Wood Trusses
- .1 Lumber: spruce species, No. 1 and 2 grade, S4S, with maximum moisture content of 19% at time of fabrication and to following standards:
  - .1 CSA-O141.
  - .2 NLGA (National Lumber Grading Association), Standard Grading Rules for Canadian Lumber.

.2 Fastenings: to CSA-O86.

2.2 FABRICATION

.1 Fabricate wood trusses in accordance with approved shop drawings.

.2 Cut joist members to accurate length, angle, and size to assure tight joints for finished joists.

.3 Assemble joist and truss members to design configuration by securing tightly in jigs or with clamps.

.4 Provide for design camber and roof slopes when positioning truss members.

.5 The Trusses shall be manufactured in a plant approved for fabrication by the building code and under the supervision of a third party inspection agency.

.6 Connect members using metal gussets.

2.3 WOOD TREATMENT

.1 Apply preservative in accordance with CSA-O80 Series.

3 Execution

3.1 ERECTION

.1 The pre-engineered trusses are to be erected and installed in accordance with the plans, shop drawings and installation suggestions. Temporary construction loads which cause stresses beyond design limits are not permitted.

.2 Indicated lifting points to be used to hoist trusses into position.

.3 Make adequate provisions for handling and erection stresses.

.4 Exercise care to prevent out-of-plane bending of trusses.

.5 Erection bracing in addition to specified bridging is to be provided to keep the trusses straight and plumb as required and to assure adequate lateral support for the individual trusses and the entire system until the sheathing material has been applied.

.6 Install permanent bracing in accordance with reviewed shop drawings, prior to application of loads to trusses.

.7 Do not cut or remove any truss material without approval of Contract Administrator.

.8 Remove chemical and other surface deposits on treated wood, in preparation for applied finishes.

.9 The Contractor will give notification prior to enclosing the Trusses to provide opportunity for inspection of the installation.

.10 Restrict construction loads to prevent overstressing of joist members.

.11 Tighten loose connections.

.12 Hoist joists into position using spreader bars secured at designated lift points in accordance with manufacturer's instructions.

3.2 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:

.1 Have manufacturer of products supplied under this Section review work involved in handling, installation/application, protection and cleaning of its product[s], and submit written reports, in acceptable format, to verify compliance of work with Contract.

.2 Manufacturer's field services: provide manufacturer's field services, consisting of product use recommendations and periodic site visits for inspection of product installation, in accordance with manufacturer's instructions.

.3 Schedule site visits to review work at stages listed:

.1 After delivery and storage of products, and when preparatory work on which work of this Section depends is complete, but before installation begins.

.2 Twice during progress of work at 25% and 60% complete.

.2 Obtain reports within three days of review and submit immediately to Contract Administrator.

END OF SECTION