

**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 (Galvanealloyed) 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 American Wood-Preservers' Association (AWPA)
  - .1 AWPA M2-01, Standard for Inspection of Treated Wood Products.
  - .2 AWPA M4-06, Standard for the Care of Preservative-Treated Wood Products.
- .4 Canada Green Building Council (CaGBC)
  - .1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
- .5 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.
- .6 Canadian Standards Association (CSA International)
  - .1 CSA O80 Series-97(R2002) - O80S2-05, Wood Preservation.
  - .2 CSA O80.20-1.1-M97(R2002), This Standard applies to the fire-retardant treatment of lumber by pressure processes..
  - .3 CSA O80.27-1.1-M97(R2002), This Standard covers the fire-retardant treatment of Douglas Fir, hardwood, softwood, and Poplar plywood by pressure processes.

- .4 CSA O80.201-M89, This Standard covers hydrocarbon solvents for preparing solutions of preservatives.
- .5 CSA A123.2-03, Asphalt Coated Roofing Sheets.
- .6 CAN/CSA-A247-M86, Insulating Fiberboard.
- .7 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .8 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .9 CSA O112 Series-M1977(R2006), CSA Standards for Wood Adhesives.
- .10 CSA O121-M1978(R2003), Douglas Fir Plywood.
- .11 CSA O122-06, Structural Glued-Laminated Timber.
- .12 CSA O141-05, Softwood Lumber.
- .13 CSA O151-04, Canadian Softwood Plywood.
- .14 CSA O153-M1980(R2003), Poplar Plywood.
- .15 CSA O322-02, Procedure for Certification of Pressure-Treated Wood Materials for Use in Preserved Wood Foundations.
- .16 CAN/CSA-O325.0-92(R2003), Construction Sheathing.
- .17 CSA O437 Series-93(R2006), Standards on OSB and Waferboard.
- .7 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.
- .8 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber 2005.
- .9 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.
- .10 Truss Design and Procedures for Light Metal Connected Wood Trusses, Truss Plate Institute of Canada.
- .11 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.
- .2 LEED Submittals: in accordance with Section 01 35 21 - LEED Requirements.

## 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 LEED REQUIREMENTS

- .1 See Section 01 35 21 - LEED Requirements.
- .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
- .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Regional Materials: Supply building materials that are regionally extracted, harvested, or recovered within 800km of the project location when shipped by truck, or within 2400km of the project location when shipped by rail, in accordance with LEED Materials and Resources Credit MR 5.1 & 5.2 – Regional Materials.
- .5 Rapidly Renewable: Supply building materials that contain rapidly renewable content in accordance with LEED Materials and Resources Credit MR 6 – Rapidly Renewable Materials.
- .6 FSC Certified Wood: (Separate Price). Supply a minimum of 50% (by cost) of wood-based materials that are produced from FSC sources in accordance with LEED Materials and Resources Credit MR 7 – Certified Wood.
- .7 Indoor Environmental Quality Credit EQ 4 – Low - Emitting Materials.
  - .1 LEED Indoor Environmental Quality Credit EQ 4.1 – Low-Emitting Materials: Adhesives and Sealants.
    - .1 Low VOC complying with SCAQMD Rule #1168, Latest edition.
  - .2 LEED Indoor Environmental Quality Credit EQ 4.2 – Low-Emitting Materials: Paints and Coatings.
    - .1 Architectural paints, coatings and primers applied to interior walls and ceilings to Green Seal Standard GS-11, latest edition.
    - .2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates to Green Seal Standard GS-03, latest edition.
    - .3 Clear wood finishes, floor coatings, stains and shellacs applied to interior elements to SCAQMD Rule 1113, latest edition.
  - .3 LEED Indoor Environmental Quality Credit EQ – 4.4 Low-Emitting Materials: Composite Wood and Laminate Adhesives.
    - .1 No added urea-formaldehyde resins.
    - .2 Adhesives for fabrication of laminated assemblies to contain no urea-formaldehyde.

---

**Part 2 Products**

**2.1 GENERAL**

- .1 See the Structural Drawings for further information.
- .2 In any situation where the specifications do not agree with the specifications or intent of the Structural Drawings:
  - .1 The Structural Drawings shall govern.
  - .2 The Consultant must be alerted, whom will then confirm requirements.

**2.2 LEED REQUIREMENTS**

- .1 Provide separate price for 50% Forest Stewardship Council (FSC) certified wood.
- .2 Rapidly Renewable Content: OSB to be manufactured with rapidly renewable content. (Poplar OSB.)
- .3 Regional Materials: Wood to meet Regional Materials requirements.
- .4 Low VOC: Urea-formaldehyde free resins and adhesives.

**2.3 FRAMING AND STRUCTURAL MATERIALS**

- .1 Lumber: unless specified otherwise, softwood, 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 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, 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.

**2.4 PANEL MATERIALS**

- .1 Plywood to CAN/CSA-O325.0.
- .2 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 Mat-formed structural panelboards (OSB wafer): to CAN3-O437.0.

**2.5 ACCESSORIES**

- .1 Sealants: in accordance with Section SCAQMD Rule 1168- Adhesives and Sealants Applications and Section 07 92 00 – Joint Sealing.

- .2 Subflooring adhesive: to CGSB-71.26, cartridge loaded.
- .3 General purpose adhesive: to CSA O112 Series.
- .4 Nails, spikes and staples: to CSA B111.
- .5 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .6 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.
- .7 Joist hangers: minimum 1 mm thick sheet steel, galvanized ZF001 coating designation.
- .8 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal, formed to prevent dishing. Bell or cup shapes not acceptable.

## 2.6 FASTENER FINISHES

- .1 Fasteners for exterior work: Galvanizing: to CAN/CSA - G164, ASTM A653.
- .2 Fasteners for use in ACQ pressure treated wood: Galvanizing to CAN/CSA – G185 or Stainless Steel types 304, 316

## 2.7 PRESSURE TREATED WOOD

- .1 Preservative: to CSA-O80 Series and to SCAQMD Rule #1113.
  - .1 Alkaline Copper Quaternary – ACQ.
  - .2 Borate preservative.
  - .3 Use of Chromated Copper Arsenate (CCA) is not permitted.
- .2 Application: Treat wood to CSA O80 Series.
- .3 Field application:
  - .1 Comply with AWWA M4 and revisions specified in CSA O80 Series, Supplementary Requirements to AWWA M2.
  - .2 Remove chemical deposits on treated wood to receive applied finish.
- .4 Installation:
  - .1 Fasteners for use in ACQ pressure treated wood:
    - .1 Stainless Steel type 304 or 316.
    - .2 Hot dipped galvanized to G-185.
    - .3 Other ACQ fasteners where approved by Contract Administrator.
  - .2 Aluminum materials shall not be installed in direct contact with ACQ pressure treated wood.
- .5 Treated Wood Schedule:

- .1 All wood on exterior of building air barrier and roof vapour retarder to be pressure treated with ACQ preservative.
  - .1 All roof curbs and canopy framing.
  - .2 Blocking and strapping on exterior of air barrier and roof vapour retarder.
  - .3 Other locations as indicated on drawings.
- .2 Interior: Wood sill plates on concrete to be treated with Borate.

### **Part 3 Execution**

#### **3.1 PREPARATION**

- .1 Store wood products.

#### **3.2 INSTALLATION**

- .1 Comply with requirements of NBC 2005 Part 9 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 subflooring and 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 screws.
- .7 Install wall sheathing in accordance with manufacturer's printed instructions.
- .8 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding, handrails, electrical equipment mounting boards and other work as required.
- .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 fasteners.
- .11 Install sleepers as indicated.
- .12 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

---

**3.3 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.

**3.4 SCHEDULES**

- .1 Lumber, sheathing, blocking, strapping and similar – as indicated on drawings.
- .2 Exterior wall framing and sheathing:
  - .1 See structural drawings.
- .3 Combined subfloor and underlay:
  - .1 See structural drawings.
- .4 Exterior wood strapping, blocking and plywood for construction of parapets, roof curbs and similar.
  - .1 To be pressure treated.
- .5 Electrical equipment mounting boards:
  - .1 Plywood, DFP or CSP grade, or PP grade, square edge 13 mm thick.

**END OF SECTION**

**Part 1            General**

**1.1            REFERENCES**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI/NPA A208.1-1999, Particleboard.
  - .2 ANSI A208.2-02, Medium Density Fiberboard (MDF) for Interior Applications.
  - .3 ANSI/HPVA HP-1-04, 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 Emission Rates From Wood Products Using a Large Chamber.
  - .2 ASTM D2832-92(R2005), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
  - .3 ASTM D5116-06, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .3 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
  - .1 Architectural Woodwork Quality Standards Illustrated, 8th edition, Version 1.0 (2005).
- .4 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .5 Canada Green Building Council (CaGBC)
  - .1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
- .6 Canadian Standards Association (CSA International)
  - .1 CSA B111-74(R2003), Wire Nails, Spikes and Staples.
  - .2 CSA O112.4 Series-M1977(R2006), Standards for Wood Adhesives.
  - .3 CSA O112.5-Series-M-1977(R2006), Urea Resin Adhesives for Wood (Room- and High-Temperature Curing).
  - .4 CSA O112.7-Series M-1977(R2006), Resorcinol and Phenol-Resorcinol Resin Adhesives for Wood (Room- and Intermediate-Temperature Curing).
  - .5 CSA O121-M89(R2003), Douglas Fir Plywood.
  - .6 CSA O141-05, Softwood Lumber.
  - .7 CSA O151-04, Canadian Softwood Plywood.
  - .8 CSA O153-M1980(R2003), Poplar Plywood.
- .7 International Organization for Standardization (ISO)

- .1 ISO 14040-2006, Environmental Management-Life Cycle Assessment - Principles and Framework.
- .2 ISO 14041-98, Environmental Management-Life Cycle Assessment - Goal and Scope Definition and Inventory Analysis.
- .8 Forest Stewardship Council (FSC)
  - .1 FSC Accredited Certified Bodies.
- .9 National Electrical Manufacturers Association (NEMA)
  - .1 ANSI/NEMA LD-3-05, High-Pressure Decorative Laminates.
- .10 National Hardwood Lumber Association (NHLA)
  - .1 Rules for the Measurement and Inspection of Hardwood and Cypress 1998.
- .11 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber 2005.
- .12 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.

## 1.2 SUBMITTALS

- .1 Provide Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures
- .2 Sustainable Submittals:
  - .1 Co-ordinate submittal requirements and provide submittals required by Section 01 47 15 - Sustainable Requirements: Construction.
- .3 LEED Submittals:
  - .1 Co-ordinate submittals requirements in accordance with Section 01 35 21 - LEED Requirements.
- .4 Provide shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Indicate details of construction, profiles, jointing, fastening and other related details.
  - .2 Indicate materials, thicknesses, finishes and hardware.
  - .3 Indicate locations of service outlets in casework, typical and special installation conditions, connections, attachments, anchorage and location of exposed fastenings.
- .5 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Provide duplicate samples: sample size 300 x 300 mm or 300 mm long unless specified otherwise.
  - .2 Provide duplicate colour samples of laminated plastic for colour selection.
  - .3 Provide duplicate samples of laminated plastic joints, edging, cutouts and postformed profiles.
- .6 Quality assurance submittals:

- .1 Manufacturer's Instructions: manufacturer's installation instructions.

### 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.
- .3 Sustainable Requirements:
  - .1 Construction requirements: in accordance with Section 01 47 15 - Sustainable Requirements: Construction.
- .4 Mock-ups:
  - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
    - .1 Shop prepare one base cabinet unit, wall cabinet and counter top, complete with hardware and shop applied finishes, and install on project in designated location.
    - .2 Allow 24 hours for inspection of mock-up by Contract Administrator before proceeding with this work.
    - .3 When accepted, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of finished work.
- .5 Delivery, Storage, and Handling:
  - .1 Deliver, handle, store and protect materials of this section in accordance with Section 01 61 00 - Common Product Requirements.
    - .1 Protect millwork against dampness and damage during and after delivery.
    - .2 Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.
    - .3 Store materials on flat, level surface with adequate support to prevent sagging.
    - .4 Conditioning: Condition materials to final environment for 48 to 72 hours before installation and finishing.

### 1.4 LEED REQUIREMENTS

- .1 See Section 01 35 21 - LEED Requirements.
- .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
- .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Resource Reuse: Salvage and reuse existing deconstructed materials in accordance with LEED Materials and Resources Credit MR 3.1 & 3.2 – Resource Reuse.

- 
- .5 Recycled Content: Supply building materials with recycled materials (post consumer plus ½ post-industrial content) in accordance with LEED Materials and Resources Credits MR 4.1 & 4.2 – Recycled Content.
  - .6 Regional Materials: Supply building materials that are regionally extracted, harvested, or recovered within 800km of the project location when shipped by truck, or within 2400km of the project location when shipped by rail, in accordance with LEED Materials and Resources Credit MR 5.1 & 5.2 – Regional Materials.
  - .7 Rapidly Renewable: Supply building materials that contain rapidly renewable content in accordance with LEED Materials and Resources Credit MR 6 – Rapidly Renewable Materials.
  - .8 FSC Certified Wood: (Separate Price). Supply a minimum of 50% (by cost) of wood-based materials that are produced from FSC sources in accordance with LEED Materials and Resources Credit MR 7 – Certified Wood.
  - .9 Indoor Environmental Quality Credit EQ 4 – Low - Emitting Materials.
    - .1 LEED Indoor Environmental Quality Credit EQ 4.1 – Low-Emitting Materials: Adhesives and Sealants.
      - .1 Low VOC complying with SCAQMD Rule #1168, Latest edition.
    - .2 LEED Indoor Environmental Quality Credit EQ 4.2 – Low-Emitting Materials: Paints and Coatings.
      - .1 Architectural paints, coatings and primers applied to interior walls and ceilings to Green Seal Standard GS-11, latest edition.
      - .2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates to Green Seal Standard GS-03, latest edition.
      - .3 Clear wood finishes, floor coatings, stains and shellacs applied to interior elements to SCAQMD Rule 1113, latest edition.
    - .3 LEED Indoor Environmental Quality Credit EQ 4.3 – Carpet: To meet or exceed requirements of the Carpet and Rug Institute’s Green Label Indoor Air Quality Test Program.
    - .4 LEED Indoor Environmental Quality Credit EQ – 4.4 Low-Emitting Materials: Composite Wood and Laminate Adhesives.
      - .1 No added urea-formaldehyde resins.
      - .2 Adhesives for fabrication of laminated assemblies to contain no urea-formaldehyde.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Separate Price: Forest Stewardship Council (FSC) certified.
- .2 MDF and Particleboard panels to be manufactured from recycled materials.
- .3 All wood and wood products to meet regional materials requirements.

- 
- .4 Softwood lumber: unless specified otherwise, S4S, moisture content 15% or less in accordance with following standards:
    - .1 CSA O141.
    - .2 NLGA Standard Grading Rules for Canadian Lumber.
    - .3 AWMAC custom grade, moisture content as specified.
  - .5 Machine stress-rated lumber is acceptable for all purposes.
  - .6 The manufacturing process must adhere to Lifecycle Assessment (LCA) Standards as per ISO 14040/14041 LCA Standards, CSA Z760 94 Life Cycle Assessment.
  - .7 Canadian softwood plywood (CSP): to CSA O151, standard construction.
  - .8 Interior mat-formed wood particleboard: Encore by SierraPine or approved equivalent in accordance with B6 Substitutes.
    - .1 Must contain less than 10% roundwood by weight, using a weighted average over a three month period at manufacturing locations.
    - .2 Material:
      - .1 100% Post-Industrial recycled content.
      - .2 No added urea-formaldehyde.
      - .3 Binder: Urea formaldehyde-free adhesive system.
    - .3 Conformance: ANSI A208.1, Grade M3 Industrial.
    - .4 Certifications:
      - .1 SCS Certified: 100% Post-industrial recycled wood fibre.
      - .2 Separate Price: Forestry Stewardship Council (FSC) certified.
    - .5 Physical Properties:
      - .1 Moisture Content: Less than 8%.
      - .2 Density: 753 kg/m<sup>2</sup>.
      - .3 Internal Bond: 0.55 N/mm<sup>2</sup>.
  - .9 Hardboard:
    - .1 To CAN/CGSB-11.3.
    - .2 Separate Price: Forestry Stewardship Council (FSC) certified.
    - .3 No added urea-formaldehyde.
    - .4 Binder: Urea formaldehyde-free adhesive system.
  - .10 Medium-Density Fibreboard (MDF) panels: Arreis by SierraPine or approved equivalent in accordance with B6 Substitutes.
    - .1 Material:
      - .1 100% Post-Industrial recycled content.
      - .2 No added urea-formaldehyde.
      - .3 Binder: Urea formaldehyde-free adhesive system.
    - .2 Conformance: ANSI A208.2, industrial-grade MDF.
    - .3 Certifications:

- .1 SCS Certified: 100% Post-industrial recycled wood fibre.
- .2 Separate Price: Forestry Stewardship Council (FSC) certified.
- .4 Physical Properties:
  - .1 Moisture Content: 4-6% oven-dry basis.
  - .2 Density: 769 kg/m<sup>2</sup>.
  - .3 Internal Bond: 0.79 N/mm<sup>2</sup>.
  - .4 Water Absorption: 8% average, 24hr soak.
  - .5 Thickness Swell: 5% average, 24hr soak.
- .11 Laminated Plastic: See Section 06 47 00.
- .12 Thermofused Melamine: to NEMA LD3 Grade VGL.
  - .1 High wear resistant thermofused melamine: equal or exceed 400 cycles (Minimum standard for HPL abrasion test).
  - .2 McKillican EcoPure or approved equivalent in accordance with B6 Substitutes.
  - .3 Semi-exposed melamine to be white in colour.
  - .4 Exposed melamine to match
- .13 Nails and staples: to CSA B111.
- .14 Wood screws: stainless steel type and size to suit application.
- .15 Splines: As recommended by manufacturer.
- .16 Sealants: See Section 07 92 00 – Joint Sealants.
- .17 Laminated plastic adhesive: See Section 06 47 00.

## 2.2 MANUFACTURED UNITS

- .1 Casework:
  - .1 Fabricate caseworks to AWMAC custom quality grade.
  - .2 Furring, blocking, nailing strips, grounds and rough bucks and sleepers.
    - .1 Board sizes: "standard" or better grade.
    - .2 Dimension sizes: "standard" light framing or better grade.
    - .3 Forestry Stewardship Council (FSC) certified.
    - .4 Urea-formaldehyde free.
  - .3 Case bodies (ends, divisions, gables, bottoms, toe-kicks):
    - .1 17mm melamine particleboard.
    - .2 Semi-exposed melamine to be white.
    - .3 Kitchen and Liquor Room: Exposed melamine finishes to match door and drawer thermofoil finishes.
    - .4 Washrooms: Exposed melamine colour to be selected from base colour range. (Non-white.)
- .4 Backs:

- 
- .1 6mm white melamine particleboard.
  - .5 Shelving:
    - .1 17mm melamine particleboard.
    - .2 Semi-exposed melamine to be white.
    - .3 Kitchen and Liquor Room: Exposed melamine finishes to match door / thermofoil finishes.
    - .4 Janitor and Pantry Room: Exposed melamine to be white.
    - .5 Edge banding: Matching colour in 3 mm PVC.
  - .2 Drawers:
    - .1 Fabricate drawers to AWMAC custom grade supplemented as follows:
    - .2 Sides and Backs.
      - .1 13mm white melamine particleboard.
    - .3 Bottoms:
      - .1 6mm Hardboard: type 2 – tempered.
    - .4 Fronts:
      - .1 19mm thermofoil MDF.
  - .3 Casework Doors:
    - .1 Fabricate doors to AWMAC custom grade supplemented as follows:
      - .1 19mm thermofoil MDF.
  - .4 Countertops:
    - .1 19mm MDF with laminated plastic finish and backer sheet.
    - .2 180 degree front edge wrap.
    - .3 One piece countertops complete with integral backsplash.
    - .4 100mm back-splash with seamless coved transition to countertop.
      - .1 Laminated plastic finish all exposed edges.
      - .2 Return backsplash full length of counter at end walls.
  - .5 Hardware: See Section 08 70 05 – Cabinet and Miscellaneous Hardware.
  - .6 Storage Shelving: 19mm white melamine particleboard. (Pantry Room M10 and Janitors Room M19).
  - .7 Ceiling Trellis:
    - .1 Manufacture from salvaged studs and joists from deconstruction of existing building.
    - .2 Assemble in accordance with Architectural drawings.
    - .3 Select straight members, de-nail and plane smooth.
    - .4 Finish with varnish. Coordinate to 09 91 23 – Painting.

---

**2.3 FABRICATION**

- .1 Set nails and countersink screws. Apply plain wood filler to indentations, sand smooth and leave ready to receive finish.
- .2 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.
- .3 Shelving to cabinetwork to be adjustable unless otherwise noted.
- .4 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- .5 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.
- .6 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
- .7 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .8 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3000 mm. Keep joints 600 mm from sink cutouts.
- .9 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.
- .10 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
- .11 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .12 Apply laminated plastic liner sheet where indicated.

**Part 3 Execution**

**3.1 INSTALLATION**

- .1 Do architectural woodwork to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.
- .2 Install prefinished millwork at locations shown on drawings. Position accurately, level, plumb straight.
- .3 Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.
- .4 Use draw bolts in countertop joints.

- 
- .5 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
  - .6 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant.
  - .7 Apply water resistant building paper over wood framing members in contact with masonry or cementitious construction.
  - .8 Fit hardware accurately and securely in accordance with manufacturer's written instructions.

### 3.2 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Clean all millwork and cabinetwork.
- .3 Remove excess glue from surfaces.

### 3.3 PROTECTION

- .1 Protect millwork and cabinet work from damage until final inspection.

### 3.4 SCHEDULES

- .1 Refer to drawings.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI 208.1-99, Particleboard.
  - .2 ANSI A208.2-02, Medium Density Fibreboard (MDF) for Interior Applications.
- .2 American Society for Testing and Materials International, (ASTM)
  - .1 ASTM D2832-92(R1999), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
  - .2 ASTM D5116-97, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .4 Canadian Standards Association (CSA International)
  - .1 CSA O112-M1977(R2001), Standards for Wood Adhesives.
  - .2 CSA O112.5-1.1-Series-M-1977(R2001), Urea Resin Adhesives for Wood (Room- and High-Temperature Curing).
  - .3 CSA O112.7-1.1-Series M-1977(R2001), Resorcinol and Phenol-Resorcinol Resin Adhesives for Wood (Room- and Intermediate-Temperature Curing).
  - .4 CSA O121-M1978(R1998), Douglas Fir Plywood.
  - .5 CAN/CSA O141-91(R1999), Softwood Lumber.
  - .6 CSA O151-M1978(R1998), Canadian Softwood Plywood.
  - .7 CSA O153-M1980(R1998), Poplar Plywood.
- .5 Environmental Choice Program (EPC)
  - .1 CCD-044-95, Adhesives.
  - .2 CCD-045-95, Sealants and Caulking Compounds.
  - .3 CCD-048-95, Surface Coatings Recycled Water-borne.
  - .4 CCD-047a-98, Paints - Surface Coatings.
  - .5 CCD-048b-98, Stains - Surface Coatings.
  - .6 CCD-048c-98, Varnishes - Surface Coatings.
- .6 National Electrical Manufacturers Association (NEMA)
  - .1 NEMA LD3-2000, High Pressure Decorative Laminates.
- .7 Scientific Equipment and Furniture Association (SEFA)
  - .1 SEFA 8-99, Laboratory Furniture.
- .8 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
  - .1 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

## **1.2 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 two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's for adhesives, solvents and cleaners.
- .2 Samples:
  - .1 Submit samples in accordance with Section 01 33 00- Submittal Procedures.
  - .2 Submit duplicate samples of joints, edging, cutouts and postformed profiles.
- .3 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.
- .4 Closeout Submittals:
  - .1 Provide maintenance data for laminate work for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

## **1.3 QUALITY ASSURANCE**

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

## **1.4 DELIVERY, STORAGE, AND HANDLING**

- .1 Storage and Protection:
  - .1 Deliver, handle, store and protect materials of this section in accordance with Section 01 61 00 - Common Product Requirements.
  - .2 Maintain relative humidity between 25 and 60% at 22 degrees C during storage and installation.

## **1.5 LEED REQUIREMENTS**

- .1 See Section 01 35 21 - LEED Requirements.
- .2 LEED Submittals: Submit LEED supporting documentation in accordance with Section 01 35 21 - LEED Requirements.
- .3 Waste Management and Disposal: Dispose of packaging and waste materials in appropriate on-site bins for recycling and disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

- .4 Indoor Environmental Quality Credit EQ 4 – Low - Emitting Materials.
  - .1 LEED Indoor Environmental Quality Credit EQ 4.1 – Low-Emitting Materials: Adhesives and Sealants.
    - .1 Low VOC complying with SCAQMD Rule #1168, Latest edition.
  - .2 LEED Indoor Environmental Quality Credit EQ 4.2 – Low-Emitting Materials: Paints and Coatings.
    - .1 Architectural paints, coatings and primers applied to interior walls and ceilings to Green Seal Standard GS-11, latest edition.
    - .2 Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates to Green Seal Standard GS-03, latest edition.
    - .3 Clear wood finishes, floor coatings, stains and shellacs applied to interior elements to SCAQMD Rule 1113, latest edition.
  - .3 LEED Indoor Environmental Quality Credit EQ – 4.4 Low-Emitting Materials: Composite Wood and Laminate Adhesives.
    - .1 No added urea-formaldehyde resins.
    - .2 Adhesives for fabrication of laminated assemblies to contain no urea-formaldehyde.

## Part 2 Products

### 2.1 MATERIALS

- .1 Colours / patterns: 5 varieties from manufacturer's standard range.
- .2 Laminated plastic for flatwork: to NEMA LD 3: Wilsonart Type 107 or approved equivalent in accordance with B6 Substitutes.
  - .1 Type: General purpose.
  - .2 Grade: HGS.
  - .3 Size: 1.22 mm thick.
  - .4 Patterns and Finishes: Selected from manufacturer's full range of available selections. Up to four different patterns / finishes will be selected.
- .3 Laminated plastic for postforming work: to NEMA LD 3.
  - .1 Type: Postforming.
  - .2 Grade: HGP.
  - .3 Size: 1 mm thick.
  - .4 Patterns and Finishes: Selected from manufacturer's full range of available selections. Up to four different patterns / finishes will be selected.
- .4 Laminated plastic for backing sheet: to NEMA LD 3.
  - .1 Type: Backer.
  - .2 Grade: BKM, BKL.
  - .3 Size: not less than 0.5 mm thick or same thickness as face laminate.
- .5 Laminated plastic adhesive and sealants: Low VOC acceptable to laminate manufacturer.

- .1 Low VOC to LEED requirements.
- .2 Test for acceptable VOC emissions in accordance with ASTM D2369 and ASTM D2832.
- .6 Draw bolts and splines: as recommended by fabricator.

## 2.2 FABRICATION

- .1 Shop Fabrication.
- .2 Comply with NEMA LD 3, Annex A.
- .3 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
- .4 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .5 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 2400 mm 3000 mm. Keep joints 600 mm from sink cutouts.
- .6 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.
- .7 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
- .8 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .9 Apply laminated plastic liner sheet to interior of cabinetry where indicated.

## Part 3 Execution

### 3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

### 3.2 INSTALLATION

- .1 Install work plumb, true and square, neatly scribed to adjoining surfaces.
- .2 Make allowances around perimeter where fixed objects pass through or project into laminated plastic work to permit normal movement without restriction.
- .3 Use draw bolts and splines in countertop joints. Maximum spacing 450 mm on centre, 75 mm from edge. Make flush hairline joints.

- .4 Provide cutouts for inserts, grilles, appliances, outlet boxes and other penetrations. Round internal corners, chamfer edges and seal exposed core.
- .5 At junction of laminated plastic counter back splash and adjacent wall finish, apply small bead of sealant.

### **3.3 PROTECTION**

- .1 Cover finished laminated plastic wood metallic veneered surfaces with heavy kraft paper or put in cartons during shipment. Protect installed laminated surfaces by approved means. Do not remove until immediately before final inspection.

### **3.4 CLEANING**

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Perform care and cleaning with NEMA LD 3, Annex B.
- .3 Remove traces of primer, caulking, epoxy and filler materials; clean doors and frames .

**END OF SECTION**