

**PART 1 - GENERAL**

**1.1 GENERAL REQUIREMENTS**

- .1 Comply with requirements of Division 1.

**1.2 RELATED SECTIONS**

- .1 Section 07 55 00: Modified Bituminous Membrane Roofing.
- .2 Section 06 40 00: Architectural Woodwork.
- .3 Section 09 21 16: Gypsum Board Assemblies.
- .4 Section 09 91 00: Painting.

**1.3 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM D1761, Standard Test Methods for Mechanical Fasteners in Wood.
- .2 Canadian Standards Association (CSA International)
  - .1 CSA B111, Wire Nails, Spikes and Staples.
  - .2 CSA O121-08 (R2013), Douglas Fir Plywood.
  - .3 CSA O141-05 (R2009), Softwood Lumber.
  - .4 CSA O151-09, Canadian Softwood Plywood.
  - .5 CAN/CSA-O325-07 (R2007), Construction Sheathing.
  - .6 CAN/CSA-O80 Series - Wood Preservation.
  - .7 CAN/CSA-O80.20-1.1 - Fire Retardant Treatment of Lumbering Pressure Processes.
  - .8 CAN/CSA-O80.27-1.1 - Fire Retardant Treatment of Plywood by Pressure Processes.
- .3 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber.

**1.4 SUBMITTALS**

- .1 Submit Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Quality assurance submittals:
  - .1 Submit certificates in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 For products treated with fire-retardant by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
    - .1 Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.
    - .2 Moisture content after drying following treatment with fire-retardant.
    - .3 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.

**1.5 QUALITY ASSURANCE**

- .1 All lumber shall be sound, straight, dressed and kiln dried, and moisture content at any time during shipment and storage shall not exceed 19%.

- .2 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .3 Plywood identification: by grade mark in accordance with CSA and ANSI standards.
- .4 Fire-retardant treated plywood panel to bear ULC label indicating Flame Spread Classification (FSC), and smoke developed.

#### **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product Requirements.
- .2 Storage and Handling Requirements:
  - .1 Store materials off ground, in doors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store to protect wood from damage, deterioration, loss or impairment of their structural and other essential properties.
  - .3 Prevent excessive moisture gain of materials.
  - .4 Replace defective material with new.

#### **1.7 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 74 22 – Construction/ Demolition Waste Management and Disposal.
- .2 Remove from Site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene corrugated cardboard and packaging material in appropriate on site bins for recycling in accordance with Waste Management Plan.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Unused wood materials are to be diverted from landfill to a recycling/reuse facility as approved by Departmental Representative.
- .6 Fold up metal banding, flatten and place in designated area for recycling.

### **PART 2 - PRODUCTS**

#### **2.1 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 National Lumber Grading Authority (NLGA) Standard Grading Rules for Canadian Lumber.
  - .3 All lumber to be Grade S-P-F No. 1/No. 2 unless noted otherwise.
- .2 Furring, blocking, nailing strips, grounds and rough bucks, cants, curbs and fascia backing.:
  - .1 S2S is acceptable for all work. "Standard" S-P-F.
  - .2 Board sizes: "Standard" or better grade.
  - .3 Dimension sizes: "Standard" light framing or better grade.

## 2.2 PANEL MATERIALS

- .1 Douglas fir plywood (DFP): to CSA O121, standard construction, square edge, urea-formaldehyde free, thickness as indicated on drawings and details.
- .2 Plywood sheathing: Canadian Softwood Plywood (CSP) to CSA O151, unsanded, sheathing grade, square edge, urea-formaldehyde free, thickness as indicated on drawings and details.

## 2.3 ACCESSORIES

- .1 Fasteners and Connecting Hardware
  - .1 Nails: to CSA B111, hot dip galvanized steel. Unless otherwise indicated use common spiral flathead nails.
  - .2 Bolts: ASTM A307, hot dip galvanized steel, 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
  - .3 Connectors, anchors, brackets, spikes: hot dip galvanized structural quality steel.
  - .4 Concrete/masonry anchors: self tapping screw anchors: Tapcon.
  - .5 Screws: zinc, cadmium or chrome plated.

## 2.4 WOOD TREATMENT

- .1 Fire-Retardant: to CAN/CSA-O80.27, to provide:
  - .1 Flame Spread Classification: FSC of not more than 25.
  - .2 Smoke developed of not more than: 50.
- .2 Treat plywood materials by pressure impregnation with fire-retardant chemicals in accordance with CAN/CSA-O80.27.
- .3 Following treatment, kiln-dry material to maximum moisture content of 19 % or less.

## PART 3 - EXECUTION

### 3.1 GENERAL

- .1 Comply with the requirements of National Building Code 2005-Part 9 supplemented by the following paragraphs.
- .2 Install members true to line, levels and elevations, square and plumb. Ensure that materials are rigidly and securely attached to each other and to adjacent building elements and will not be loosened by work of other trades.
- .3 Where other materials and components are to be applied directly over wood members recess heads of fastening devices below wood surfaces.
- .4 Construct continuous members from pieces of longest practical length.
- .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.

### 3.2 INSTALLATION

- .1 Install wood blocking, wood cants, fascia backing, nailers, curbs and other rough carpentry components to sizes and in locations required and secure using hot dipped galvanized steel fasteners.

- .2 Unless otherwise indicated, provide minimum 38 mm thick material. Grounds may be 19 mm thick material unless otherwise indicated.
- .3 Install plywood behind gypsum board assemblies as noted on Partition Schedule on architectural drawings.
- .4 Install furring and blocking as required to space-out and support casework, cabinets, facings, fascia, grab bars and other wall-mounted washroom accessories, electrical mounting backboards and other work as required.
- .5 Install rough bucks and nailers to rough openings as required to provide backing for frames and other work.
- .6 Install wood cants, fascia backing, nailers, curbs and other wood blocking and supports as required and as shown on drawings. Secure using galvanized steel fasteners or as required.
- .7 Install sleepers as indicated.
- .8 Use dust collectors and high quality respirator masks when cutting and sanding wood panels.
- .9 Provide fire-retardant treated plywood sheathing in gypsum board partitions where indicated on drawings.

### **3.3 ERECTION**

- .1 Provide all anchors and fasteners including nails, screws, bolts, washers, brackets, hangers, and fastening devices of all types.
- .2 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .3 Countersink bolts where necessary to provide clearance for other work.
- .4 Unless otherwise indicated, attach wood members at maximum 600 mm o.c. as follows:
  - .1 To concrete and solid masonry with expansion type anchor bolts or self tapping screw anchors.
  - .2 To hollow masonry with toggle bolts.
  - .3 To heavy gauge metal with bolts.
  - .4 To light gauge metal with screws or bolts.
  - .5 To wood with nails, screws or bolts as required to ensure stability.

### **3.4 ELECTRICAL EQUIPMENT MOUNTING BACKBOARDS**

- .1 Where required by Division 26 and other trades, provide minimum 19 mm thick fire retardant pressure treated plywood backboards. Install strapping behind plywood backboards if required for mounting.
- .2 Size backboards to adequately accommodate equipment to be mounted. Secure boards with countersunk fasteners to supporting walls in manner which will carry equipment load without damaging wall.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 GENERAL REQUIREMENTS**

- .1 Comply with requirements of Division 1.

### **1.2 RELATED WORK**

- .1 Section 06 10 00: Rough Carpentry.
- .2 Section 06 40 00: Architectural Woodwork.
- .3 Section 06 47 00: Plastic Laminates.

### **1.3 REFERENCES**

- .1 CSA B111, Wire Nails, Spikes and Staples.
- .2 ANSI/HPVA HP-1, Standard for Hardwood and Decorative Plywood.
- .3 CSA O121, Douglas Fir Plywood.
- .4 CAN/CSA O141, Softwood Lumber.
- .5 CSA O151, Canadian Softwood Plywood.
- .6 CSA O153, Poplar Plywood.
- .7 AN/CGSB-11.3, Hardboard.
- .8 ANSI A208.1, Particleboard.
- .9 ANSI A208.2, Medium Density Fibreboard (MDF).
- .10 Architectural Woodwork Quality Standards Illustrated 8<sup>th</sup> edition, version 1.0 – Architectural Woodwork Manufacturer's Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI).
- .11 National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber.
- .12 The Plywood Handbook – Canadian Plywood Association (CanPly).

### **1.4 SUBMITTALS**

- .1 Submit Submittal submissions: in accordance with Section 01 33 00 – Submittal Procedures.
- .2 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, thicknesses, finishes and hardware.
- .3 If requested by Departmental Representative submit samples in accordance with Section 01 33 00 – Submittal Procedures.

## 1.5 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.

## 1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, Handle, store and protect materials in accordance with Section 01 61 00 – Common Product Requirements.
  - .1 Protect against damage, including damage by excessive changes in moisture content, during delivery and storage. Maintain minimum storage temperature of 16 degrees C, and relative humidity 25% to 55%.
  - .2 Store materials in ventilated areas, protected from extreme changes of temperature or humidity.
  - .3 Do not deliver finish carpentry components to site before all wet trades are completed, the building is closed in and humidity conditions on site are acceptable. Do not deliver during rain or damp weather.
  - .4 Store materials on site in such a way as to prevent deterioration or loss or impairment of essential properties. Prevent moisture gain of kiln dried materials.

## 1.7 PROTECTION

- .1 Provide coverings as necessary to protect finish carpentry components from damage of any kind during storage and after installation.

## 1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 22 – Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material in appropriate on site bins for recycling in accordance with Waste Management Plan.
- .4 Unused wood materials are to be diverted from landfill to a recycling/reuse facility as approved by Departmental Representative.
- .5 Fold up metal banding, flatten and place in designated area for recycling.

## PART 2 - PRODUCTS

### 2.1 LUMBER MATERIAL

- .1 Unless otherwise indicated provide AWMAC Custom Grade.
- .2 All wood materials shall be new, straight and clean, free of sap, knots, pitch, and other defects, except as permitted by applicable grading rules. Machine stress – rated lumber is acceptable.

- .3 Softwood lumber: unless specified otherwise, S4S, moisture content 19% or less, dressed all sides, used in concealed locations only, in accordance with following standards:
  - .1 CAN.CSA 0141.
  - .2 NLGA Standard Grading Rules for Canadian Lumber.
  - .3 All lumber to be Grade S-P-F No. 1 /No. 2 unless noted otherwise.
- .4 Hardwood lumber: moisture content 6% or less in accordance with following standards:
  - .1 National Hardwood Lumber Association (NHLA).
  - .2 AWMAC custom grade, moisture content as specified. Maple or Birch as indicated.

## 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.

## 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: to CSA B35.4 plain, zinc, cadmium or chrome plated steel. Type and size to suite application.
- .3 Adhesive: Urea-formaldehyde free, low VOC type, as recommended by manufacturer.

## 2.4 FABRICATION

- .1 General Requirements
  - .1 Exposed joints and edges:
    - .1 Uniformly space exposed joints unless otherwise indicated.
  - .2 Mechanical fasteners:
    - .1 Inconspicuously locate mechanical fasteners. Wherever possible conceal fastenings.
    - .2 Countersink nail heads.

- .2 (continued)
  - .3 Unless otherwise indicated, countersink screw and bolt heads and fill holes with matching wood plugs.
- .3 Cutting and fitting: make cutouts in work of this Section as required to accommodate work of other Sections.
- .2 Standing & Running Trim
  - .1 Fabricate trim of softwood lumber where paint finish is designated and of hardwood where transparent finish is required.
  - .2 Length: standing trim shall be in one piece. Running trim shall be in longest practicable lengths.
  - .3 Thickness: unless otherwise indicated minimum 19 mm.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- .1 Do finish carpentry in accordance with requirements of "Quality Standards for Architectural Woodwork" (latest issue) of Architectural Woodwork Manufacturer's Association of Canada (AWMAC), except where specified otherwise.
- .2 Install finish carpentry components plumb, true and level and securely fasten in place.
- .3 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.
- .4 Form joints to conceal shrinkage.

### **3.2 CONSTRUCTION**

- .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 Provide mechanical fastening devices such as nails, screws and bolts required for fastening wood components. Unless permitted provide concealed fastening of components. Select fasteners to suit size and nature of components being joined.
- .4 Where permitted, nail with small headed finishing nails. Countersink nail heads with nail setter to receive filler.
- .5 Where components are fastened with screws or bolts, countersink screw and bolt heads in round, cleanly cut hole and plug with wood plug matching surrounding wood.
- .6 Install casings and trim in longest practicable lengths; accumulation of short pieces not permitted. Mitre corners. Slope cut intermediate joints.

- .7 Provide wood trim where indicated and where required to complete work.
- .8 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.

**3.3 FINISHING**

- .1 Sand finished wood surfaces thoroughly as required to produce uniformly smooth surface, always sanding in direction of grain run. Coarse grained sandpaper marks, hammer marks, or other similar imperfections in finished work are not acceptable.
- .2 Unless specifically indicated otherwise, all finish carpentry components shall receive transparent finish by Section 09 91 00 - Painting.

**3.4 SCHEDULE**

- .1 Provide the following:
  - .1 hardwood slat (maple) benches in Change Rooms as shown on drawings.
  - .2 Other finish carpentry components shown on drawings.

**END OF SECTION**

**PART 1 – GENERAL**

**1.1 GENERAL REQUIREMENTS**

- .1 Comply with requirements of Division 1.

**1.2 RELATED SECTIONS**

- .1 Section 05 50 00: Metal Fabrications.
- .2 Section 06 20 00: Finish Carpentry.
- .3 Section 06 47 00: Plastic Laminates.
- .4 Section 07 92 00: Joint Sealing.

**1.3 REFERENCES**

- .1 ANSI/NPA A208.1, Particleboard.
- .2 ANSI/NPA A208.2, Medium Density Fiberboard (MDF) for Interior Applications.
- .3 ASTM A240 / A240M-07e1, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and General Applications.
- .4 ASTM A480 / A480M - 13a, Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.
- .5 ANSI/HPVA HP-1, Standard for Hardwood and Decorative Plywood.
- .6 ASTM E1333, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.
- .7 ASTM D5116, Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .8 Architectural Woodwork Standards, Edition 1 (2009) – Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI).
- .9 CAN/CGSB-71.20, Adhesive, Contact, Brushable.
- .10 CSA B111, Wire Nails, Spikes and Staples.
- .11 CSA 0112.4, Standards for Wood Adhesives.
- .12 CSA 0121, Douglas Fir Plywood.
- .13 CSA 0141, Soft Lumber.
- .14 CSA 0151, Canadian Softwood Plywood.
- .15 CSA 0153, Poplar Plywood.

- .16 ANSI/NEMA LD 3, High Pressure Decorative Laminates.
- .17 National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber.

#### 1.4 SUBMITTALS

- .1 Provide Submittal submissions: in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Shop Drawings Submittals: Provide Shop Drawings in accordance with Section 01 33 00 – Submittal Procedures.
  - .1 Indicate details of construction, profiles, jointing, fastening and other related details.
    - .1 Scale: Elevations 1:20  
Sections: 1:10  
Details: 1:2
  - .2 Indicate materials, thicknesses, finishes and hardware.
  - .3 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.
- .3 Samples: provide samples in accordance with Section 01 33 00 – Submittal Procedures.
  - .1 Provide duplicate samples: sample size 300 x 300 mm.
  - .2 Provide duplicate colour samples of laminated plastic and solid surfacing for colour selection.
  - .3 Provide duplicate samples of laminated plastic joints, edging, cutouts and postformed profiles.
- .4 Quality assurance submittals:
  - .1 Manufacturer's Instructions: manufacturer's installation instructions.

#### 1.5 QUALITY ASSURANCE

- .1 Do architectural woodwork to "Architectural Woodwork Standards" of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), latest edition, except where specified otherwise.
- .2 Where modifications to the AWMAC "Architectural Woodwork Standards" are included in this specification, such modifications shall govern in case of conflict.
- .3 Any reference to Custom or Premium grade in this Section shall be as defined in the AWMAC Architectural Woodwork Standards.
- .4 Any item not given a specific quality grade shall be custom grade as defined by AWMAC Architectural Woodwork Standards: the middle or normal grade in both material and workmanship is intended for high quality conventional work.
- .5 The casework fabricator is responsible for all field dimensions on site that will affect his work. Contractor is to coordinate the installation of all casework.

- .6 If requested by the Departmental Representative, the architectural casework manufacturer is to provide a list of completed projects of equal or more value than this project completed in the last two years.
- .7 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .8 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.
- .9 Mock-Ups:
  - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
    - .1 Construct mock-up for approval by Departmental Representative to establish a standard of quality.
    - .2 Shop prepare one base cabinet unit, wall cabinet, counter top, shelving unit complete with hardware and shop applied finishes, and install on project at designated location.
    - .3 Allow 48 hours for inspection of mock-up by Departmental Representative before proceeding with Work.
    - .4 When accepted, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of finished work.

#### **1.6 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.

#### **1.7 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 74 22 – Construction / Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material in appropriate on site bins for recycling in accordance with Waste Management Plan.
- .4 Fold up metal banding, flatten and place in designated area for recycling.

### **PART 2 - PRODUCTS**

#### **2.1 LUMBER MATERIALS**

- .1 Unless otherwise indicated provide AWMAC Custom Grade.

- .2 All wood materials shall be new, straight and clean, free of sap, knots, pitch, and other defects, except as permitted by applicable grading rules. Machine stress-rated lumber is acceptable.
- .3 Softwood lumber: unless specified otherwise, S4S, moisture content 19% or less, dressed all sides, used in concealed locations only, in accordance with following standards:
  - .1 CAN.CSA 0141.
  - .2 NLGA Standard Grading Rules for Canadian Lumber.
  - .3 AWMAC custom grade, moisture content as specified.
  - .4 All lumber to be Grade S-P-F No. 1 /No. 2 unless noted otherwise.
  - .5 Hardwood lumber: moisture content 6% or less in accordance with following standards:
    - .1 National Hardwood Lumber Association (NHLA).
    - .2 AWMAC custom grade, moisture content as specified. Maple or Birch and as indicated.

## 2.2 PANEL AND SURFACE MATERIALS

- .1 Douglas fir plywood (DFP): to CSA O121, standard construction. Urea-formaldehyde free.
- .2 Canadian softwood plywood (CSP): to CSA O151, standard construction. Urea-formaldehyde free.
- .3 Hardwood plywood: to ANSI/HPVA HP-1. Urea-formaldehyde free.
- .4 Poplar plywood (PP): to CSA O153, standard construction. Urea-formaldehyde free.
- .5 Particleboard: to ANSI A208.1. Urea-formaldehyde free.
- .6 Birch plywood: to AWMAC Select White. Urea-formaldehyde free.
- .7 Hardboard:
  - .1 To CAN/CGSB-11.3.
  - .2 Urea-formaldehyde free.
- .8 MDF (medium density fibreboard)core: to ANSI A208.2, density 769 kg/m<sup>2</sup>.
  - .1 Medium density fibreboard must:
  - .2 Meet the performance requirements of ANSI A208.2.
  - .3 Urea-formaldehyde free.
- .9 Plastic Laminate: to meet or exceed ANSI / NEMA LD 3-2000 as specified in Section 06 47 00 – Plastic Laminates.
- .10 Stainless Steel: to ASTM A240/A240M, Type 302, 304 with ASTM A480/A480M No. 4 finish, thickness 2.0 mm (14 Ga.) for countertops.

## 2.3 FASTENERS

- .1 Nails and staples: to CSA B111.
- .2 Wood screws: to CSA B35.4, type and size to suit application

## 2.4 SEALANT AND ADHESIVE

- .1 Sealant in accordance with Section 07 92 00 – Joint Sealing.
- .2 Laminated plastic adhesive:
  - .1 Adhesive: contact adhesive to CAN/CGSB-71.20.
    - .1 Maximum VOC limit SCAQMD Rule 1168, Adhesives and Sealants Applications 250 g/l.
    - .2 Adhesives urea-formaldehyde free.

## 2.5 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 Urea-formaldehyde free.
- .3 Framing: pine species.
- .4 Case bodies (gables, ends, divisions and bottoms).
  - .1 Particle board, grade R, 19 mm thick.
  - .2 Plastic laminate - refer to Section 06 47 00 – Plastic Laminates:
    - .1 Finish face: General Purpose Grade Vertical "VGS".
    - .2 Exposed interior surfaces: General Purpose Grade Vertical "VGS".
    - .3 Non-exposed interior surfaces: Backer sheet "BKL" Grade.
  - .4 Facing: PVC edging, 3 mm thickness; width to suit core material.
  - .5 Backs.
    - .1 Particleboard, grade R, 19 mm thick in exposed locations, 12 mm in non-exposed areas.
    - .2 Plastic laminate - refer to Section 06 47 00 – Plastic Laminates:
      - .1 Open casework (without doors) exposed surfaces: General Purpose Grade Vertical "VGS".
      - .2 Casework with doors - exposed interior surfaces: General Purpose Grade Vertical "VGS".
  - .6 Shelving.
    - .1 Particleboard, grade R, to the following thicknesses:
      - .1 19 mm for up to 915 mm of unsupported length.
      - .2 25 mm for unsupported lengths between 915 mm and 1066 mm.
    - .2 Plastic laminate - sides: General Purpose Grade Horizontal "HGS".
    - .3 Shelf edging: PVC edging, 3 mm thickness; width to suit core material.

## 2.6 DRAWERS

- .1 Fabricate drawers to AWMAC custom grade supplemented as follows:

- .2 Sides and Backs.
  - .1 Particle board, grade R, 16 mm thick.
  - .2 Plastic laminate - refer to Section 06 47 00 –Plastic Laminates: Cabinet liner sheet “CLS” grade.
- .3 Bottoms.
  - .1 Medium density fibreboard or tempered hardboard, 12 mm thick.
  - .2 Plastic laminate - refer to Section 06 47 00 – Plastic Laminates: Cabinet liner sheet “CLS” grade.
- .4 Fronts.
  - .1 Particleboard, grade R, 19 mm thick.
  - .2 Plastic laminate - sides and edging: General Purpose Grade Vertical “VGS” - refer to Section 06 47 00 – Plastic Laminates.
- .5 Edging: PVC edging, 3 mm thickness; width to suit core material.

## 2.7 CASEWORK DOORS

- .1 Fabricate doors to AWMAC custom grade supplemented as follows:
- .2 Particleboard, grade R, 19 mm thick.
- .3 Plastic laminate - refer to Section 06 47 00 – Plastic Laminates: both sides of doors: General Purpose Grade Vertical “VGS”.
- .4 Edging: PVC edging, 3 mm thickness; width to suit core material.

## 2.8 COUNTER TOPS AND SPLASHBACKS

- .1 Countertops and splashbacks: built-up, factory laminated, self-edge or postformed edge as indicated on drawings.
  - .1 Plastic laminate - refer to Section 06 47 00 – Plastic Laminates:
    - .1 Flatwork, self-edge: General Purpose Grade Horizontal “HGS”.
    - .2 Post-formed countertops: “HGP” Post-formable grade.
    - .3 Chemical resistant countertops: where indicated on drawings / details.
    - .4 Backer sheet: to “BKL” grade applied to reverse side of all countertops.
  - .2 Stainless Steel: to ASTM A240/A240M, Type 302, 304 with ASTM A480/A480M No. 4 finish, thickness 2.0 mm (14 Ga.) for countertops.
- .2 Core: 19 mm (minimum) plywood, unless noted otherwise on drawings / details.
- .3 Adhesive: low VOC, urea –formaldehyde free.
- .4 Sealer: low VOC, water resistant sealer.
- .5 Draw bolts and splines: as recommended by manufacturers.

## 2.9 HARDWARE

- .1 Hinges: Model 170 degree, all metal hinge - nickel plated, self closing, fully concealed, c/w mounting plates.
  - .1 Acceptable products: "Modul" hinges by Blum to suit application; equivalent hinges from Hafele, Hettich or other approved manufacturers.
- .2 Door and drawer pulls: wire pull, dull nickel finish.
  - .1 Hettich 782034; "Ives" No. 38; or other approved equal.
- .3 Drawer slide: one on each side of drawer, length as required:
  - .1 Drawers 150 mm deep or less:
    - .1 Acceptable products: "230M" series slides by Blum; "Hettich" FR 602, or other approved manufacturers.
  - .2 Drawers more than 150 mm deep:
    - .1 Acceptable products: "Accuride" 3640-2G series side-mounting, or Knappe & Vogt 8400 series; or other approved equal.
- .4 Adjustable shelving standards to GSB-69-SM, lengths as required:
  - .1 Acceptable products: Knapt and Vogt "KV-255" c/w KV-256 supports, or approved equal.
- .5 Door and drawer locks: all metal body, nickel plated cam lock with striker plate to suit application.
  - .1 Richelieu Hardware - Series 1202 or 1203 (off-set cam) locks w/ striker plate or other equivalent product by Hafele, Hettich.
  - .2 Drawer and door locks to be keyed alike.
- .6 Miscellaneous items: door bumpers, fasteners, templates to hardware installation as required.

## 2.10 EDGE BANDING

- .1 Edge banding: PVC edge banding, 3 mm. thickness; width to suit core material; edging material to correspond with plastic laminate type; up to two colours as selected by Departmental Representative.

## 2.11 FABRICATION

- .1 Details shall conform to flush overlay design as described by AWMAC Architectural Woodwork Standards.
- .2 Assembly of casework with wood screws, nails or staples is not acceptable unless used in conjunction with at least one other of the accepted AWMAC methods of joinery.
- .3 Case body core material in contact with floor to be edge-banded or sealed to prevent absorption of water / moisture.
- .4 Apply backer sheet to reverse side of all countertops in accordance with AWMAC standards and recommendations.
- .5 Shop bond all edge banding plastic laminate to core material using hot melt edge banding machine.

- .6 Set nails and countersink screws, apply plain wood filler to indentations, sand smooth and leave ready to receive finish.
- .7 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.
- .8 Shelving to cabinetwork to be adjustable unless otherwise noted.
- .9 Drawers to be box construction with bottom recessed in dado on four sides.
- .10 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- .11 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.
- .12 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
- .13 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .14 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. Keep joints 600 mm from sink cutouts.
- .15 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.
- .16 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.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- .1 Do architectural woodwork to Architectural Woodwork 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 splashback and adjacent wall finish, apply small bead of sealant.
- .7 Apply water resistant building paper bituminous coating over wood framing members in contact with masonry or cementitious construction.
- .8 Fit hardware accurately and securely in accordance with manufacturer's directions.

### **3.2 CLEANING**

- .1 Proceed in accordance with Section 01 74 11 – Cleaning.
- .2 Clean millwork and cabinet work, inside cupboards and drawers and outside surfaces.
- .3 Remove excess glue from surfaces.

### **3.3 PROTECTION**

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

### **3.4 SCHEDULES**

- .1 Provide the following items as indicated and detailed:
  - .1 Millwork units in spaces as noted on drawings.
  - .2 other items as noted on drawings and details.

**END OF SECTION**

**PART 1 - GENERAL**

**1.1 GENERAL REQUIREMENTS**

- .1 Comply with requirements of Division 1.

**1.2 RELATED WORK**

- .1 Section 06 40 00: Architectural Woodwork.
- .2 Section 07 92 00: Joint Sealing.

**1.3 REFERENCES**

- .1 NEMA LD 3, High Pressure Decorative Laminates (HDL).
- .2 CAN3-A172 High Pressure, Paper Base, Decorative Laminates.
- .3 CSA 0112, Standards for Wood Adhesives.
- .4 CAN/CGS-71.20 Adhesive, Contact Brushable.
- .5 ANSI 208.1, Particle Board.
- .6 CCD-044, Adhesives-Environmental Choice Program. (ECP).

**1.4 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and data sheet 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 colours, edging, and post formed 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.

**1.5 DELIVERY, STORAGE AND PROTECTION**

- .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 Cover finished laminated plastic 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 Do not store or install materials in areas where relative humidity is less than 25% or greater than 60% at 22 °C.

## 1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 22 – Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material in appropriate on site bins for recycling in accordance with Waste Management Plan.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- .1 Grades for plastic laminate are based on ANSI / NEMA Standards as recommended by AWI / AWMAC.
- .2 Laminated plastic as manufactured by:
  - .1 Nevamar
  - .2 Arborite
  - .3 Formica
  - .4 Pionite
  - .5 or approved equal.
  - .6 Colours selected by Departmental Representative, at a later date, up to four (4) selected colours, solid or printed patterns from manufacturer's full range with matt or textured finish.
- .3 Laminated plastic for horizontal flatwork - self-edged counters and shelving: to meet or exceed ANSI / NEMA "HGS" General Purpose Grade horizontal; 1.27 mm thickness range, solid or printed pattern colour range with matt finish.
- .4 Laminated plastic for vertical flatwork - all vertical surfaces, doors, exterior and interior sides of casework, drawer fronts: to meet or exceed ANSI / NEMA "VGS" General Purpose Grade vertical; 0.76 mm thick, solid or printed pattern colour range with matt finish.
- .5 Laminated plastic for post forming work: post-formed counters: to meet or exceed ANSI / NEMA "HGP" Post-formable grade; 1.27 mm thick, solid or printed pattern colour range with matt finish.
- .6 Laminated plastic for chemical resistant flatwork – countertops in Lab (1023) to meet or exceed ANSI / NEMA "chemical resistant" grade (HGP); 1.0 mm thickness range, chemical resistant properties, post-formable, solid colour with matt finish.
- .7 Laminated plastic backing sheet: supplied by same manufacturer as facing sheet; to meet or exceed ANSI / NEMA "BKL" grade, not less than 0.5 mm thick and same colour as face laminate.

- .8 Laminated plastic cabinet liner sheet: inside surfaces of drawers; supplied by same manufacturer as facing sheet, to meet or exceed ANSI / NEMA "CLS" grade, not less than 0.5 mm thick, white colour.
- .9 Plywood core: to CSA O121 solid/good two sides, 19 mm thick.
- .10 Particleboard core: to ANSI A 208.1, sanded faces of thickness indicated.
- .11 Adhesive: low VOC, urea-formaldehyde free type to CSA 0112.
- .12 Sealer: water resistant sealer or glue acceptable to laminate manufacturer.
- .13 Sealant: in accordance with Section 07 92 00 - Sealants, colour selected by Departmental Representative.
- .14 Draw bolts and splines: as recommended by fabricator.

## **2.2 SHOP FABRICATION**

- .1 Comply with CAN3-A172, Appendix 'A'.
- .2 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
- .3 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .4 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 cutouts.
- .5 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.
- .6 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.
- .7 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .8 Apply laminate plastic liner sheet to interior of cabinetry where indicated.
- .9 All shelving edges (visible and non-visible) to be PVC edging, 3 mm thickness; width to suit core material.

## **PART 3 - EXECUTION**

### **3.1 MANUFACTURER'S INSTRUCTION**

- .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 o.c., 75 mm from edge. Make flush hairline joints.
- .4 Provide cutouts for inserts, grilles, appliances, outlets 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 plastic laminate veneered surfaces with heavy kraft paper or put in cartons during shipment. Protect installed laminate surface by approved means. Do not remove protection until immediately before 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**