

Part 1 General**1.1 REFERENCES**

- .1 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2010.

1.2 QUALITY ASSURANCE

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood identification: by grade mark in accordance with applicable CSA standards.
- .3 Plywood, OSB and wood based composite panel construction sheathing identification: by grademark in accordance with applicable CSA standards.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
- .4 Divert unused wood materials from landfill to recycling, reuse and composting facility approved by Architect.

Part 2 Products**2.1 LUMBER MATERIAL**

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% 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, curbs, fascia backing and sleepers:
 - .1 S2S is acceptable for strapping.
 - .2 Board sizes: "Standard" or better grade.
 - .3 Dimension sizes: "Standard" light framing or better grade.
 - .4 Post and timbers sizes: "Standard" or better grade.

2.2 PANEL MATERIALS

- .1 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .2 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .3 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.

2.3 ACCESSORIES

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

- .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, explosive actuated fastening devices, recommended for purpose by manufacturer.

2.4 FINISHES

- .1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for exterior work, interior highly humid areas, pressure preservative, fire retardant and treated lumber.
- .2 Stainless steel: use stainless steel 304 alloy for exposed fasteners and grommets or eyelets.

Part 3 Execution

3.1 INSTALLATION

- .1 Comply with requirements of NBC, supplemented by the following paragraphs.
- .2 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.
- .3 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .4 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .5 Install wood fascia backing, nailers, curbs and other wood supports as required and secure using galvanized steel fasteners.
- .6 Install wood backing, dressed, tapered and recessed slightly below top surface of roof insulation for roof hopper.
- .7 Install sleepers as indicated.
- .8 Use caution when working with particle board. Use dust collectors and high quality respirator masks.

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.

3.3 SCHEDULES

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

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 E 1333-96(2002), Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.
 - .2 ASTM D 2832-92(R2005), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
- .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 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.
- .6 Forest Stewardship Council (FSC)
 - .1 FSC Accredited Certified Bodies.
- .7 National Electrical Manufacturers Association (NEMA)
 - .1 ANSI/NEMA LD-3-05, High-Pressure Decorative Laminates.
- .8 National Hardwood Lumber Association (NHLA)
 - .1 Rules for the Measurement and Inspection of Hardwood and Cypress 1998.
- .9 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2005.

1.2 SUBMITTALS

- .1 Provide Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 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 Scales: profiles full size, details half full size.
 - .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 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Provide duplicate samples: sample size 300x300mm.
 - .2 Provide duplicate samples of laminated plastic joints, edging, cutouts and postformed profiles.
- .4 Quality assurance submittals:
 - .1 Manufacturer's Instructions: manufacturer's installation instructions.

1.3 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 Mock-ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .1 Shop prepare one base cabinet unit, counter top & shelving unit complete with hardware and shop applied finishes, and install on project in designated location.
 - .2 Allow 24 hours for inspection of mock-up by Architect 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.
- .4 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.
 - .2 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 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 premium grade, moisture content as specified.
 - .4 Forestry Stewardship Council (FSC) certified.
- .2 Machine stress-rated lumber is acceptable for all purposes.
- .3 Hardwood lumber: moisture content 9% or less in accordance with following standards:
 - .1 National Hardwood Lumber Association (NHLA).
 - .2 AWMAC custom grade, moisture content as specified.
 - .3 Forestry Stewardship Council (FSC) certified.
- .4 Douglas fir plywood (DFP): to CSA O121, standard construction.
 - .1 Forestry Stewardship Council (FSC) certified.
 - .2 Urea-formaldehyde free.
- .5 Canadian softwood plywood (CSP): to CSA O151, standard construction.
 - .1 Forestry Stewardship Council (FSC) certified.
 - .2 Urea-formaldehyde free.
- .6 Hardwood plywood: to ANSI/HPVA HP-1.
 - .1 Forestry Stewardship Council (FSC) certified.
 - .2 Urea-formaldehyde free.
- .7 Hardboard:
 - .1 To CAN/CGSB-11.3.
 - .2 Forestry Stewardship Council (FSC) certified.
 - .3 Urea-formaldehyde free.
- .8 MDF (medium density fibreboard) core: to ANSI A208.2, Grade MD, 19 mm thick density 769 kg/m³.
 - .1 Medium density fibreboard must:
 - .1 Meet the performance requirements of ANSI A208.2.
 - .2 Forestry Stewardship Council (FSC) certified.
 - .3 Urea-formaldehyde free.
- .9 Nails and staples: to CSA B111.

- .10 Wood screws: stainless steel, type and size to suit application.
- .11 Splines: metal.
- .12 Sealant: in accordance with Section 07 92 00 - Joint Sealants.

2.2 MANUFACTURED UNITS

- .1 Typical Casework:
 - .1 Fabricate caseworks to AWMAC premium quality grade.
 - .2 Furring, blocking, nailing strips, grounds and rough bucks and sleepers.
 - .1 S2S is acceptable.
 - .2 Board sizes: "standard" or better grade.
 - .3 Dimension sizes: "standard" light framing or better grade.
 - .4 Forestry Stewardship Council (FSC) certified.
 - .5 Urea-formaldehyde free.
 - .3 Case bodies (ends, divisions, uppers and bottoms).
 - .1 Hardwood plywood:
 - .1 Thickness: 19 mm.
 - .2 Number of plies: 5.
 - .3 Face Veneer: plastic laminate.
 - .4 Core: DFP.
 - .5 Bond: Type II.
 - .6 Sanding: regular sanding.
 - .7 Grain direction: Horizontal.
 - .8 Edge banding: plastic laminate.
 - .4 Backs:
 - .1 Hardwood plywood:
 - .1 Thickness: 13mm.
 - .2 Number of plies: 5.
 - .3 Face veneer: Melamine finish.
 - .4 Back veneer: Melamine finish.
 - .5 Core: DFP.
 - .6 Bond: Type II.
 - .7 Sanding: regular sanding.
 - .8 Edge banding: Melamine finish.
 - .5 Shelving:
 - .1 Hardwood plywood:
 - .1 Thickness: 13mm.
 - .2 Number of plies: 5.
 - .3 Face veneer: Melamine finish.
 - .4 Back veneer: Melamine finish.
 - .5 Core: DFP.
 - .6 Bond: Type II.
 - .7 Edge banding: Melamine finish.
 - .6 Drawers:
 - .1 Fabricate drawers to AWMAC premium grade supplemented as follows:
 - .2 Sides and Backs.
 - .1 Hardwood plywood:
 - .1 Thickness: 13 mm.
 - .2 Number of plies: 5.
 - .3 Face veneer: Melamine finish.
 - .4 Back veneer: Melamine finish.
 - .5 Core: DFP.
 - .6 Bond: Type II.
 - .7 Edge banding:
 - .3 Bottoms:
 - .1 Hardwood plywood:
 - .1 Thickness: 13 mm.
 - .2 Number of plies: 5.
 - .3 Face veneer: Melamine finish.

- .4 Back veneer: Melamine finish.
- .5 Core: DFP.
- .6 Bond: Type II.
- .7 Edge banding: Melamine finish.
- .4 Fronts:
 - .1 Hardwood plywood:
 - .1 Thickness: 19 mm.
 - .2 Number of plies: 5.
 - .3 Face veneer: wood, A grade, quarter cut, matching requirement.
 - .4 Use this face veneer for drawer fronts in typical classrooms.
 - .5 Face Veneer: plastic laminate.
 - .6 Core: DFP.
 - .7 Bond: Type II.
 - .8 Sanding: regular sanding.
 - .9 Grain direction: Horizontal.
 - .10 Edge banding: plastic laminate.
- .7 Casework Doors:
 - .1 Fabricate doors to AWMAC premium grade supplemented as follows:
 - .2 Hardwood plywood:
 - .1 Thickness: 19 mm.
 - .2 Number of plies: 5.
 - .3 Face Veneer: plastic laminate.
 - .4 Core: DFP.
 - .5 Bond: Type II.
 - .6 Sanding: regular sanding.
 - .7 Grain direction: Horizontal.
 - .8 Edge banding: plastic laminate.
- .2 Countertops:
 - .1 Fabricate to AWMAC premium grade supplemented as follows:
 - .2 Softwood and poplar plywood DFP grade, bullnose edge, 19 mm thick. Plastic laminate finish to exposed and semi-exposed surfaces.

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 2400 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.

2.4 HARDWARE

- .1 Door Hinges: concealed, self-closing, with spring, 180 degree opening.
- .2 Drawer Slides: All drawer slides shall be ball bearing, carrier, fully extendable, of heavy duty quality to operate adequately for size and capacity of drawer.
- .3 Door and drawer pulls: 'D' style' Classic Metal Handle Pull', burnished brass finish, 96 mm O.C.
- .4 Shelving Pilaste: U-Shaped metal pilaster, steel 23 gauge, zinc finish, 16 mm wide c/w clips.

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 Fit hardware accurately and securely in accordance with manufacturer's written instructions.
- .8 Site apply laminated plastic to units as indicated. Adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where [indicated] [approved]. Slightly bevel arises.
- .9 For site application, offset joints in plastic laminate facing from joints in core.

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.

END OF SECTION

PART 1 GENERAL**1.1 REFERENCES**

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM D 2832-92(R1999), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
 - .2 ASTM D 5116-97, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA O112-M1977(R2001, Standards for Wood Adhesives.
- .4 National Electrical Manufacturers Association (NEMA)
 - .1 NEMA LD3-2000, High Pressure Decorative Laminates.

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 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 WASTE MANAGEMENT AND DISPOSAL

- .1 Divert wood cut-offs from landfill by disposal into on-site wood recycling bin.
- .2 Divert reusable materials for reuse at nearest used building materials facility or similar type facility.
- .3 Divert unused caulking, sealants, surface coatings and adhesive materials from landfill through disposal at a special wastes depot.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 Laminated plastic for postforming work: to NEMA LD 3.
 - .1 Type: Postforming.
 - .2 Grade: HGP & VGP.
 - .3 Size: 1.016 mm thick.
 - .4 Colour: multilayered, as per colour schedule.
 - .5 Pattern: printed pattern.
 - .6 Finish: matte, 60.
- .2 Melamine for liner: to NEMA LD 3.
 - .1 Type: Cabinet Liner.
 - .2 Grade: CLS.
 - .3 Size: 0.51 mm thick
 - .4 Colour: white.
- .3 Colour Schedule, basis of design colour selection provide or equivalent:
 - .1 **PL-01:** Colours to be determined by Departmental Representative.
 - .2 **PL-02:** Colours to be determined by Departmental Representative.
 - .3 **PL-03:** Colours to be determined by Departmental Representative.
 - .4 **PL-04:** Colours to be determined by Departmental Representative.
- .4 Plywood core: in accordance with Section 06 40 00 - Architectural Woodwork.
- .5 Laminated plastic adhesive: polyvinyl adhesive to CSA O112.4 acceptable to laminate manufacturer.
 - .1 Test for acceptable VOC emissions in accordance with ASTM D 2369 and ASTM D 2832.
- .6 Sealer: water resistant sealer or glue acceptable to laminate manufacturer.
 - .1 Test for acceptable VOC emissions in accordance with ASTM D 2369 and ASTM D 2832.
- .7 Sealants: In accordance with Section 07 92 00 - Joint Sealant.
- .8 Draw bolts and splines: as recommended by fabricator.

2.2 FABRICATION

- .1 Comply with NEMA LD 3, Annex 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 2400 mm. Keep joints 600 mm from sink 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 laminated plastic liner sheet to 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.
- .6 Site apply laminated plastic to units as indicated. Adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where indicated. Slightly bevel arrises.
- .7 For site application, offset joints in plastic laminate facing from joints in core.

3.3 PROTECTION

- .1 Cover finished laminated plastic & wood 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