PART 1 - GENERAL

1.1 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CSA S350-M1980 (R1998), Code of Practice for Safety in Demolition of Structures.

1.2 SUBMITTALS

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

.2 Prior to beginning of Work on site submit detailed Waste Reduction Workplan in accordance with Sections 01 74 21 - Construction/Demolition Waste Management and Disposal and indicate:

.1 Descriptions of and anticipated quantities of materials to be salvaged reused, recycled and landfilled.

.2 Schedule of selective demolition.

.3 Number and location of dumpsters.

.4 Anticipated frequency of tippage.

.5 Name and address of haulers and waste receiving organizations.

1.3 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.

1.4 SITE CONDITIONS

.1 Review "Designated Substance Report" and take precautions to protect environment.

.2 Should material resembling spray or trowel- applied asbestos or other designated substance be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.

.1 Do not proceed until written instructions have been received from Departmental Representative.

.3 Notify Departmental Representative before disrupting building access or services.

PART 2 PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 EXECUTION

3.1 PREPARATION

.1 Inspect building with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

.4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.

.1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.

3.2 PROTECTION

.1 Prevent movement, settlement, or damage to adjacent structures, utilities and parts of building to remain in place. Provide bracing and shoring required.

.2 Keep noise, dust, and inconvenience to occupants to minimum.

.3 Protect building systems, services and equipment.

.4 Provide temporary dust screens, covers, railings, supports and other protection as required.

.5 Do Work in accordance with Section 01 35 29 - Health

and Safety Requirements.

3.3 SALVAGE

.1 Refer to demolition drawings and specifications for items to be salvaged for reuse.

.2 Remove items to be reused, store as directed by Departmental Representative and re-install under appropriate section of specification.

3.4 SITE REMOVALS

.1 Not Used

3.5 DEMOLITION

.1 Remove parts of existing building to permit new construction. Sort materials into appropriate piles for reuse and recycling.

.2 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.

3.6 DISPOSAL

.1 Dispose of removed materials, to appropriate recycling facilities except where specified otherwise, in accordance with authority having jurisdiction.

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 06 40 00 – Architectural Woodwork.

1.2 REFERENCES

.1 American National Standards Institute/National Particleboard Association (ANSI/NPA)
- .1 ANSI/NPA A208.1-2009, Particleboard.

.2 ASTM International
- .1 ASTM A 123/A 123M-09, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .2 ASTM D 1761-06, Standard Test Methods for Mechanical Fasteners in Wood.

.3 Canadian Standards Association
- .1 CSA B111-1974(R2003], Wire Nails, Spikes and Staples. .
- .2 CSA O121-08, Douglas Fir Plywood.
- .3 CSA O141-05(R2009], Softwood Lumber.
- .4 CSA O151-09, Canadian Softwood Plywood.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

1.4 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 Plywood identification: by grade mark in accordance with applicable CSA standards, Council of Forest Industries (COFI)certified.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labeled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect wood from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse or return to manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 - PRODUCTS

2.1 FRAMING STRUCTURAL AND PANEL MATERIALS

.1 Sustainability Characteristics:
.1 Lumber, Finger Jointed Lumber CAN/CSA-Z809 or FSC or SFI certified.
.2 Plywood. Particleboard OS] urea-formaldehyde free, CAN/CSA-Z809 or FSC or SFI certified.

.2 Lumber: softwood, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
.1 CSA O141.
.2 NLGA Standard Grading Rules for Canadian Lumber.

.3 Glued end-jointed (finger-jointed) lumber SPS, are acceptable. Framing and board lumber: in accordance with NBC.

.4 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
.1 S2S is acceptable.
.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.

.5 Douglas fir plywood (DFP): to CSA O121, standard construction.
.6 Canadian softwood plywood (CSP): to CSA O151, standard construction. .

2.2 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.

.4 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal, fibre, formed to prevent dishing. Bell or cup shapes not acceptable.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 PREPARATION

.1 Store wood products off the ground and protected from weather.

3.3 MATERIAL USAGE

.1 Electrical equipment mounting boards:

.1 Plywood, DFP or CSP, or PP grade, square edge 19 mm thick.

3.4 INSTALLATION

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

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

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

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

.5 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

.6 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.7 Countersink bolts where necessary to provide clearance for other work.

.8 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

3.5 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by rough carpentry installation.

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 44 00 – Submittal Procedures

.2 Section 06 10 00 – Rough Carpentry

1.2 REFERENCES

.1 American National Standards Institute (ANSI)
- .1 ANSI A208.1-09, Particleboard.
- .2 ANSI A208.2-09, Medium Density Fiberboard (MDF) for Interior Applications.
- .3 ANSI/HPVA HP-1-10, Standard for Hardwood and Decorative Plywood.

.2 ASTM International
- .1 ASTM E 1333-10, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.
- .2 ASTM D 2832-92(R2011), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
- .3 ASTM D 5116-10, 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 2009.

.4 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.

.5 CSA International
- .1 CSA B111-74(R2003), Wire Nails, Spikes and Staples.
- .2 CSA O112.10-08, Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure).
- .3 CSA O121-08, Douglas Fir Plywood.
- .4 CSA O141-05(R2009), Softwood Lumber.
- .5 CSA O151-09, Canadian Softwood Plywood.
- .6 CSA O153-M1980(R2008), Poplar Plywood.
- .7 CAN 0115-M82 (r2001) – Hardware and Decorative Plywood.

.6 Forest Stewardship Council (FSC)
- .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.

.7 Green Seal Environmental Standards (GS)

.1 GS-11-11, Paints and Coatings.
.2 GS-36-11, Commercial Adhesives.

.8 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

.9 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.

.10 National Electrical Manufacturers Association (NEMA)
.1 ANSI/NEMA LD-3-05, High-Pressure Decorative Laminates (HPDL).

.11 National Hardwood Lumber Association (NHLA)
.1 Rules for the Measurement and Inspection of Hardwood and Cypress 2011.

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

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Shop Drawings:
.1 Indicate details of construction, profiles, jointing, fastening and other related details.
.2 Scales: profiles full size, details half full size.
.3 Indicate materials, thicknesses, finishes and hardware.
.4 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.

.3 Samples:
.1 Submit for review and acceptance of each unit.
.2 Samples will be returned for inclusion into work.
.3 Submit duplicate samples approximately 150mm x 150mm of shop finishes cabinet finishes.
.4 Submit duplicate samples of laminated plastic for each colour selection.

.5 Submit one sample of each hardware item. Requested hardware will be returned for incorporation in the work.

.4 Low-Emitting Materials:

.1 A listing of adhesives and sealants and paints and coatings used in building, shall be available upon request. All product must comply with VOC and chemical component limits or restrictions requirements.

.2 A listing of composite wood products used in building, shall be available upon request with documentation from the manufacturer stating that they contain no added urea-formaldehyde resins, and laminate adhesives used in building, stating that they contain no urea-formaldehyde.

1.4 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 to CSA and ANSI standards.

.3 Any reference to custom grade in this section shall be defined as the AMAC Quality Standards.

.4 Any item given a specific quality grade shall be premium grade as defined as the AMAC Quality Standards.

.5 The subcontractor for this section is responsible for all field dimensions on site that will affect the work.

.6 Work in this section shall be manufactured and installed to the specific AWMAC Quality Standards.

7. Work that does not meet the AWMAC Architectural Woodwork Standards as specified, shall be replaced, reworked and/or refinished by the architectural woodwork contractor to the approval of the Departmental Representative at no additional cost to the Owner.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labeled with manufacturer's name and address.

.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 Storage and Handling Requirements:
.1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect architectural woodwork from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Softwood lumber: unless specified otherwise, S4S, moisture content 11 % or less in accordance with following standards:
.1 CSA O141.
.2 CAN/CSA-Z809 or FSC or SFI certified.
.3 NLGA Standard Grading Rules for Canadian Lumber.
.4 AWMAC custom grade, moisture content as specified.

.2 Machine stress-rated lumber is acceptable for all purposes.

.3 Hardwood lumber: moisture content 11 % or less in accordance with following standards:
.1 National Hardwood Lumber Association (NHLA).
.2 CAN/CSA-Z809 or FSC or SFI certified.
.3 AWMAC custom grade, moisture content as specified.

.4 Laminated plastic for flatwork: to NEMA LD3, Grade VGL, based on woodgrain and printed pattern with matt and textured finish. Allow for the selection of 2 different colours.

.5 Laminated plastic for postforming work: to NEMA LD3, Grade VGL, based on woodgrain and printed pattern with matt and textured finish. Allow for the selection of 3 colours.

.6 Laminated plastic backing sheet: Grade BK, same thickness and colour as face laminate.

.7 Laminated plastic liner sheet: Grade GP, same thickness as face laminate, white colour.

.8 Thermofused Melamine: to NEMA LD3 Grade VGL,
.1 High wear resistant thermofused melamine: equal or exceed 400 cycles (Minimum standard for HPL abrasion test).

2.2 MANUFACTURED UNITS

.1 Casework:

.1 Fabricate caseworks to AWMAC custom quality grade.

.2 Furring, blocking, nailing strips, grounds and rough bucks and sleepers.

.1 S2S is acceptable .

.2 Board sizes: "standard" or better grade.

.3 Dimension sizes: "standard" light framing or better grade.

.4 Urea-formaldehyde free.

.3 All casework bodies (ends, divisions, and bottoms);

.1 Particleboard, 19mm thick, laminated with thermofused melamine or HPL, as indicated on drawings.

.4 All casework backs;

.1 Particleboard, 19mm thick, laminated with thermofused melamine, as indicated on drawings.

.5 Shelving;

.1 Particleboard, 19mm thick, laminated with thermofused melamine

.2 All shelving to have continuous 3mm PVC edging to match melamine.

.6 All casework interior surfaces to be white.

.7 All exposed edges of casework to be finished with 3mm PVC edge banding, color and pattern to match face panel.

.8 All semi-concealed edges only (ie: Front edges of boxes and shelves behind doors), to be finished with 1mm PVC, color and pattern to match face panel.

.9 Edgebanding to be applied using an edgebanding machine with heat and pressure.

.2 Drawers:

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

.2 Sides, Backs and Bottoms.

.1 Thermofused melamine: 12.7mm mm thick.

.3 Fronts:
.1 Medium density fibreboard: 19 mm thick, with front face laminated with high pressure plastic laminate.

.3 Casework Doors:
.1 Fabricate doors to AWMAC custom grade supplemented as follows:
.1 Medium Density Fibreboard, 19mm thick. laminated with high pressure plastic laminate.

.4 Countertops:
1. Factory produced with a front raised lip and rounded edge, integral backsplash with coved joint between horizontal and vertical surfaces:
2. Core material particleboard.
3. Surface material post form grade plastic laminate.

2.3 FABRICATION

.1 Set nails and countersink screws apply 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 to interior of cabinetry.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for architectural woodwork installation in accordance with manufacturer's instructions.
.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

.1 Install architectural woodwork to Quality Standards of AWMAC.

.2 Install prefinished millwork at locations shown on drawings.
.1 Position accurately, level, plumb straight.

.3 Fasten and anchor millwork securely. Supply and install 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 Install hardware at location indicated.

.1 Concealed door hinges for overlay doors, 100 degree opening with integral horizontal and vertical adjustment, self-closing. Standard of acceptance: Blum Recessed Hinges.

.2 Drawer slides. Ball bearing slides, side mounted, load capacity: 50 lb. for pair, full extension, finish: electro-plated zinc. Standard of Acceptance: Auccuride.

.3 Pulls: door and drawer pulls (unless specified otherwise): Contemporary brass handle pull, brushed nickel finish, center-to-center 96mm. Standard of Acceptance: Richelieu #BP240296-195

.4 Shelf support Pins: Nickel-plated spoon shaped pins for support of adjustable shelves, inserted into ¼" dia holes drilled 150mm on center, in sides of cabinet. Standard of Acceptance: #282.04.739 by Hafele.

.5 Silencers: clear, soft vinyl buttons.

.6 Miscellaneous hardware: Provide other hardware as required for a complete and proper operation and installation of unit

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.1 Clean millwork and cabinet work, inside cupboards and drawers and outside surfaces.

.2 Remove excess glue from surfaces.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal

3.4 PROTECTION

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

.2 Protect installed products and components from damage during construction.

.3 Repair damage to adjacent materials caused by architectural woodwork installation.

Part 1 General

1.1 SECTION INCLUDES

.1 Fire stopping at all penetrations and perimeter locations of fire resistance rated assemblies, including fire stopping of mechanical and electrical service penetrations.

1.2 SUMMARY

.1 Provide fire stop systems consisting of materials, or combination of materials, installed to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, and hot gases through penetrations, blank openings, construction joints, or at perimeter fire containment in or adjacent to fire-rated barriers in accordance with the requirements of the Building Code and authorities applicable to this project.

.2 Provide fire stop systems at locations including, but not limited to, the following:

.1 Penetrations through fire-resistance-rated floor and ceiling assemblies requiring protected openings including both empty openings and openings that contain penetrations.

.2 Penetrations through fire-resistance-rated wall assemblies including both empty openings and openings that contain penetrations.

.3 Membrane penetrations in fire-resistance-rated wall assemblies where items penetrate one side of the barrier.

.4 Joints in fire-resistance-rated assemblies to allow independent movement.

.5 Joints, through penetrations and membrane penetrations in Smoke Barriers and Smoke Partitions.

.3 Section does not include provision of ULC/UL Listed components which are part of penetrating item assembly, i.e. fire dampers in ductwork, etc.

1.3 RELATED SECTIONS

.1 Section 09 21 99 Partitions for Minor Works

1.4 REFERENCES

.1 Underwriters' Laboratories of Canada (ULC).

.1 Guide BXUVC, Fire Resistance Ratings.

.2 Guide XHEZC, Fire stop Systems.

.3 CAN/ULC-S101, Standard Methods of Fire Endurance Tests of Building Construction and Materials.

.4 CAN/ULC-S102, Standard Test Method for Surface Burning Characteristics of Building Materials.

.5 CAN/ULC-S115, Standard Method of Fire Tests of Firestop Systems.

.2 Underwriters Laboratories Inc. (UL).

.1 Guide BXUV7, Fire Resistance Ratings Certified for Canada.

.2 Guide XHEZ7, Through-penetration Firestop Systems Certified for Canada.

.3 UL 2079, Tests for Resistance of Building Joint Systems.

.3 American Society for Testing and Materials (ASTM).

.1 ASTM E2174, Standard Practice for On-site Inspection of Installed Fire Stops.

.2 ASTM E2307, Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-story Test Apparatus.

.3 ASTM E2393, Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers.

.4 International Fire stop Council (IFC).

.1 Guidelines for Evaluating Fire stop Systems Engineering Judgments

1.5 DEFINITIONS

.1 Fire stopping: Material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, water and hot gases through penetrations and joints between fire rated wall, floor and roof assemblies.

.2 System Design: An assembly of products designed to maintain the integrity of fire-rated construction when tested in accordance with CAN/ULC-S115, designed by a voting IFC member, certified by an independent ULC licensed testing agency, and ULC/UL Listed.

1.6 QUALITY ASSURANCE

.1 Fire stop installation must meet requirements of CAN/ULC-S115 tested assemblies.

.2 For fire stop applications for which no ULC or UL System Design is available through a manufacturer, a manufacturer's Engineering Judgment to be submitted to local Authorities Having Jurisdiction for review and approval prior to installation. Engineering Judgment drawings must follow requirements set forth by the International Fire stop Council.

1.7 QUALITY CONTROL

.1 Inspection: The Departmental Representative may retain an independent inspection agency to examine penetration and joint fire stopping in accordance with ASTM E2174 and ASTM E2393.

.2 Testing will be paid by Departmental Representative, except where testing reveals non-compliant installation, for which replacement is to be paid by Installer.

1.8 SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Product Data: Provide data on product characteristics, performance and limitation criteria.

.3 Shop Drawings: Submit System Design listings, indicating ULC or UL design number and including illustrations, applicable to each firestop configuration.

.1 Where there is no System Design available for a particular firestop configuration, the Installer to pay for and obtain, from the firestop manufacturer, an Engineering Judgment (EJ) or Equivalent Fire Resistance Rated Assembly (EFRRA) for submittal.

.4 Manufacturer's Installation Instructions: Indicate preparation and installation instructions.

1.9 ENVIRONMENTAL REQUIREMENTS

.1 VOC Limitations: For all materials supplied by this Section, the total VOC content must be less than or equal to 250 g/L, less water, when tested to ASTM D2369.

.2 Comply with manufacturer's recommended requirements for temperature, relative humidity and substrate moisture content during application and curing of materials.

.3 Do not proceed with installation of fire stop materials when temperatures or weather conditions exceed manufacturer's recommendations.

.4 Ventilate solvent based and moisture-cure fire stopping per manufacturer's instructions by natural means or, where inadequate, by forced air circulation.

1.10 PRE-INSTALLATION MEETING

.1 Conduct Pre-Construction Meeting at Project site two (2) weeks prior to start of Work.

.1 Review methods and procedures related to fire stopping including, but not limited to, the following:

.1 Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

.2 Review methods and procedures related to fire stopping installation.

.3 Verify reinforcement, blocking and other ancillary components required by the System Design, installed by others, are in place.

Part 2 Products

2.1 ACCEPTABLE MANUFACTURERS

.1 Provide fire stopping and smoke seal systems only from manufacturers publishing ULC Listed or UL Certified for Use in Canada System Designs tested in accordance with CAN/ULC-S115:

.1 VOC Limit: 250 g/L.
.2 Acceptable Manufacturers: A/D Fire, Grace, Hilti, 3M.

2.2 ACCEPTABLE PRODUCTS

.1 Selection of appropriate system to maintain required fire resistance rating is the responsibility of the Installer.
.1 All systems or EJs are to be submitted for review.

.2 Selection to be based on specified performance requirements and is limited to ULC Listed or UL Certified for Use in Canada System Designs tested in accordance with CAN/ULCS115.

.3 Substitution of products, components or accessories forming part of a System Design is not acceptable, unless accompanied by an EJ or EFRRA from the system manufacturer.

.4 Primer: Type recommended by fire stopping manufacturer for specific substrate.

.5 Installation Accessories: Clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place, as required by System Design.

Part 3 Execution

3.1 EXAMINATION

.1 Verify openings are ready to receive the work of this section.

.2 Examine substrates and conditions for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of fire stopping.

.3 Verify that blocking, anchoring devices, back-up materials, clips, sleeves, supports and other related materials is in place where required by System Design.

.4 Do not apply fire stopping to painted surfaces or surfaces treated with sealers, curing compounds, water repellent or other coatings unless compatibility of materials has been verified.

.5 Notify the Departmental Representative of unsatisfactory conditions.

.1 Do not proceed with installation until unsatisfactory conditions have been corrected.

.6 Commencement of Work will be considered acceptance of conditions.

3.2 PREPARATION

.1 Prime substrates where recommended by fire stopping manufacturer using manufacturer's recommended products and methods.

.2 Use masking tape to prevent fire stopping from contacting adjoining surfaces scheduled to remain exposed.

.1 Remove tape on completion of installation, without disturbing the fire stopping seal with substrates.

.3 Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter which may affect bond of fire stopping material.

.4 Remove incompatible materials which may affect bond.

3.3 INSTALLATION

.1 Install fire stopping material and components in accordance with ULC System Design and manufacturer's written instructions.

.2 Install permanent warning labels in both official languages that opening has been firestop protected, provided by fire stopping manufacturer, adjacent to openings that may be re-penetrated or disturbed.

.3 Verify that pipes, conduit, cable, and other items penetrating fire rated construction have been permanently installed prior to fire stopping.

.4 Schedule work so partitions and other construction that conceals penetrations are not erected prior to fire stopping.

.5 Install forming/damming materials and other accessories in accordance with manufacturers written instructions.

.6 Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.

.7 Install materials in a manner that contacts and adheres to the substrates formed by openings and penetrating items.

.8 Finish to produce smooth, uniform surfaces for fill materials to remain exposed.

3.4 FIELD QUALITY CONTROL

.1 Notify Departmental Representative when completed installations are ready for inspection prior to concealing or enclosing area containing fire stopping materials.

.2 Where deficiencies are found, repair or replace the fire stopping, at no cost to Departmental Representative, to comply with requirements of the System Design.

PART 1 - GENERAL

1.1 References

.1 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.

.2 CAN/CGSB-19.21-M87, Sealing and Bedding Compound Acoustical.

1.2 Delivery, Storage, and Handling

.1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 –Common Product Requirements.

.2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.3 Environmental and Safety Requirements

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada.

.2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

.3 Ventilate area of work as directed by Departmental Representative by use of approved portable supply and exhaust fans.

PART 2 - PRODUCTS

2.1 Sealant Materials

.1 Sealants and caulking compounds must:
.1 meet or exceed all applicable governmental and industrial safety and performance standards; and

.2 be manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by laws and regulations including, for facilities located in Canada, the

fisheries Act and the Canadian Environmental Protection Act (CEPA)..2 Sealant and caulking compounds must not be formulated or manufactured with: aromatic solvents, fibrous talc or asbestos, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium, barium or their compounds, except barium sulfate.

.3 Sealant and caulking compounds must not contain a total of volatile organic compounds (VOCs) in excess of 5% by weight as calculated from records of the amounts of constituents used to make the product;

.4 Sealant and caulking compounds must be accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance, and information describing proper disposal methods.

.5 Caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant shall not be used in air handling units.

.6 When low toxicity caulks are not possible, confine usage to areas which off gas to the exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off-gas time.

.7 Sealants:
.1 Sealants acceptable for use on this project must be listed on CGSB Qualified Products List issued by CGSB Qualification Board for Joint Sealants. Where sealants are qualified with primers use only these primers.
.2 Sealant to CAN2-19.13-M87, Classification MCG-2-40-A (or B where applicable)-L.
.3 Acoustical Sealant: to CAN/CGSB-19.21-M87.

.8 Colour of Sealant: to match surface finish in which they occur and as selected by Consultant from manufacturer's standard colour range.

2.2 Sealant Material <u>Designations</u>

.1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
.1 Extruded closed cell foam backer rod.
.2 Size: oversize 30 to 50 %.

.2 Bond Breaker Tape.
.1 Polyethylene bond breaker tape which will not bond to sealant.

2.3 Joint Cleaner

.1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

.2 Primer: as recommended by manufacturer.

PART 3 - EXECUTION

3.1 Protection

.1 Protect installed work of other trades from staining or contamination.

3.2 Preparation of Joint Surfaces

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair work.

.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure joint surfaces are dry and frost free.

.5 Prepare surfaces in accordance with manufacturer's directions.

3.3 Priming

.1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 Backup Material

.1 Apply bond breaker tape where required to manufacturer's instructions.

.2 Install joint filler to achieve correct joint depth and shape, with approximately 30 % compression.

3.5 Mixing

.1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.6 Application

.1 Sealant.
.1 Apply sealant in accordance with manufacturer's written instructions.
.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
.3 Apply sealant in continuous beads.
.4 Apply sealant using gun with proper size nozzle.
.5 Use sufficient pressure to fill voids and joints solid.
.6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
.7 Tool exposed surfaces before skinning begins to give slightly concave shape.
.8 Remove excess compound promptly as work progresses and upon completion.

.2 Curing.
.1 Cure sealants in accordance with sealant manufacturer's instructions.
.2 Do not cover up sealants until proper curing has taken place.

.3 Cleanup.
.1 Clean adjacent surfaces immediately and leave work neat and clean.
.2 Remove excess and droppings, using recommended cleaners as work progresses.
.3 Remove masking tape after initial set of sealant.

Part 1 General

1.1 RELATED SECTIONS

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM A653/A653M-06a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.181-99, Ready- Mixed Organic Zinc- Rich Coating.

.3 Canadian Standards Association (CSA International)

.1 CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CSA W59-03, Welded Steel Construction (Metal Arc Welding).

.4 Canadian Steel Door Manufacturers' Association (CSDMA)

.1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2000.

1.3 SUBMITTALS

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

.1 Indicate each type frame material, core thickness, reinforcements, location of anchors and exposed fastenings and finishes.

1.4 MATERIALS

.1 Hot dipped galvanized steel sheet: to ASTM A653M, minimum thickness 1.6 mm. Reinforcement channel: to CSA G40.20/G40.21.

1.5 PRIMER

.1 Touch-up prime CAN/CGSB-1.181.

1.6 PAINT

.1 Field paint steel frames in accordance with Section 09 91 23 – Interior Painting. Protect weatherstrips from paint. Provide final finish free of scratches or other blemishes.

1.7 ACCESSORIES

.1 Door silencers: single stud rubber/neoprene type.

1.8 FRAMES FABRICATION GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated.

.3 Interior frames: 1.6mm welded type construction.

.4 Blank, reinforce, drill and tap frames for mortised, templated hardware, using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.

.5 Protect mortised cutouts with steel guard boxes.

.6 Prepare frame for door silencers, 3 for single door, 2 at head for double door.

.7 Manufacturer's nameplates on frames and screens are not permitted.

.8 Conceal fastenings except where exposed fastenings are indicated.

.9 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

1.9 FRAME ANCHORAGE

.1 Provide appropriate anchorage to floor and wall construction.

.2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.

.3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.

1.10 FRAMES: WELDED TYPE

.1 Welding in accordance with CSA W59.

.2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

.3 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.

.4 Securely attach floor anchors to inside of each jamb profile.

.5 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

Part 2 Execution

2.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

2.2 INSTALLATION GENERAL

.1 Install doors and frames to CSDMA Installation Guide.

2.3 FRAME INSTALLATION

.1 Set frames plumb, square, level and at correct elevation.

.2 Secure anchorages and connections to adjacent construction.

.3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.

.4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

.5 Caulk perimeter of frames between frame and adjacent material.

2.4 FINISH REPAIRS

.1 Touch up with primer finishes damaged during installation.

.2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

Part 1 General

1.1 RELATED SECTIONS

1.2 REFERENCES

.1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).

.1 Quality Standards for Architectural Woodwork 1998.

.2 Canadian Standards Association (CSA International).

.1 CAN/CSA O132.2 Series-90(R1998), Wood Flush Doors.

1.3 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 Shop Drawings:

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

.2 Indicate door types and cut outs for lights, sizes, core construction and cut outs.

1.4 SAMPLES

.1 Not required.

1.5 QUALITY ASSURANCE

.1 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

.1 Storage and Protection:

.1 Protect doors from dampness. Arrange for delivery after work causing abnormal humidity has been completed.

.2 Store doors in well ventilated room, off floor, in accordance with manufacturer's recommendations.

.3 Protect doors from scratches, handling marks and other damage.

.4 Store doors away from direct sunlight.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.2 Dispose of packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

.3 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.

.4 Divert unused adhesive material from landfill to official hazardous material collections site approved by Departmental Representative.

.5 Do not dispose of unused paint materials into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

Part 2 Products

2.1 WOOD FLUSH DOORS

.1 Solid core: to CAN/CSA-O132.2.1.

.1 Construction:

.1 Solid particleboard core: stile and rail frame bonded to particleboard core with wood lock blocks, 5-ply construction.

.2 Standard of acceptance: - Baillargeon 8600 Series or approved alternate.

.2 Face Panels:

.1 Hardwood; veneer grades: paint grade, birch species.

.3 Adhesive: Type II (water resistant) for interior doors.

2.2 GLAZING

.1 Glass: safety glass: to CAN/CGSB-12.1 clear 6 mm thick, tempered. Refer to Section 08 80 50.

.2 Accessories: setting blocks, neoprene; glazing tape preformed butyl.

2.3 FABRICATION

.1 Vertical edge strips to be hardwood, paint grade..

.2 Where applicable, prepare doors for glazing. Provide hardwood glazing stops with mitred corners.

.3 Bevel vertical edges of single acting doors 3 mm in 50 mm on lock side and 1.5 mm in 50 mm on hinge side.

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 Unwrap and protect doors in accordance with CAN/CSA-O132.2 Series, Appendix A.

.2 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA-O132.2 Series, Appendix A.

.3 Adjust hardware for correct function.

.4 Install glazing.

.5 Secure glazing by means of stops.

3.3 ADJUSTMENT

.1 Re-adjust doors and hardware just prior to completion of building to function freely and properly.

3.4 CLEANING

.1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.

.2 Remove traces of primer, caulking; clean doors and frames.

.3 Clean glass and glazing materials with approved non-abrasive cleaner.

.4 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 74 21 – Construction / Demolition Waste Management and Disposal

.3 Section 01 78 00 – Closeout Submittals

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
- .2 CAN/CGSB-12.2-M91, Flat, Clear Sheet Glass.
- .3 CAN/CGSB-12.3-M91, Flat, Clear Float Glass. .

.2 Environmental Choice Program (ECP)
- .1 CCD-045-95(R2005), Sealants and Caulking Compounds.

.3 Glass Association of North American (GANA)
- .1 GANA Glazing Manual - 2008.
- .2 GANA Laminated Glazing Reference Manual - 2009.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
- .1 Submit shop drawings for review and acceptance of each unit.

1.4 CLOSEOUT SUBMITTALS

.1 Provide maintenance data including cleaning instructions for incorporation into manual in accordance with Section 01 78 00 - Closeout Submittals.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labeled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect glazing and frames from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

1.6 AMBIENT CONDITIONS

.1 Ambient Requirements:
.1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.
.2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Flat Glass: .
.1 Safety glass: to CAN/CGSB-12.1, transparent, 6 mm thick.
.1 Type 1 laminated
.2 Class B-float.

.2 Plastic Film:.
.1 Refer to drawings for type, location and pattern.

.

2.2 ACCESSORIES

.1 Setting blocks: neoprene, 80-90 Shore A durometer hardness to ASTM D 2240, to suit glazing method, glass light weight and area.

.2 Spacer shims: neoprene, 50-60 Shore A durometer hardness to ASTM D 2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.

.3 Glazing tape:
.1 Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume 2%, designed for compression of 25 %, to affect an air and vapour seal.

.4 Glazing splines: resilient polyvinyl chloride, extruded shape to suit glazing channel retaining slot. .

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for glazing installation in accordance with manufacturer's written instructions.
.1 Verify that openings for glazing are correctly sized and within tolerance.
.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.
.3 Visually inspect substrate in presence of Departmental Representative.
.4 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.5 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 PREPARATION

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

3.3 INSTALLATION: INTERIOR WET/DRY METHOD (TAPE AND SEALANT)

.1 Perform work in accordance with GANA Glazing Manual and GANA Laminated Glazing Reference Manual for glazing installation methods.

.2 Cut glazing tape to length and install against permanent stops, projecting 1.6 mm above sight line.

.3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.

.4 Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of light or unit.

.5 Install removable stops, with spacer shims inserted between glazing and applied stops at 600 mm intervals, 6 mm below sight line.

.6 Fill gaps between light and applied stop with sealant to depth equal to bite on glazing, to uniform and level line.

.7 Trim protruding tape edge.

3.4 INSTALLATION: PLASTIC FILM

.1 Install plastic film in accordance with film manufacturer's instructions.

.2 Place without air bubbles, creases or visible distortion.

.3 Fit tight to glass perimeter with razor cut edge.

3.5 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.
.1 Remove traces of primer, caulking.
.2 Remove glazing materials from finish surfaces.
.3 Remove labels.
.4 Clean glass using approved non-abrasive cleaner in accordance with manufacturer's instructions.
.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 After installation, mark each light with an "X" by using removable plastic tape or paste.

.3 Repair damage to adjacent materials caused by glazing installation.

3.7 SCHEDULE

.1 Interior screens as indicated on the drawings.

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM C36/C36M-01, Specification for Gypsum Wallboard.

.2 ASTM C475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

.3 ASTM C645-00, Specification for Non-structural Steel Framing Members.

.4 ASTM C754-00, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

.5 ASTM C840-01, Specification for Application and Finishing of Gypsum Board.

.6 ASTM C1002-01, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.7 ASTM C1047-99, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

.2 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.

1.2 SUBMITTALS

.1 Not required.

1.3 DESIGN REQUIREMENTS

.1 Partition assembly to be non-combustible construction.

.2 Minimum sound transmission rating of installed panel partition to be STC 50, tested to ASTM E90.

1.4 STORAGE AND HANDLING

.1 Store materials inside, level, under cover. Protect from weather, damage from construction operations and other causes, in accordance with manufacturer's printed instructions.

.2 Handle materials to prevent damage to edges or surfaces. Protect metal accessories and trim from being bent or damaged.

Part 2 Products

2.1 NON-STRUCTURAL METAL FRAMING

.1 Non-load bearing channel stud framing: to ASTM C645, 92 mm stud size, roll formed from 0.53 mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.

.2 Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes, 32 mm flange height.

.3 Metal channel stiffener: 19 x 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.

2.2 GYPSUM BOARD

.1 Standard board: to ASTM C36/C36M regular, 15.9 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges tapered.

.2 Metal furring runners, hangers, tie wires, inserts, anchors: to ASTM C645.

.3 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.

.4 Steel drill screws: to ASTM C1002.

.5 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, metal, zinc-coated by electrolytic process, 0.5 mm base thickness, perforated flanges, one piece length per location.

.6 Joint compound: to ASTM C475, asbestos-free.

2.3 ACCESSORIES

.1 Acoustical insulation and sealant: type recommended by manufacturer to achieve STC rating specified.

.2 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene, with self sticking permanent adhesive on one face, widths and lengths as required.

Part 3 Execution

3.1 ERECTION OF FRAMING

.1 Install steel framing members to receive screw-attached gypsum board in accordance with ASTM C754 except where specified otherwise.

.2 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.

.3 Place studs vertically at 400 mm on centre and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.

.4 Erect metal studding to tolerance of 1:1000.

.5 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.6 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.

.7 Install heavy gauge single jamb studs at openings.

.8 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.

.9 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.

.10 Install steel studs or furring channel between studs for attaching electrical and other boxes.

.11 Extend partitions to ceiling height except where noted otherwise on drawings.

.12 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use double track slip joint.

.13 Install continuous insulating strips to isolate studs from uninsulated surfaces.

.14 Install insulating strip under studs and tracks around perimeter of sound control partitions.

3.2 ERECTION OF GYPSUM BOARD AND ACCESSORIES

.1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.

.2 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.

.3 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.4 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles and similar.

.5 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.

.6 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.

.7 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

.8 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.

.9 Install acoustical insulation and sealant in sound rated partitions to correspond with tested assembly.

.10 Install gypsum boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.

3.3 APPLICATION

.1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical works are approved.

.2 Apply single and double layer gypsum board to metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm on centre.

3.4 INSTALLATION

.1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre.

.2 Install casing beads around perimeter of suspended ceilings.

.3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.

.4 Install access doors to electrical and mechanical fixtures specified in respective sections.

.1 Rigidly secure frames to furring or framing systems.

.5 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.

.6 Finish corner beads, control joints and trim as required with two coats of joint compound and minimum one coat of taping compound, feathered out onto panel faces.

.7 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.

.8 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures

.2 Section 09 65 19 – Resilient Flooring

.3 Section 09 21 99 - Partitions For Minor Works

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .2 CGSB 71-GP-22M-78(AMEND.), Adhesive, Organic, for Installation of Ceramic Wall Tile.
- .3 CAN/CGSB-75.1-M88, Tile, Ceramic.
- .4 CAN/CGSB-25.20-95, Surface Sealer for Floors.

.2 Canadian Standards Association (CSA International)
- .1 CAN/CSA-A3000-03(R2006), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.3 Terrazzo Tile and Marble Association of Canada (TTMAC)
- .1 Tile Specification Guide 09 30 00 2012/2014, Tile Installation Manual.
- .2 Tile Maintenance Guide 2000.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Include manufacturer's information on:
  - .1 Ceramic tile, marked to show each type, size, and shape required.
  - .2 Commercial cement grout.
  - .3 Aluminum trim.

.3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Wall tile: submit duplicate, 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
- .3 Trim system: Submit 300mm length of each type or trim used for caps, coves and transition in specified finish.

1.4 QUALITY ASSURANCE

.1 Quality Assurance Submittals:

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

instructions.

.2 Manufacturer's Field Reports: manufacturer's field reports specified.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.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.

1.6 AMBIENT CONDITIONS

.1 Maintain air temperature and structural base temperature at ceramic tile installation area above 18 degrees C for 48 hours before, during, and 48 hours after, installation.

.2 Do not install tiles at temperatures less than 12 degrees C or above 28 degrees C.

.3 Do not apply mortar and grout at temperatures below 15 degrees C or above 25 degrees C.

PART 2 - PRODUCTS

2.1 WALL AND CEILING TILE

.1 Ceramic tile WT-1 To be used for all new kitchenette backsplashes, as indicated on drawings. Glass tile, 50mm x 305mm (2” x 12”), polished edges, clear glass with colored back, glazed surface.
Glass tile to have 20% post-consumer content.
Standard of Acceptance: Manufacturer: Keen, Series: Ocean 2” x 12” glass, Distributor: Elegant Flooring. Product must have a selection of a minimum of 8 colors. Allow for the selection of three colors by Departmental Representative.

2.2 TRIM SHAPES

.1 Conform to applicable requirements of adjoining floor and wall tile.

.2 Use trim shapes sizes conforming to size of adjoining field wall tile, including existing spaces, unless specified otherwise.

.3 At all vertical ends / exposed tile edges, provide metal trim
Standard of Acceptance: Schluter Strip, style: Rondec 80 AE Satin anodized aluminum.

2.3 MORTAR AND

.1 Adhesives: As per manufacturer’s recommendation.

ADHESIVE MATERIALS

.2 Dry set cement mortar to: ANSI A108.1.

.3 Acceptable manufacturer of mortar systems for glass tile listed below. Use material from one manufacturer for the entire project. Do not interchange systems products.

.4 Standard of Acceptance: Kiesel
.1 Mortar material for walls: Keisel Servolight 52 thinset mortar.

2.4 GROUT

.1 Colouring Pigments:
.1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C 979.
.2 Colouring pigments to be added to grout by manufacturer.
.3 Job coloured grout are not acceptable.
.4 Use in Commercial Cement Grout, Dry-Set Grout, and Latex Cement Grout.

.2 Cement Grout: to ANSI A108.1.
.1 Use one part white cement to one part white sand passing a number 30 screen.

.3 Commercial Cement Grout: to CTI A118.6.

.4 Dry-Set Grout: to CTI A118.6.

.5 Latex Cement Grout: to ANSI A108.1, fast curing, high early strength, polymer-modified, stain resistant, sanded mix for floors, unsanded mix for walls and floors with polished tiles commercial tile grout.

PART 3 – EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 WORKMANSHIP

.1 Do tile work in accordance with TTMAC Tile Installation Manual 2012-2014, "Ceramic Tile", except where specified otherwise.

.2 Apply tile or backing coats to clean and sound surfaces.

.3 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges

smooth and even. Do not split tiles.

.4 Maximum surface tolerance 1:800.

.5 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.

.6 Lay out tiles so perimeter tiles are minimum 1/2 size.

.7 Sound tiles after setting and replace hollow-sounding units to obtain full bond.

.8 Make internal angles square. Use Schluter trim on external angles.

.9 Use Schluter trim at termination of wall tile panels, except where panel abuts projecting surface or differing plane.

.10 Allow minimum 24 hours after installation of tiles, before grouting.

.11 Clean installed tile surfaces after installation and grouting cured.

3.3 WALL TILE

.1 Install in accordance with TTMAC details.

3.4 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:

.1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.5 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 74 21 – Construction /Demolition Waste Management and Disposal

.3 Section 00 78 00 - Closeout Submittals

.4 Section 09 53 00 – Acoustical Suspension

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM C 423-02a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- .2 ASTM E 1264-98, Standard Classification for Acoustical Ceiling Products.
- .3 ASTM E 1477-98a(2003), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.

.3 Canadian Standards Association (CSA International)
- .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.5 Underwriter's Laboratories of Canada (ULC)
- .1 CAN/ULC-S102, 2003, Surface Burning Characteristics of Building Materials and Assemblies.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit duplicate 300mm x 3000mm samples of each type acoustical units.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Protect on site stored or installed absorptive material from moisture damage.

.2 Store extra materials required for maintenance, where directed by Departmental Representative.

.3 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.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, metal, pallets, packaging material, in appropriate on-site containers for recycling in accordance with Waste Management Plan (WMP).

.4 Place materials defined as hazardous or toxic in designated containers in accordance with Section 01 35 43 - Environmental Procedures.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Permit wet work to dry before beginning to install.

.2 Maintain uniform minimum temperature of 15]degrees C and humidity of 20-40% before and during installation.

.3 Store materials in work area 48 hours prior to installation.

1.6 EXTRA MATERIALS

.1 Provide extra materials of acoustic units in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type required for project.

.3 Ensure extra materials are from same production run as installed materials.

.4 Clearly identify each type of acoustic unit, including colour and texture.

.5 Deliver to Departmental, upon completion of the work of this section.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Acoustic units for suspended ceiling system: to CAN/CGSB-92.1.

.1 Mineral Fiber, wet-formed

.2 Fine texture, no pattern, unperforated design

.3 Factory-applied latex paint on Durabright acoustically transparent membrane

.4 Weight: 1.025 (lbs/sq.ft.)
.5 ASTM Classification: Type: IV, Form: 2, Pattern: E
.6 Flame Spread: Class A (UL), in accordance with CAN/ULC-S102.
.7 Light Reflectance: LRC 0.9 minimum, as per ASTM E 1477
.8 Acoustic NRC: 0.85 minimum, as per ASTM C423
.9 Color: White
.10 Edge Profile: Square Lay-in
.11 Size: 610mm x 1219mm (24” x 48”) Contractor responsible to confirm compatibility with existing grid where existing grid is to remain.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Do not install acoustical panels and tiles until work above ceiling has been inspected by Departmental Representative.

3.2 INSTALLATION

.1 Install acoustical panels and tiles in ceiling suspension system.

3.3 APPLICATION

.1 Install acoustic units as per reflected ceiling plans.

.2 Install acoustical units parallel to building lines with edge unit not less than 50% of unit width, with directional pattern running in same direction. Refer to reflected ceiling plan.

.3 Scribe acoustic units to fit adjacent work. Butt joints tight, terminate edges with moldings.

3.4 INTERFACE WITH OTHER WORK

.1 Co-ordinate with Section 09 53 00 - Acoustical Suspension.

.2 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 09 51 13 – Acoustic Panel Ceiling

1.2 REFERENCES

.1 ASTM International
- .1 ASTM C 635/C 635M, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
- .2 ASTM C 636/C 636M, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for acoustical suspension and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:
- .1 Submit for review and acceptance of each unit.
- .2 Samples will be returned for inclusion into work.
- .3 Submit one representative model of ceiling suspension system.
- .4 Ceiling system to show basic construction and assembly, treatment at walls, recessed fixtures, splicing, interlocking, finishes, acoustical unit installation.

1.4 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for acoustical suspension for incorporation into manual.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 DESIGN CRITERIA

.1 Design Requirements: maximum deflection: 1/360th of span to ASTM C 635/ASTM C635M deflection test.

2.2 MATERIALS

.1 Intermediate duty system to ASTM C 635/ASTM C635M.

.2 Basic materials for suspension system: commercial quality cold rolled steel.

.3 Suspension system: non fire rated, made up as follows:
.1 2 directional exposed grid.

.4 Exposed tee bar grid components: shop painted satin sheen white colour. Components die cut. Main tee with double web, rectangular bulb and 25 mm rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection.

.5 Hanger wire: galvanized soft annealed steel wire:
.1 3.6 mm diameter for access tile ceilings.

.6 Hanger inserts: purpose made.

.7 Accessories: splices, clips, wire ties, retainers and wall moulding flush, to complement suspension system components, as recommended by system manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for acoustical ceiling tile and track installation in accordance with manufacturer's written instructions.
.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative..

3.2 INSTALLATION

.1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

.2 Installation: to ASTM C 636/C 636M except where specified otherwise.

.3 Install suspension system to manufacturer's instructions.

.4 Do not erect ceiling suspension system until work above ceiling has been inspected and approved by Departmental Representative.

.5 Secure hangers to overhead structure using attachment methods acceptable to Departmental Representative.

.6 Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.

.7 Lay out system according to reflected ceiling plan.

.8 Ensure suspension system is co-ordinated with location of related components.

.9 Install wall moulding to provide correct ceiling height.

.10 Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles and speakers .

.11 Support at light fixtures and diffusers with additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.12 Interlock cross member to main runner to provide rigid assembly.

.13 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.

.14 Finished ceiling system to be square with adjoining walls and level within 1:1000.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
.1 Touch up scratches, abrasions, voids and other defects in painted surfaces.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 Construction/Demolition Waste Management.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by acoustical suspension installation.

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 35 30 – Health & Safety

.3 Section 01 74 21 – Construction /Demolition Waste Management and Disposal

.4 Section 01 78 00 - Closeout Submittals

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM f970-07, Standard test Method for Static Load Limit
- .2 ASTM F 1344-12, Standard Specification for Rubber Floor Tile.
- .3 ASTM F1861-08, Standard Specification for Resilient Wall Base
- .4 ASTM F2034-08 Standard Specification for Sheet Linoleum Floor Covering.

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.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.3 Underwriters Laboratories of Canada (ULC)
- .1 CAN/ULC-S102.2-10, Method of Test for Surface Burning Characteristics of Floor Covering and Miscellaneous Materials and Assemblies.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Provide manufacturer's product data and installation instructions in accordance with Section 01 33 00 - Submittal Procedures for all resilient flooring products.

.3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Submit duplicate 300 mm x 300mm sample pieces of each color of sheet material.
- .2 Submit 300mm long sample of each color of base, nosing and edge strips.

.4 Closeout Submittals:
.1 Provide maintenance data for resilient flooring products for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.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.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Maintain air temperature and structural base temperature at flooring installation area above 20 degrees C for 48 hours before, during and for 48 hours after installation.

1.6 MAINTENANCE

.1 Extra Materials:

.1 Not required

PART 2 - PRODUCTS

2.1 MATERIALS

1 General: Colors of all materials to be selected and approved by Consultant.

.2 Linoleum sheet flooring:
This product has been deleted from this project.

.3 Vinyl Tile:
.1 Solid vinyl floor tile/plank comprised of a vinyl wear layer with a high performance top coat with a thick glass veil interlayer to provide dimensional stability and a calendared backing to support the wear layer
.2 Meets or exceeds ASTM F 1700 Standard Specification for Solid Vinyl Tile, Class III, Type B
.3 Slip Resistance: Meets or exceeds 0.6 for flat surfaces in accordance to ASTM D 2047
.4. Fire Resistance: ASTM E648/NFPA 253 – Class 1, ASTM E 662/NFPA 258 (Smoke Density) 450 or less.
.5 Size: 150 – 200mm x 1000 – 12000mm
.6 Gauge (Thickness): 2.2 mm
.7 Wear Layer: 0.55 mm minimum

.8 Pattern: Wood grain pattern

.9 Colour: Product to have a minimum 15 color selections for selection by Departmental Representative. Two different colors will be used in the project

.10 Standard of Acceptance: Forbo Allura LVTHQ

.4 Resilient base: Rubber, coved, minimum 1200 mm length and 152 mm high x 3.17 mm thick. Six colours to be selected by Departmental Representative for use throughout the project.

.5 Primers and adhesives: As recommended by flooring manufacturer for specific material on applicable substrate, above, at or below grade.

.1 Sheet floor and tile adhesives: maximum VOC limit 60 g/L to SCAQMD Rule 1168.

.2 Rubber base adhesives: maximum VOC limit 50g/L to SCAQMD Rule 1168.

.6 Sub-floor filler and leveler: white premix latex requiring water only to produce cementitious paste as recommended by flooring manufacturer for use with their product.

.7 Edge strips: Vinyl reducers / transitions to be installed at changes of all resilient flooring materials to existing flooring material, or concrete flooring, with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSPECTION

.1 Ensure concrete floors are dry, by using test methods recommended by tile manufacturer.

.2 Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that may prevent adhesive bond or impair durability or appearance of the flooring material.

.3 Visually inspect for evidence of dusting mold and mildew.

.4 Report conditions contrary to contract requirements that would prevent a proper installation to Departmental Representative immediately upon discovery.

.5 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed is received from Departmental Representative

.6 Failure to identify defects or imperfections will be construed as acceptance and approval of subfloor. Installation indicates acceptance of substrates with regards to conditions existing at the time of installation.

3.3 SUB-FLOOR TREATMENT

.1 Remove existing flooring as noted on demolition drawing.

.2 Clean floor, apply caulking material to any cracks or control joints and then apply filler / floor leveling material over 100% of the project floor area. Trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.

.3 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.

.4 Prime and seal concrete sub-floor according to flooring manufacturer's printed instructions.

.5 Refer to drawings for additional notes.

3.4 SHEET AND TILE APPLICATION

.1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system.

.2 Install flooring in strict adherence with the latest addition of the manufacturer’s printed installation guidelines.

.3 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.4 Install flooring with joints parallel to building lines. Install flooring wall to wall, flooring patterns shown on drawings. Extend flooring into toe spaces, door recesses, closets and similar openings.

.5 If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to the covers.

.6 Adhere flooring to the subfloor without cracks, voices, raising or puckering at the seams. As installation progresses, and after installation, roll flooring in 2 directions, except vinyl tile, with 45 kg minimum roller to ensure full adhesion. Hand roll flooring at perimeter and the seams to assure adhesion. Refer to specific rolling instructions of the flooring manufacturer.

.7 Lay flooring with a minimum number of seams. Avoid cross seams, filler pieces and strips. Match edges for color shading and pattern at the seams in compliance with the manufacturer's recommendations.

.8 Cut tile and fit neatly around fixed objects.

.9 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.

.10 For sheet flooring, prepare heat-welded seams with specialized routing tool intended for this procedure and heat weld with vinyl welding rods in seams. Use method and sequence of work in conformance with written instructions of the flooring manufacturer. Finish all seams flush and free from voids, recesses and raised areas.

.11 Install vinyl transition edge strips at unprotected or exposed edges where floor terminates.

3.5 BASE APPLICATION

.1 Lay out base to keep number of joints at minimum.

.2 Clean substrate and prime with one coat of adhesive.

.3 Apply adhesive to back of base.

.4 Set base against wall and floor surfaces tightly by using 3 kg hand roller.

.5 Install straight and level to variation of 1:1000.

.6 Scribe and fit to door frames and other obstructions.

.7 Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles, minimum 300mm each leg.

.8 Apply base to all built-in millwork as indicated.

3.6 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:
.1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.7 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 Remove excess adhesive from floor, base and wall surfaces without damage.

.3 Perform initial maintenance in accordance with manufacturer’s written instructions. Contact manufacturer’s technical representative prior to initial clean.

.4 Dry buff flooring with a 100 rpm plus rotary machine fitted with a suitable clean pad at completion.

3.8 PROTECTION

.1 Protect new floors from time of final initial cleaning until final inspection.

.2 Prohibit traffic on floor for 48 hours after installation.

Part 1

1.1 RELATED SECTIONS

Part 2 General

2.1 REFERENCES

.1 American Association of Textile Chemists and Colorists (AATCC)

.1 AATCC 16-1998, Color Fastness to Light.

.2 AATCC 23-1999, Color Fastness to Burn Gas Fumes.

.3 AATCC 118-1997, Oil Repellency: Hydrocarbon Resistance Test.

.4 AATCC 129-2001, Colour Fastness to Ozone in the Atmosphere Under High Humidities.

.5 AATCC 134-2001, Electrostatic Propensity of Carpet.

.6 AATCC 171-2000, Carpets: Cleaning of; Hot Water Extraction Method.

.7 AATCC 174-1998, Antimicrobial Activity Assessment of Carpets.

.8 AATCC 175-1998, Stain Resistance: Pile Floor Coverings.

.9 AATCC 189-2001, Fluorine Content of Carpet Fibers.

.2 American Society for Testing and Materials (ASTM International)

.1 ASTM D1335-98, Tuft Bind of Pile Floor Coverings.

.2 ASTM D3936-00 Standard Test Method for Resistance to Delamination of the Secondary Backing of Pile Yarn Floor Covering.

.3 ASTM D5417-99, Standard Practice for Operation of the Vettermann Drum Tester.

.4 ASTM E84-01, Test Method for Surface Burning Characteristics of Bulding Materials.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-4.2 No.27.6-M91, Textile Test Methods - Flame Resistance - Methemine Tablet Test for Textile Floor Coverings.

.2 CAN/CGSB-4.2 No.77.1-94/ISO 4919:1978, Textile Test Methods - Carpets - Determination of Tuft Withdrawal Force.

.3 CAN/CGSB-4.129-93(R1997), Carpets for Commercial Use.

.4 CGSB 20-GP-23M-78, Cushion, Carpet, Flexible Polymeric Material.

.5 CAN/CGSB-25.20-95, Surface Sealer Floors.

.4 Carpet and Rug Institute (CRI)

.1 CRI-104-96, Standard Installation of Commercial Carpet.

.2 IAQ Carpet Testing Program.

.5 National Floor Covering Association (NFCA)

.1 Floor Covering Specification Manual 1998.

.6 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S102-88(R2000), Surface Burning Characteristics of Building Materials and Assemblies.

.2 CAN/ULC-S102.2-88(R2000), Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies.

2.2 SUBMITTALS

.1 Submit control submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit verification to demonstrate compliance with CAN/ULCS102 and CAN/ULCS102.2.

.3 Submit proof that carpet has been tested and passed the Indoor Air Quality (IAQ) Carpet Testing Program requirements of the Carpet and Rug Institute (CRI) and the Canadian Carpet Institute (CCI).

.4 Submit report verifying that tuft bind meets requirements of CAN/CGSB-4.129 when tested to CAN/CGSB-4.2 No.77.1.

.5 Submit report outlining proposed dust control measures.

.6 Submit carpet schedule using same room designations indicated on drawings.

.7 Submit carpet manufacturer's installation instructions: Indicate special procedures and perimeter conditions requiring special attention.

.8 Submit certification and description of carpet recycling process.

2.3 PRODUCT DATA

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit product data sheet for each carpet, undercushion, adhesive, carpet protection and subfloor patching compound.

.3 Submit WHMIS MSDS - Material Safety Data Sheets acceptable to Labour Canada and Health Canada for carpet

adhesive and seam adhesive. Indicate VOC content.

.4 Submit data on specified products, describing physical and performance characteristics, sizes, patterns, colours, and methods of installation.

2.4 SHOP DRAWINGS

.1 Not required.

2.5 SAMPLES

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

.2 Submit duplicate pieces of each type carpet specified.

2.6 CLOSEOUT SUBMITTALS

.1 Submit operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

.2 Submit maintenance data: Include maintenance procedures, recommendations for maintenance materials and equipment, and suggested schedule for cleaning.

.3 Schedule of carpet reclamation activities indicating following:

.1 Detailed sequence of removal work.

.2 Inventory of items to be removed and reclaimed.

.3 Proposed packing and transportation measures.

.4 Reclamation agencies' records indicating receipt and disposition of use carpet.

.5 Certification: Reclamation Agency to verify in writing that used carpet was removed and recycled in accordance with carpet manufacturers' reclamation program.

.1 Record off-site removal of debris and materials and provide following information regarding removed materials.

.1 Time and date of removal.

.2 Type of material.

.3 Weight and quantity of materials.

.4 Final destination of materials.

2.7 QUALIFICATIONS

.1 Installer Qualifications:

.1 Flooring contractor requirements.

.1 Specialty contractor normally engaged in this type of work, with prior experience in installation of these types of materials.

.2 Certified by carpet manufacturer prior to tender submission.

.3 Must not sub-contract labour without written approval of Department Representative.

.2 Be responsible for proper product installation, including floor testing and preparation as specified and in accordance with carpet manufacturers written instructions.

2.8 REGULATORY REQUIREMENTS

.1 Prequalification: compliance with Department of Consumers and Corporate Affairs regulations under "Hazardous Products Act", Part II of the Schedule, tested to CAN/CGSB-4.2-No.27.6.

.2 Indoor Air Quality: compliance with CRI/CCI Green Label Indoor Air Quality Program, CRI/CCI-IAQ requirements for maximum total volatile chemicals released into air. Label each carpet product with CRI/CCI-IAQ label.

2.9 DELIVERY, STORAGE AND HANDLING

.1 Store packaged materials in original containers or wrapping with manufacturer's seals and labels intact.

.2 Store carpeting and accessories in location as directed by Departmental Representative. Store carpet and adhesive at minimum temperature of 18°C and relative humidity of maximum 65% for minimum of 48 hours before installation.

.3 Prevent damage to materials during handling and storage. Keep materials under cover and free from dampness.

.4 Store materials in area of installation for minimum period of 48 hours prior to installation.

.5 Modular carpet: store on pallet form as supplied by Manufacturer. Do not stack pallets.

2.10 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal, and with Waste Reduction Workplan.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.

.4 Sort only clean, dry carpet materials for reclamation. Clean is defined as carpet free from demolition debris, asbestos contamination, garbage and tack strips.

.5 Immediately remove used carpet from site and transport to reclamation point.

.6 Carpet undercushion: provide recycling of carpet padding where locally available or as designated by carpet reclamation program.

2.11 ENVIRONMENTAL REQUIREMENTS

.1 Moisture: Ensure substrate is within moisture limits and alkalinity limits prescribed by manufacturer. Prepare moisture testing and provide report to Departmental Representative.

.2 Temperature: Maintain ambient temperature of not less than 18°C from 48 hours before installation to at least 48 hours after completion of work.

.3 Relative humidity: Maintain relative humidity between 10 and 65% RH for 48 hours before, during and 48 hours after installation.

.4 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.

.5 Ventilation:

.1 Departmental Representative will arrange for ventilation system to be operated during installation of carpet.

.6 Do not install carpet until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete.

2.12 EXTRA MATERIALS

.1 Provide 3 m^2 of each colour, pattern and type of carpeting.

.2 Extra materials to be from same production run as installed materials.

.3 Deliver to Departmental Representative and store where directed by Departmental Representative.

Part 3 Products

3.1 MANUFACTURERS

.1 Certified to Carpet and Rug Institute's and the Canadian Carpet Institute IAQ requirements.

3.2 MODULAR CARPET

.1 Carpet tile shall meet or exceed the following characteristics:

.1 Field carpet tile, minimum of 2 coordinating styles in coordinating colours (minimum 2 colours) and patterns varying in scale. Minimum of 2 coordination styles to be “non-directional” or “random” pattern and installation (installer places carpet on floor without any regard to arrows or patterning).

.2 Carpet Tile Dimensions:

.1 Minimum 455m x 455 mm, maximum 610 mm x 610 mm.

.3 Carpet: CAN/ CGBSB 4.129 and as follows:

.1 Certified for flammability to Health Canada regulations under “Hazardous Products (Carpet) Regulations” Part II of the Schedule.

.2 Maximum flame spread rating 300; maximum smoke developed classification 500 when tested to CAN/ULC-S102.2

.3 Certified to Carpet and Rug Institute’s and the Canadian Carpet Institute’s IAQ requirements.

.4 Performance rating to ASTM D 5417.

.4 Water Consumption for Final product:

.1 100% Solution Dyed: 0 litre/m²

.2 Combination of solution dyed and maximum 30% yarn dyed: maximum 22 litres/ m²

.5 Construction:

.1 Tufted Loop.

.6 Pile Surface Apperance:

.1 Multi-Colour, Textured Pattern.

.7 Pile Fibre: CAN/CGSB 4.129:

.1 100% first quality, bulk continuous filament nylon, branded and certified, externally extruded by a fibre producer offereing a construction and performance standards testing program for the carpet specified, either: type 6.6 or 6, Trilobal or Square Hollowfill Cross-section. Fibre shape to have maximum Modification Ratio of 2.5 for soil release capabilities. Fibre identification to AATCC 20. Acceptable suppliers: Invista, Solutia, Universal, Aquafil, Nylene, Zeftron.

.8 Tuftbind ASTM D 1335, minimum 35 N.

.9 Yarn Ply: combination of two ply and one ply.

.10 Pile weight: minimum 576 gm/m² (17 oz/ sq yard).

.11 Pile density: minimum 5400.

.12 Pile height: minimum 2.00 mm, maximum 5.00 mm

.13 Kilotex Rating: minimum 9.5

.14 Yarn Dyed Method: 100% solution dyed or a combination of solution dyed and maximum 30% yarn dyed.

.15 Total Weight: minimum 4374 gm/m² for carpet tile with fibreglass or nylon reinforced vinyl composite secondary backing and 3700 gm/m² for carpet tile with polyolefin secondary backing.

.16 Colourization: multiple colour tones.

.17 Colourfastness to light: CAN/CGSB 4.2 No.18.3, AATCC 16E, minimum L4 after 40 hours.

.18 Colourfastness to Atmospheric Fading: to AATCC 129 and AATCC 23.

.19 Colourfastness to Crocking AATCC 165 greater or less than 4.0 wet, dry.

.20 Primary Backing: non-woven.

.21 Secondary Backing: fibreglass or nylon reinforced vinyl composite: polyolefin

.1 Density: as per ASTM D 1667

.2 Dimensional Stability: ISO 2551 (Aachner Test), maximum 0.1%change.

.3 Delamination: ASTM D3936: minimum 5N/cm.

.22 Soil Resistance: An average of 3 fluorine analyses AATCC 189 of a single composite sample to be a minimum of 500 ppm fluorine by weight when new and an average of 3 fluorine analyses using AATCC 190 to be a maximum of 400 ppm fluorine by weight after 2 AATCC 171 (HWE) cleanings.

.23 Stain Resistance: AATCC 171 minimum 2 washing to simulate removal of topical treatments by hot water extraction, followed by: AATCC 175, minimum of 8 using AATCC Red dye 40 Reference Scale.

.24 Appearance Retention: Hexapod Drum ASTM D5252 for 12,000 cycles, minimum rating of 3.0 using CRI TM-101 Reference Scales.

.25 Permanent static control: to AATCC 134, 3500V maximum at 20% RH and 22°C.

.26 Antimicrobial: To AATCC 138 washed and

AATCC 174 Part 2 and 3.

.27 Recycling

.1 New Carpet: Must be eligible for recycling by the supplying mill or fibre producer within an existing program in place; submit program parametres.

.28 Recycled Content

.1 Total Recycled content: minimum of 40% recycled content.

.29 Adhesives:

.1 Releasable, pressure sensitive adhesive to conform to carpet manufacturers specifications.

.2 Acrylic polymer emulsion, resin mixture, latex adhesive.

.3 Alternate adhesive method may be required to be used(e.g.: “peel and stick”) if agreed upon by the Departmental Representative.

.30 Accessories:

.1 Seaming tape: types recommended by carpet manufacturer for purpose intended

.2 Seaming sealer adhesive: type recommended by carpet manufacturer for purpose intended.

.3 Binder Bars: as recommended by carpet manufacturer.

.4 Carpet protection: non-staining heavy duty Kraft paper.

.5 Concrete floor sealer: to CAN/CGSB 25.20, Type 1.

.6 Sub floor patching compound: Portland cement base filler, mixed with latex and water to form a cementations paste.

Part 4 Execution

4.1 DEMOLITION

.1 Remove carpet in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal, and with Waste Reduction Workplan. Coordinate with Departmental Representative.

4.2 SUB-FLOOR TREATMENT

.1 Concrete shall be inspected to determine special care required to make it a suitable foundation for carpet. Cracks 3 mm wide or protrusions over 0.8 mm will be filled and levelled with appropriate and compatible patching compound.

.2 Do not exceed manufacturer's recommendations for patch thickness.

.3 Large patch areas are to be primed with a compatible primer.

.4 Concrete substrates shall be cured, clean and dry.

.5 Concrete and other substrates shall be free of paint, dirt, grease, oil, curing or parting agents, and other contaminates, including sealers, that may interfere with the bonding of the adhesive.

.6 Wherever a powdery or porous concrete surface is encountered, a primer compatible with the adhesive shall be used to provide a suitable surface for glue-down installation.

4.3 PREPARATION

.1 Prepare floor surfaces in accordance with CRI 104 Standard for Installation of Commercial Carpet.

.2 Pre-condition carpeting following manufacturer's printed instructions.

4.4 INSTALLATION

.1 Install carpeting using minimum of pieces.

.2 Install in accordance with manufacturer's printed instructions and in accordance with Carpet and Rug Institute Standard for Installation of Commercial Carpet, CRI 104.

.3 Install carpet after finishing work is completed but before demountable office partitions and telephone and electrical pedestal outlets are installed.

.4 Finish installation to present smooth wearing surface free from conspicuous seams, burring and other faults.

.5 Use material from same dye lot. Ensure colour, pattern and texture match within any one visual area. Maintain constant pile direction.

.6 Fit neatly around architectural, mechanical, electrical and telephone outlets, and furniture fitments, around perimeter of rooms into recesses, and around projections.

.7 Install carpeting to underfloor duct system and to access covers.

.8 Install carpeting in pan type floor access covers.

.9 Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

.10 Install carpet smooth and free of bubbles, puckers, and other defects.

4.5 MODULAR CARPET

.1 Apply acrylic release type adhesive and install modular carpet in accordance with manufacturer's written instructions.

.2 Lay modular carpet with butt seams.

.3 Roll modular carpet with appropriate roller for complete contact of carpet with mill-applied adhesive to sub-floor.

4.6 PROTECTION OF FINISHED WORK

.1 Vacuum carpets clean immediately after completion of installation. Protect traffic areas.

.2 Prohibit traffic on carpet for a period of 24 hours until adhesive is cured.

.3 Install carpet protection to satisfaction of Departmental Representative.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 Department of Justice Canada (Jus)
- .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33 .

.2 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.3 Master Painters Institute (MPI)
- .1 MPI Architectural Painting Specifications Manual, 2004
- .2 MPI Green Performance Standard.

.4 Society for Protective Coatings (SSPC)
- .1 SSPC Painting Manual, Volume Two, 2008 Edition, Systems and Specifications Manual.

1.2 QUALITY ASSURANCE

.1 Mock-Ups:
- .1 Construct mock-up as follows:
  - .1 Provide 2500,, x 2500mm mock-up. Prepare and paint designated surface, area, room or item to specified requirements, with specified paint or coating showing selected colour, gloss/sheen, and texture.
  - .2 Mock-up will be used to judge workmanship, substrate preparation, operation of equipment and material application and workmanship to MPI Architectural Painting Specification Manual standards.
  - .3 Locate where directed by Departmental Representative.
  - .4 Allow 48 hours for inspection of mock-up before proceeding with work.
  - .5 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may remain as part of finished work.

.2 Pre-Installation Meeting:
- .1 Convene pre-installation meeting two weeks prior to beginning work of this Section.
  - .1 Verify project requirements.
  - .2 Review installation and substrate conditions.
  - .3 Coordination with other building subtrades.
  - .4 Review manufacturer's installation instructions and warranty requirements.

.3 Health and Safety:
.1 Do all work in accordance with Section 01 35 29 Health and Safety Requirements.

1.3 SCHEDULING

.1 Schedule painting operations to prevent disruption of other trades.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Submit product data and instructions for each paint and coating product to be used.
.2 Submit product data for the use and application of paint thinner.
.3 Submit three copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOCs during application and curing.

.3 Samples:
.1 Submit full range colour sample chips.
.

4 Manufacturer's Instructions:
.1 Submit manufacturer's installation and application instructions.
.

.5 Closeout Submittals: submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals, including :
.1 Product name, type and use.
.2 Manufacturer's product number.
.3 Colour number[s].
.4 MPI Environmentally Friendly classification system rating.

1.5 MAINTENANCE MATERIALS

.1 Extra Materials:
.1 Deliver extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Section 01 78 00 - Closeout Submittals.
.2 Quantity: provide one - four litre can of each type and colour of finish coating. Identify colour and paint type in relation to established colour schedule and finish system.

.3 Delivery, storage and protection: comply with Departmental Representative requirements for delivery and storage of extra materials.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Packing, Shipping, Handling and Unloading:
.1 Pack, ship, handle and unload materials in accordance with Section 01 61 00 – Common Product Requirements and manufacturer's written instructions.

.2 Acceptance at Site:
.1 Identify products and materials with labels indicating:
.1 Manufacturer's name and address.
.2 Type of paint or coating.
.3 Compliance with applicable standard.
.4 Colour number in accordance with established colour schedule.

.3 Remove damaged, opened and rejected materials from site.

.4 Storage and Protection:
.1 Provide and maintain dry, temperature controlled, secure storage.
.2 Store materials and supplies away from heat generating devices.
.3 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.

.5 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

.6 Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.

.7 Remove paint materials from storage only in quantities required for same day use.

.8 Fire Safety Requirements:
.1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.
.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
.3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.

.9 Waste Management and Disposal:

.1 Separate waste materials for recycling in accordance with Section01 74 21 - 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 for recycling in accordance with Waste Management Plan (WMP).

.4 Separate for reuse and recycling and place in designated containers Steel, Metal, Plastic waste in accordance with Waste Management Plan (WMP).

.5 Place materials defined as hazardous or toxic in designated containers.

.6 Handle and dispose of hazardous materials in accordance with appropriate regulations.

.7 Ensure emptied containers are sealed and stored safely.

.8 Unused paint materials must be disposed of at official hazardous material collections site as approved by Departmental Representative.

.9 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

.10 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

.11 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

.12 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into ground follow these procedures:

.1 Retain cleaning water for water-based materials to allow sediments to be filtered out.

.2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.

.3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.

.4 Dispose of contaminants in approved legal manner in accordance with hazardous waste regulations.

.5 Empty paint cans are to be dry prior to disposal or recycling (where available).

.13 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.
.14 Set aside and protect surplus and uncontaminated finish materials. Deliver to or arrange collection by organizations for verifiable re-use or re-manufacturing.

1.7 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:
.1 Ventilate enclosed spaces.
.2 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
.3 Provide continuous ventilation for seven days after completion of application of paint.
.4 Coordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.
.5 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
.6 Provide minimum lighting level of 323 Lux on surfaces to be painted.

.2 Temperature, Humidity and Substrate Moisture Content Levels:
.1 Unless pre-approved written approval product manufacturer, perform no painting when:
.1 Ambient air and substrate temperatures are below 10 degrees C.
.2 Substrate temperature is above 32 degrees C unless paint is specifically formulated for application at high temperatures.
.3 Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturers prescribed limits.
.4 The relative humidity is under 85% or when the dew point is more than 3 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work. .
.5 Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse

nvironmental factors.

.2 Perform painting work when maximum moisture content of the substrate is below:

.1 Allow new concrete and masonry to cure minimum of 28 days.

.2 15% for wood.

.3 12% for plaster and gypsum board.

.3 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".

.4 Test concrete, masonry and plaster surfaces for alkalinity as required.

.3 Surface and Environmental Conditions:

.1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.

.2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.

.3 Apply paint when previous coat of paint is dry or adequately cured.

.4 Additional interior application requirements:

.1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

.2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Departmental Representative, such that painted surfaces will have dried and cured sufficiently before occupants are affected.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 All site applied interior paints must conform to VOC content requirements in MPOI Green Performance Standard GPS-1-2 and GPS-2-12

.2 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.

.3 Provide paint materials for paint systems from single manufacturer.

.5 Conform to latest MPI requirements for interior painting work including preparation and priming.

.6 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.

2.2 COLOURS

.1 Departmental Representative will provide Colour Schedule after Contract award.

.2 Up to 10 different colours will be selected by Departmental Representative.

.3 Selection will be made from manufacturer's full colour range.

.4 Where specific products are available in a restricted range of colours, selection will be based on the limited range.

.5 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site.

.2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.

.3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.

.4 Thin paint for spraying in accordance with paint manufacturer's instructions.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 INTERIOR PAINTING SYSTEMS

.1 The following interior paint formula types are based on the following manufacturer's products..
.1 BM: Benjamin Moore
.2 ICI: ICI, Glidden or Dulux
.3 PPG: Pittsburgh Paints.

.2 For gypsum board walls, ceilings and bulkheads, apply;
.1 One coat primer / sealer as recommended by paint

manufacturer, plus:
.2 Two coats of acrylic latex eggshell (PPG Code 89-Line) @ 2.0 to 3.0 mils DFT per coat, or:
.3 Two coats of acrylic latex eggshell (BM 223) @ 2.0 to 3.0 mils DFT per coat, or:
.4 Two coats of acrylic latex eggshell (ICI 59325) @ 2.0 to 3.0 mils DFT per coat, and:
.5 Additional coats as required for the deeper colour selections.

.3 For steel doors and frames, glazing frames, heating cabinets and wood doors apply;
.1 One coat primer / sealer as recommended by paint manufacturer, plus:
.2 Two coats of semi-gloss 100% acrylic (PPG Code 90-374 series) @ 2.0 to 3.0 mils DFT per coat, or:
.3 Two coats of semi-gloss 100% acrylic (BM m-29) @ 2.0 to 3.0 mils DFT per coat, or:
.4 Two coats of semi-gloss 100% acrylic (ICI 4216) @ 2.0 to 3.0 mils DFT per coat, and:
.5 Additional coats as required for the deeper colour selections.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations and specifications, including product technical bulletins, handling, storage and installation instructions, and data sheets.

3.2 GENERAL

.1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION

.1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Departmental Representative damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.

.2 Report instances of alkyd or epoxy based existing coating before proceeding with work.

.3 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter. . Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.4 Maximum moisture content as follows:
.1 Gypsum board: 12%.
.2 Wood: 15%.

3.4 PREPARATION

.1 Protection:
.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative.
.2 Protect items that are permanently attached such as Fire Labels on doors and frames.
.3 Protect factory finished products and equipment.
.4 Protect building occupants in and about the building.

.2 Surface Preparation:
.1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
.2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
.3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Departmental Representative.

.3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
.1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
.2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
.3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
.4 Allow surfaces to drain completely and allow to dry thoroughly.

.5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
.6 Use trigger operated spray nozzles for water hoses.
.7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.

.4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.

.5 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
.2 Apply wood filler to nail holes and cracks.
.3 Tint filler to match stains for stained woodwork.

.6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

.7 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes or blowing with clean dry compressed air or vacuum cleaning.

.8 Touch up of shop primers with primer as specified.

.9 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.

3.5 APPLICATION

.1 Method of application to be as approved by Departmental Representative. Apply paint by brush, roller, air sprayer or airless sprayer. Conform to manufacturer's application instructions, unless specified otherwise.

.2 Brush and Roller Application:
.1 Apply paint in uniform layer using brush and/or roller type suitable for application.
.2 Work paint into cracks, crevices and corners.
.3 Paint surfaces and corners not accessible to brush

using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
.4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
.5 Remove runs, sags and brush marks from finished work and repaint.

.3 Spray application:
.1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
.2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
.3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
.4 Brush out immediately all runs and sags.
.5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.

.4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.

.5 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.7 Sand and dust between coats to remove visible defects.

.8 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.9 Finish closets and alcoves as specified for adjoining rooms.

.10 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6 MECHANICAL/, ELECTRICAL EQUIPMENT

.1 In unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

.2 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.

.3 Do not paint over nameplates.

.4 Keep sprinkler heads free of paint.

.5 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.

3.7 SITE TOLERANCES

.1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.

.2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

.4 Advise Departmental Representative when surfaces and first applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

.5 Cooperate with inspection firm and provide access to areas of work.

.6 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Departmental Representative.

3.8 RESTORATION

.1 Clean and re-install hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to approval of Departmental Representative. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.