COVER PAGE

École élémentaire catholique Frère-André

Location: 273 Cundles Rd E, Barrie, ON L4M 6L1
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Specifications Booklet
This booklet contains the required construction and installation specifications for the project, including demolition, cabinetry, flooring, painting, plumbing, and related work.

INDEX

PART 1 GENERAL

1.1 SUMMARY

.1 This Section includes:

.1 Demolition and removal of selected portions of interior building components and finishes.

.2 Repair procedures for selective demolition operations.

.2 This section does not include:

.1 Removal of hazardous materials or asbestos abatement.

.2 Demolition of exterior building components or structural elements.

.3 Mechanical or electrical equipment, except as required to make minor modifications to allow the work to be completed.

1.2 RELATED SECTIONS

.1 Section 01 11 00 – Summary of Work

.2 Section 01 35 29.06 - Health and Safety Requirements

.3 Section 01 35 43 - Environmental Procedures

.4 Section 01 52 00 – Construction Facilities

.5 Section 01 56 00 - Temporary Barriers and Enclosures

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

.7 Section 02 41 13- Selective Site Demolition.

1.3 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI A10.8, Safety Requirements for Scaffolding.

.2 CSA Group (CSA)

.1 CSA S350, Code of Practice for Safety in Demolition of Structures.

.3 National Fire Protection Association (NFPA)

.1 NFPA 241 13, Standard for Safeguarding Construction, Alteration, and Demolition Operations

1.4 DEFINATIONS

.1 Demolish: Detach items from existing construction and legally dispose of them off site, unless indicated to be removed and salvaged or removed and reinstalled.

.2 Remove and Salvage: Detach items from existing construction and deliver them to Owner.

.3 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

.4 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed, removed and salvaged, or removed and reinstalled.

.5 Hazardous Substances: Dangerous substances, dangerous goods, hazardous commodities and hazardous products may include asbestos, mercury and lead, PCB s, poisons, corrosive agents, flammable substances, radioactive substances, or other material that can endanger human health or wellbeing or environment if handled improperly as defined by the Federal Hazardous Products Act (RSC 1985) including latest amendments.

1.5 ADMINISTRATIVE REQUIREMENTS

.1 Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner’s property. Demolished materials shall become Contractor’s property and shall be removed from Project site.

.2 Coordinate selective demolition work so that work of this Section adheres to aesthetic criteria established by the Drawings and specified dimensions with all elements in planes as drawn, maintaining their relationships with all other building elements.

.3 Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner’s property:

.1 Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

.2 Coordinate with Owner, who will establish special procedures for removal and salvage.

.4 Pre Demolition Meeting: Convene pre-installation meeting one (1) week prior to beginning work of this Section, with Owner to:

.1 Confirm extent of salvaged and demolished materials.

.2 Review Contractor's demolition plan:

.1 Verify existing site conditions adjacent to demolition work.

.2 Coordination with other construction sub trades.

1.6 ACTION AND INFORMATION SUBMITTALS

.1 Provide the following submittals before starting any work of this Section:

.1 Schedule of Selective Demolition Activities:

.1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.

.2 Coordinate with Owner ongoing site operations, and limit the number of interruptions during regular business hours.

.3 Interruption of utility services.

.4 Coordination for shutoff, capping, and continuation of utility services.

.5 Use of elevator and stairs.

.6 Locations of temporary partitions and means of egress, including for others affected by selective demolition operations.

.7 Coordination with Owner continuing occupancy of portions of existing building and of partial occupancy of completed Work.

.2 Demolition Plan: Submit a plan of demolition area indicating extent of temporary facilities and supports, methods of removal and demolition prepared by a professional engineer in accordance with requirements of Authority Having Jurisdiction, and as follows:

.1 Proposed Noise Control and Dust Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Owner reserves the right to make modifications where proposed methods interfere with the Owner's ongoing operation.

.2 Inventory: Submit a list of items that have been removed and salvaged after selective demolition is complete.

1.7 SITE CONDITIONS

.1 Owner will occupy portions of building immediately adjacent to selective demolition area:

.1 Conduct selective demolition so that Owner's operations will not be disrupted.

.2 Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

.2 Maintain access to existing means of egress, walkways, corridors, exits, and other adjacent occupied or used facilities:

.1 Do not close or obstruct means of egress, walkways, corridors, exits, or other occupied or used facilities without written acceptance from authorities having jurisdiction.

.3 Discovery of Hazardous Substances:

.1 It is not expected that Hazardous Substances will be encountered in the Work. Immediately notify Owner if materials suspected of containing hazardous substances are encountered.

.4 Hazardous Substances:

.1 Hazardous Substances are present in building to be selectively demolished. A report on the presence of Hazardous Substances is attached as an information document to this Specification for review and use. Examine report to become aware of locations where hazardous materials are present. Coordinate removal of hazardous materials as per appropriate sections of this specification.

PART 2 PRODUCTS

2.1 TEMPORARY SUPPORT STRUCTURES

.1 Design temporary support structures required for demolition work and underpinning and other foundation supports necessary for the project using a qualified professional engineer registered or licensed in Province of Ontario.

2.2 DESCRIPTION

.1 This section of the Work includes, but is not necessarily limited to, the following:

.1 Demolition, removal completely from site, and disposal of all identified components, materials, equipment and debris.

.2 Selective demolition to allow new walls, bulkheads, ceilings and other materials to meet existing construction as indicated.

.3 All material from demolition shall be removed from site immediately with no salvage, selling, sorting or burning permitted on site.

.4 Retain items indicated on drawings for re use in new construction.

2.3 DEBRIS

.1 Make all arrangements for transport and disposal of all demolished materials from the site.

2.4 EQUIPMENT

.1 Provide all equipment required for safe and proper demolition of the building interiors indicated.

2.5 REPAIR MATERIALS

.1 Use repair materials identical to existing materials:

.1 If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

.2 Use a material whose installed performance equals or surpasses that of existing material.

.3 Comply with material and installation requirements specified in individual Specification Sections.

.2 Floor Patching and Levelling Compounds: Cement based, trowelable, self levelling compounds compatible with specified floor finishes; gypsum based products are not acceptable for work of this Section.

.3 Concrete Unit Masonry: Lightweight concrete masonry units, and mortar, cut and trimmed to fit existing opening to be filled. Provide standard hollow core units, square end units and bond beam units as indicated on drawings.

.4 Gypsum Board Patching Compounds: Joint compound to ASTM C475/C475M, bedding and finishing types thinned to provide skim coat consistency to patch and prepare existing gypsum board walls ready for new finishes in accordance with Section 09 21 16 – Gypsum Board Assemblies.

.5 Hoarding and Dust Screens: Refer to Sections 01 35 99 – Dust Control Procedures and 01 56 00 - Temporary Barriers and Enclosures for stud framing and gypsum board sheathing materials.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verify that utilities have been disconnected and capped.

.2 Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

.3 Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

.4 Notify the Owner where existing mechanical, electrical, or structural elements conflict with intended function or design:

.1 Investigate and measure the nature and extent of conflict and submit a written report to Owner.

.2 Owner will issue additional instructions or revise drawings as required to correct conflict.

.5 Perform surveys as the work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES

.1 Coordinate existing services indicated to remain and protect them against damage during selective demolition operations.

.2 Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.

.1 Arrange to shut off affected utilities with utility companies.

.2 If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.

.3 Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

.4 Cut off pipe or conduit to a minimum of 25 mm below slab, and remove concrete mound. Patch concrete using cementitious grout.

.3 Coordinate with Mechanical and Electrical Divisions for shutting off, disconnecting, removing, and sealing or capping utilities.

.4 Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

.1 Identify and mark all equipment and materials identified to be retained by Owner or to be re used in subsequent construction. Separate and store items to be retained in an area away from area of demolition and protect from accidental disposal.

.2 Post warning signs on electrical lines and equipment that must remain energized to serve other areas during period of demolition.

.3 Confirm that all electrical and telephone service lines entering buildings are not disconnected.

.4 Do not disrupt active or energized utilities crossing the demolition site.

.5 Provide and maintain barricades, warning signs, protection for workmen and the public during the full extent of the Work. Read drawings carefully to ascertain extent of protection required.

.6 Mark all materials required to be re used, store in a safe place until ready for re installation.

.7 Adjust all junction boxes, receptacles and switch boxes flush with new wall construction where additional layers to existing construction are indicated.

.8 Remove permanent marker lines used or found on exposed surfaces and at surfaces indicated for subsequent finish materials. Mechanically remove permanent marker lines and associated substrates where permanent marker lines occur and patch surface. Sealing or priming over permanent marker lines is not acceptable.

3.4 CONCRETE SLAB REINFORCING

.1 Locate location of reinforcing steel in concrete slabs prior to cutting or coring using non destructive, non ionizing radio frequency locators.

.2 Core concrete slabs to avoid reinforcing steel, electrical conduit or water pipes; adjust core location and coordinate with Engineer where slab features interfere with core drilling.

.3 Notify the Owner immediately for further instructions where coring or cutting will damage existing slab features.

3.5 SELECTIVE DEMOLITION

.1 Demolish and dismantle work in a neat and orderly manner and in strict accordance with all regulations.

.2 At end of each day s work, leave Work in safe condition so that no part is in danger of toppling or falling.

.3 Demolish in a manner to minimize dusting and to prevent migration of dust.

.4 Selling or burning of materials on the site is not permitted.

.5 Remove concrete bases by cutting and chipping, take precautions against slab cracking and degradation. Grind edges smooth, fill and make level with self levelling grout.

.6 Fill all openings in concrete block walls with concrete masonry units, coursing to match existing, prepare ready to receive new finishes to match existing.

.1 Provide bond beams in new openings cut into existing concrete masonry unit walls.

.2 Provide finished end masonry units to patch and repair for new jamb sections in existing concrete masonry unit walls.

.7 Fill all openings in gypsum board walls with gypsum board and steel framing to match existing, skim coat to make wall smooth and even.

.8 Demolish existing carpet, resilient flooring and adhesive remnants as follows:

.1 Vacuum existing carpet thoroughly, prior to removal, using vacuum equipped with power head/sweeper.

.2 Apply fine mist water spray to carpet as required to minimize dust generation during removal. Avoid spraying near electrical outlets.

.3 Demolish existing carpet and resilient floor finishes, remove and dispose of off site.

.4 Remove adhesive to the greatest extent possible using scrapping tools and as follows:

.1 Do not use solvent based cleaners to remove adhesive remnants.

.2 Lightly shot blast or grind floor using machine designed for purpose to remove adhesive remnants.

.3 Vacuum floor ready for application of skim coating.

.4 Repair all slab depressions and damage with cementitious patching compound.

.5 Skim coat floor with minimum 1 mm thick cementitious floor underlayment compatible with new flooring materials.

.5 Floor substrate shall be smooth, free from ridges and depressions, and adhesive remnants that could telegraph through resilient flooring materials and carpets.

.9 Demolish existing ceramic tile finishes. Remove setting bed or adhesive to the greatest extent possible using mechanical scrapping tools and as follows:

.1 Saw cut edge of tile for clean and even transition joint between existing tile to remain and new flooring materials

.2 Lightly shot blast or grind floor to remove remnants of setting materials

.3 Vacuum floor ready for application of skim coating

.4 Repair all slab depressions and damage with cementitious patching compound. Skim coat floor with minimum 1 mm thick cementitious floor underlayment compatible with new flooring materials

.10 Demolish completely all ceiling panels and grid as indicated.

.11 Remove all wall coverings scheduled for demolition. Patch and repair wall surfaces with skim coat of gypsum board joint compound leaving wall surfaces smooth and even ready for new wall finishes.

.12 Patch and repair all walls, floor and ceilings damaged during demolition with material matching adjacent walls, prepare ready for new finishes.

.13 Patch and repair all radiation cabinets, mechanical equipment and electrical fixtures damaged or exposed during demolition to match adjacent finished surfaces.

3.6 PATCHING AND REPAIRING

.1 Floors and Walls:

.1 Where walls or partitions that are demolished extend from one finished area into another, patch and repair floor and wall surfaces in the new space.

.2 Provide a level and smooth surface having uniform finish colour, texture, and appearance.

.3 Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform colour and appearance.

.4 Patch with durable seams that are as invisible as possible.

.5 Provide materials and comply with installation requirements specified in other Sections of these Specifications.

.6 Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.

.7 Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

.2 Ceilings: patch, repair, or re hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.7 PROTECTION

.1 Prevent debris from blocking drainage inlets and systems and ground draining, and protect material and electrical systems and services that must remain in operation.

.2 Arrange demolition and shoring work so that interference with the use of adjoining areas by the Owner and users is minimized.

.3 Maintain safe access to and egress from occupied areas adjoining.

.4 Provide and maintain fire prevention equipment and alarms accessible during demolition.

3.8 CLEANING

.1 Promptly as the Work progresses, and on completion, clean up and remove from the site all rubbish and surplus material. Remove rubbish resulting from demolition work daily.

.2 Maintain access to exits clean and free of obstruction during removal of debris.

.3 Keep surrounding and adjoining roads, lanes, sidewalks, municipal rights of way clean and free of dirt, soil or debris that may be a hazard to vehicles or persons.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock-Up Requirements.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 61 00 - Common Product Requirements.

.5 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.6 Section 06 20 00 - Finish Carpentry.

.7 Section 06 40 23.13 - Plastic Laminate Finishing for Interior Architectural Woodwork.

.8 Section 06 41 93 - Cabinet and Miscellaneous Hardware.

.9 Section 07 92 00 - Joint Sealants.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)

- .1 ANSI/NPA A208.1, Particle board.
- .2 ANSI A208.2, Medium Density Fiberboard (MDF) for Interior Applications.
- .3 ANSI/HPVA HP-1, Standard for Hardwood and Decorative Plywood.

.2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)

- .1 Architectural Woodwork Standards (AWS).
  - .1 AWS Manual.

.3 American Society for Testing and Materials (ASTM)

- .1 ASTM D5116, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.

.2 ASTM D2832, Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.

.3 ASTM E1333, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.

.4 **Manufacturers**:
Amazon Kitchen Inc.
https://amazonhome.ca/

Modern Kitchen & Wood Working
https://modernkitchencabinet.ca/

.4 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-71.20, Adhesive, Contact, Brushable.

.5 Canadian Standards Association (CSA)

.1 CSA B111, Wire Nails, Spikes and Staples.

.2 CSA O112.10, Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure).

.3 CSA O121, Douglas Fir Plywood.

.4 CSA O141, Softwood Lumber.

.5 CSA O151, Canadian Softwood Plywood.

.6 CSA O153, Poplar Plywood.

.6 National Electrical Manufacturers Association (NEMA)

.1 ANSI/NEMA LD-3, High-Pressure Decorative Laminates (HPDL).

1.3 QUALITY ASSURANCE

.1 Provide a Certificate of Quality Compliance upon completion of Fabrication in accordance with Architectural Woodword Manufacturer's Association of Canada (AWMAC) quality standards.

.2 Provide Certificate of Quality Compliance upon satisfactory completion of installation.

.3 Work in accordance with Grade or Grades specified of the AWS.

1.4 SUBMITTALS

.1 Indicate details of construction, profiles, jointing, fastening and other related details. Scales:

.1 profiles full size, details 1/2 full size.

.2 Indicate all materials, thicknesses, finishes and hardware.

.3 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.

.4 Submit duplicate colour samples of laminated plastic for colour selection.

.5 Submit duplicate samples of laminated plastic joints, edging, cutouts, and postformed profiles.

1.5 MOCK-UPS

.1 Construct mock-ups in accordance with Section 01 43 39 – Mock Up Requirements.

.2 Shop prepare one base cabinet unit, wall cabinet, counter top, shelving unit, complete with hardware and shop applied finishes, and install on project in designated location.

1.6 DELIVERY, STORAGE AND HANDLING

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

.2 Protect millwork against dampness and damage during and after delivery.

.3 Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.

.4 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.5 Store and protect architectural woodwork from nicks, scratches, and blemishes.

.6 Replace defective or damaged materials with new.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Please refer to the design package and drawings for product selection.

.2 Softwood lumber: unless specified otherwise, S4S, moisture content 19 % or less in accordance with following standards:

- .1 CAN/CSA-O141.
- .2 AWMAC premium grade, moisture content as specified.

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

.4 Hardwood lumber: moisture content 10% or less in accordance with following standards:

- .1 National Hardwood Lumber Association (NHLA).
- .2 AWMAC premium grade, moisture content as specified.

.5 Douglas fir plywood (DFP): to CSA O121, standard construction.

- .1 Urea-formaldehyde free.

.6 Canadian softwood plywood (CSP): to CSA O151, standard construction.

- .1 Urea-formaldehyde free.

.7 Hardwood plywood: to ANSI/HPVA HP-1.

- .1 Urea-formaldehyde free.

.8 Poplar plywood (PP): to CSA O153, standard construction.

- .1 Urea-formaldehyde free.

.9 Birch plywood: to AWMAC Natural.

- .1 Urea-formaldehyde free.

.10 Hardboard: to CAN/CGSB – 11.3.

- .1 Urea-formaldehyde free.

.11 Medium density fibreboard (MDF): to ANSI A208.2, density 769 kg/m$^{3.}$

- .1 Urea-formaldehyde free.
- .2 Must meet the performance requirements of ANSI A208.2

.12 Laminated plastic: Section 06 40 23.13 - Plastic Laminate for Interior Architectural Woodwork.

.13 Thermofused Melamine: to NEMA LD3 Grade VGL.

.1 High wear resistant thermofused melamine: equal or exceed 400 cycles (Minimum standard for HPL abrasion test).

.14 Nails and staples: to CSA B111.

.15 Wood screws: steel plain, type and size to suit application.

.16 Splines: wood.

.17 Sealant: Section 07 92 00 – Joint Sealants.

.18 Glazing: provide glazing to the requirements of Section 08 80 50 – Glazing.

2.2 MANUFACTURED UNITS

.1 Casework.

.1 Fabricate caseworks to AWMAC premium quality grade.

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

.1 S2S is acceptable.

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

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

.3 Framing birch or maple species, NHLA premium grade.

.4 Premanufactured plastic laminate covered Particle board grade premium 20mm thick.

.5 Backs.

.1 Premanufactured plastic laminate covered particle board, grade premium 6 mm thick.

.6 Shelving.

.1 Premanufactured plastic laminate covered particle board, grade premium 20mm thick.

.2 Edge banding: provide 10mm thick solid matching wood strip on plywood particleboard edges 12mm or thicker, exposed in final assembly. Strips same width as plywood particleboard.

.2 Wood Drawers

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

.2 Sides and Backs.

.1 Hardwood plywood:

.1 Thickness: 12mm.

.3 Bottoms.

.1 Preformed plastic laminate covered particle board, grade premium 12 mm thick.

.4 Fronts.

.1 Hardwood plywood:

.1 Thickness: 12 mm.

.2 Preformed plastic laminate covered particleboard, grade premium 12mm thick.

.3 Metal Drawers Sidebox

.1 Metal sidebox drawer profiles, heights to suite drawer dimensions, c/w brackets for securing wood drawer front, back and bottom.

.2 Provide sliding drawer profiles, length to suite metal sidebox. Sliding drawer profile to provide full drawer extension operation

.3 Backs

.1 Hardwood plywood:

.1 Thickness: 12 mm.

.4 Bottoms

.1 Preformed plastic laminate covered particle board, grade premium 12 mm thick.

.5 Fronts

.1 Hardwood plywood:

.1 Thickness: 12 mm

.2 Preformed plastic laminate covered particleboard, grade premium 12 mm thick.

.4 Casework Doors

.1 Fabricate doors to AWMAC premium grade supplemented as follows:

.2 Preformed plastic laminate covered particleboard, grade premium 20 mm thick.

.5 Hardware

.1 Door and Drawer rolls, hinges, slides, locks, pulls, knobs shelf rest, standards, rods track shall be in accordance with

CAN/CGSB-69.25-M90/ANSI/BHMA A156.9 and Section 06 41 93 – Cabinet and Miscellaneous Hardware.

2.3 FABRICATION

.1 Set nails and countersink screws apply stained 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.

2.4 FINISHING

.1 Section 09 91 23 – Interior Painting

PART 3 EXECUTION

3.1 INSTALLATION

.1 Do architectural woodwork to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.

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

.3 Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.

.4 Use draw bolts in countertop joints.

.5 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.

.6 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant in accordance with section 07 92 00 – Joint Sealants.

.7 Apply bituminous coating over wood framing members in contact with masonry or cementitious construction.

.8 Fit hardware accurately and securely in accordance with manufacturer's written instructions.

3.2 CLEANING

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

.2 Remove excess glue from surfaces.

3.3 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.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock-Up Requirements

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

.4 Section 01 78 00 - Closeout Submittals.

.5 Section 06 20 00 - Finish Carpentry.

.6 Section 06 40 00 - Architectural Woodwork.

.7 Section 08 14 16 – Flush Wood Doors.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI 208.1, Particleboard.

.2 ANSI A208.2, Medium Density Fibreboard (MDF) for Interior Applications.

.2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)

.1 Architectural Woodwork Standards (AWS).

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-71.20, Adhesive, Contact, Brushable.

.4 Canadian Standards Association (CSA International)

.1 CSA O112-M Series, Standards for Wood Adhesives.

.2 CSA O121, Douglas Fir Plywood.

.3 CSA O151, Canadian Softwood Plywood.

.4 CSA O153, Poplar Plywood.

.5 National Electrical Manufacturers Association (NEMA)

.1 ANSI/NEMA LD-3, High Pressure Decorative Laminates (HPDL).

1.3 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 laminate, adhesive, and core materials and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements. Indicate VOC's for adhesives in g/L.

.3 Samples:

.1 Submit duplicate samples of joints, edging, cutouts and postformed profiles.

.4 Shop Drawings:

.1 Prepare and submit shop drawings in accordance with AWMAC AWS and as follows:

.2 Indicate AWMAC AWS quality grade where different from predominant grade specified.

.3 Include color schedule of all plastic laminate work, including all countertop, exposed, and semi-exposed cabinet finishes, finish material manufacturer, pattern, and color.

.5 Certifications: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

1.4 QUALITY ASSURANCE

.1 Perform Work of this Section by plastic laminate fabricator with minimum 5 years of current experience and having completed minimum one project in the past 5 years with value within 20% of the cost of the work of this Section.

.2 Mock-ups:

.1 Construct mock-ups in accordance with Section 01 43 39 – Mock Up Requirements.

.2 Prepare one typical plastic laminate finish installation where directed by Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

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

.2 Maintain relative humidity between 25 and 60% at 22˚C during storage and installation.

.3 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.4 Store and protect laminate, adhesive, and core materials from nicks, scratches, and blemishes.

.5 Replace defective or damaged materials with new.

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

.7 Maintain indoor temperature and humidity within range recommended by the AWMAC Quality Standards for location of the project.

1.6 CLOSEOUT SUBMITTALS

.1 Provide maintenance data for laminate work for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Please refer to the design package and drawings for product selection.

.2 Laminated plastic for flatwork: to NEMA LD 3.

- .1 Type: General purpose.
- .2 Grade: HGS.
- .3 Size: 1.27 mm thick.
- .4 Colour: multilayered.
- .5 Pattern: solid.
- .6 Finish: satin.

.3 Laminated plastic for postforming work: to NEMA LD 3.

.1 Type: Postforming.
.2 Grade: HGP.
.3 Size: 1.0 mm thick.
.4 Colour: multilayered.
.5 Pattern: solid.
.6 Finish: satin.

.4 Laminated plastic for backing sheet: to NEMA LD 3.

.1 Type: Backer.
.2 Grade:BKH.
.3 Size: 0.75 mm thick.
.4 Colour: white.

.5 Laminated plastic for liner: to NEMA LD 3.

.1 Type: Cabinet Liner.
.2 Grade: CLS.
.3 Size: 0.75mm thick.
.4 Colour: white.

.6 Plywood core: to CSA O153 solid two sides, Grade Popular Plywood, 19 mm thick.

.7 Particleboard core: to ANSI 208.1, sanded faces, of thickness indicated.

.8 Laminated plastic adhesive: urea resin adhesive to CSA O112.10, contact adhesive to CAN/CGSB-71.20, resorcinol resin adhesive to CSA O112.10, polyvinyl adhesive to CSA O112.10, two component epoxy thermosetting adhesive.

.9 Sealer: water resistant sealer on glue acceptable to laminate manufacturer.

.10 Sealants: Silicone based material to CGSB 19-GP-22M.

.11 Draw bolts and splines: as recommended by fabricator.

2.2 FABRICATION

.1 Comply with NEMA LD 3, Annex A.

.2 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.

.3 Ensure adjacent parts of continuous laminate work match in colour and pattern.

.4 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3000 mm. Keep joints 600 mm from sink cutouts.

.5 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.

.6 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20˚. Do not mitre laminate edges.

.7 Apply laminate backing sheet to reverse side of core of plastic laminate work.

.8 Apply laminated plastic liner sheet to interior of cabinetry.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Cover finished laminated plastic veneered surfaces with heavy kraft paper or put in cartons during shipment.

.2 Protect installed laminated surfaces in accordance with manufacturer's written recommendations.

.1 Remove protection only immediately before final inspection.

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

.4 Repair damage to adjacent materials caused by laminate, adhesive, and core materials installation.

3.2 INSTALLATION

.1 Install work plumb, true and square, neatly scribed to adjoining surfaces.

.2 Make allowances around perimeter where fixed objects pass through or project into laminated plastic work to permit normal movement without restriction.

.3 Use draw bolts and splines in countertop joints. Maximum spacing 450 mm oc, 75 mm from edge. Make flush hairline joints.

.4 Provide cutouts for inserts, grilles, appliances, outlet boxes and other penetrations. Round internal corners, chamfer edges and seal exposed core.

.5 At junction of laminated plastic counter back splash and adjacent wall finish, apply small bead of sealant.

3.3 CLEANING

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

.2 Perform care and cleaning with NEMA LD 3, Annex B.

.3 Remove traces of primer, caulking, epoxy and filler materials; clean doors and frames.

3.4 PROTECTION

.1 Cover finished laminated plastic veneered surfaces with heavy kraft paper or put in cartons during shipment.

.2 Protect installed laminated surfaces in accordance with manufacturer's written recommendations.

.1 Remove protection only immediately before final inspection.

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

.4 Repair damage to adjacent materials caused by laminate, adhesive, and core materials installation.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 61 00 - Common Product Requirements.

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

.4 Section 01 78 00 - Closeout Submittals.

.5 Section 06 20 00 - Finish Carpentry.

.6 Section 06 40 00 - Architectural Woodwork.

1.2 REFERENCES

.1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)

.1 ANSI/BHMA A156.9, Cabinet Hardware.
.2 ANSI/BHMA A156.11, Cabinet Locks.
.3 ANSI/BHMA A156.16, Auxiliary Hardware.
.4 ANSI/BHMA A156.18, Materials and Finishes.

1.3 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet.

.2 Hardware List:

.1 Submit contract hardware list.
.2 Indicate specified hardware, including make, model, material, function, finish and other pertinent information.

.3 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

.4 Closeout Submittals:

.1 Provide maintenance data, parts list, and manufacturer's instructions for incorporation into maintenance manual specified in Section 01 78 00 - Closeout Submittals.

1.4 DELIVERY, STORAGE, AND HANDLING

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

.2 Store cabinet hardware in locked, clean and dry area.

.3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

1.5 Manufacturers:

1. Amazon Kitchen Inc.
https://amazonhome.ca/

2. Modern Kitchen & Wood Working
https://modernkitchencabinet.ca/

PART 2 PRODUCTS

2.1 HARDWARE ITEMS

.1 Use one manufacturer's product for all similar items.

2.2 CABINET HARDWARE

.1 Please refer to the design package and drawings for product selection.

.2 Cabinet hardware: to ANSI/BNMA A156.9, designated by letter B and numeral identifiers listed in Hardware Schedule indicated on drawings.

.1 Hinges: European style hinge with 110° swing of operation for face frame construction cabinets.

.2 Pulls: surface mounted pull.

.3 Knobs: surface mounted knob.

.4 Latches: elbow latch.

.5 Catches: friction catch.

.6 Shelf rests and standards: adjustable shelf standards, with open shelf rests.

.7 Shelf brackets and standards: vertical slotted shelf standard, with shelf brackets.

.8 Drawer slides: side mounted drawer slides.

.9 Track and guides for sliding panels: surface or recessed mounted with anti-friction inserts.

.3 Cabinet locks: to ANSI/BNMA A156.11, designated by letter E and numeral identifiers listed in Hardware Schedule.

.1 Door or drawer locks: half mortised into back of door or drawer

.2 Cylinders: key to keying system as directed

2.3 FASTENINGS

.1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.2 Exposed fastening devices to match finish of hardware.

.3 Use fasteners compatible with material through which they pass.

2.4 KEYING

.1 Cabinet locks to be as keyed alike in a room or as directed. Submit keying schedule for approval.

.2 Provide keys in duplicate for every type of lock in this Contract.

.3 Stamp keying code numbers on keys and cylinders.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

.1 Install hardware to standard hardware location dimensions in accordance with manufacturer's recommendations and to project design requirements.

3.3 ADJUSTING

.1 Lubricate hardware and other moving parts, as recommended by manufacturer.

.2 Adjust cabinet door hardware to provide tight fit at contact points with frames.

3.4 CLEANING

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

.2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacture's instructions.

.3 Remove protective material from hardware items where present.

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

3.5 DEMONSTRATION

.1 Keying System Setup:

.1 Set up key control system with file key tags, duplicate key tags, numerical index, alphabetical index and key change index, label shields, control book and key receipt cards.

.2 Designated Staff Briefing.

.1 Brief designated staff regarding:

.1 Proper care, cleaning, and general maintenance of projects complete hardware.

.2 Description, use, handling, and storage of keys.

.3 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 78 00 - Closeout Submittals.

.3 Section 06 40 00 - Architectural Woodwork.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI Z124.3, Plastic Lavatories.
.2 ANSI Z124.6, Plastic Sinks.

1.3 SUMMARY

.1 This section includes the following horizontal and trim solid surface product types:

.1 Counters
.2 Vanity Tops

1.4 SUBMITTALS

.1 Submit duplicate samples: sample size 300 x 300 mm or 300 mm long unless specified otherwise.

.2 Submit duplicate colour samples of acrylic solid surfacing for colour selection.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Protect against dampness and damage during and after delivery.

.2 Store in ventilated areas, protected from extreme changes of temperature or humidity.

1.6 WARRANTY

.1 Provide a written guarantee, signed and issued in the name of the owner, by the Solid Surface Manufacturer, stating that the solid surface material is free from manufacturer’s defects and will remain free from defects for a period of ten (10) years from the date of Certificate of Substantial Completion.

.2 Warranty to be non-prorated.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Please refer to the design package and drawings for product selection.

.2 Solid Acrylic components:

.1 Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colours meeting ANSI Z124.3 or ANSI Z124.6, having minimum physical and performance properties specified.

.2 Superficial damage to a depth of 0.25 mm shall be repairable by sanding and/or polishing.

.3 Thickness: 13 mm.

2.2 FABRICATION

.1 Shop assembly:

.1 Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.

.2 Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.

.1 Reinforce with strip of solid acrylic material, 50 mm wide.

.3 Provide factory cutouts for plumbing fittings and accessories as indicated on drawings.

.4 Rout and finish component edges with clean, sharp returns.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

.1 Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.

.1 Provide product in largest pieces available.

.2 Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work.

.1 Exposed joints/seams shall not be allowed.

.3 Reinforce field joints with solid surface strips extending a minimum of 25 mm on either side of the seam with the strip being the same thickness as the top.

.4 Cut and finish component edges with clean, sharp returns.

.5 Rout Radii and contours to template.

.6 Anchor securely to base cabinets or other supports.

.7 Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in colour to match countertop.

.8 Carefully dress joints smooth, remove surface scratches and clean entire surface.

.9 Install countertops with no more than 3.0 mm sag, bow or other variation from a straight line.

3.3 CLEANING

.1 Keep components clean during installation.

.2 Remove adhesives, sealants and other stains.

3.4 REPAIR

.1 Repair or replace damaged work which cannot be repaired to Owner satisfaction.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Materials, preparation and application for caulking and sealants.

.2 Text to complete other various Sections containing sealant or caulking specifications, including Section 07 52 00 - Modified Bituminous Membrane Roofing.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock Up Requirements.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 61 00 - Common Product Requirements.

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

1.3 REFERENCES

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

.1 ASTM C919, Standard Practice for Use of Sealants in Acoustical Applications.

.2 Canadian General Standards Board (CGSB)

.1 CGSB 19-GP-5M, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).

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

.3 CGSB 19-GP-14M, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).

.4 CAN/CGSB-19.17, One-Component Acrylic Emulsion Base Sealing Compound.

.5 CAN/CGSB-19.24, Multi-component, Chemical Curing Sealing Compound.

.3 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act (CEPA).

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Safety Data Sheets (SDS).

.5 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act (TDGA).

1.4 SUBMITTALS

.1 Manufacturer's product to describe.

.1 Caulking compound.

.2 Primers.

.3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.

.4 Installation instructions, surface preparation and product limitations.

.2 Submit duplicate samples of each type of material and colour.

.3 Cured samples of exposed sealants for each color where required to match adjacent material.

.4 Manufacturers' instructions to include installation instructions for each product used.

1.5 QUALITY ASSURANCE

.1 Manufacturer Qualifications: company engaged in the manufacturing of products specified in this section with a minimum of ten (10) years documented experience.

.2 Applicator Qualifications: Experienced installer equipped and trained for application of joint sealant required for this project with record of successful completion of projects of similar scope.

.1 Applicator to be approved by sealant manufacturer.

.2 Applicator to submit documentation of a minimum three (3) successfully completed projects of similar size, scope and complexity.

1.6 MOCK-UP

.1 Construct mock-up in accordance with Section 01 43 39 – Mock Up Requirements.

.2 Construct mock-up to show location, size, shape and depth of joints complete with back-up material, primer, caulking and sealant. Mock-up may be part of finished work.

.3 Mock-up will be used:

.1 To judge workmanship, substrate preparation, operation of equipment and material application.

1.7 FIELD ADHESION/COHESION TESTS

.1 Test Frequency:

.1 Perform a field test each type of sealant and substrate combination, for all interior and exterior sealants associated with the building envelope.

.2 Perform three (3) additional tests for each failed test.

.2 Locate test joints as directed by Owner. Tests to be performed in the presence of the Owner and/or manufacturer's representative.

.3 Notify Owner seven (7) days prior to dates tests are to be performed.

.4 Test joint sealants by hand-pull methods #1 and # 2. Record test results in Field Adhesion/Cohesion Test Form.

.1 Test Method #1:

.1 Make a knife cut horizontally from one side of the joint to the other.

.2 Make two (2) vertical cuts (from the horizontal cut) approximately 75 mm long on each side of the joint.

.3 Pry out flap created from cuts.

.4 Firmly grasp flap and slowly pull at 90° from sealant plane.

.5 Pull flap until adhesive or cohesive failure occurs.

.1 Adhesive failure will be evidenced by the sealant pulling off clean from the substrate.

.2 Cohesion failure will be evidenced by the sealant ripping or failing within itself, leaving well-adhered sealant to the substrate.

(**Cohesive failure is considered a positive result**).

.2 Test Method # 2:

.1 Follow steps one (1) through four (4) of Test Method # 1.

.2 Mark a benchmark on the sealant 25 mm (1”) from the plane of the installed sealant.

.3 Firmly grasp the flap and pull slowly, while holding a ruler parallel to the sealant flap. Note the position of the benchmark on the ruler.

.4 Refer to manufacturer’s printed literature for each sealant tested for the required extension factor pass criteria; (i.e.: if the 25 mm (1”) benchmark on the sealant can be pulled to 100 mm (4”) and held with no failure of sealant, 400% elongation is achieved.)

.5 **If no failure occurs prior to the manufacturer’s stated extension factor, the test is successful**. Extension factor should be three (3) times the movement capability of the sealant.

.5 Inspect joints for:

.1 Complete fill,

.2 Absence of voids,

.3 Primer,

.4 Proper width/depth ratio, and

.5 Back up material.

.6 Repair sealants pulled in test area by applying new sealants following same procedures used to original seal joints.

.7 Contractor shall repair test areas at no additional cost to the Owner.

1.8 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.

.3 Condition products to approximately 16 to 20 degrees C for use in accordance with manufacturer's recommendations.

.4 Handle all products with appropriate precautions and care as stated on the Material Safety Data Sheet.

1.9 PROJECT CONDITIONS

.1 Environmental Limitations:

.1 Do not proceed with installation of joint sealants under following conditions:

.1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4˚C.

.2 When joint substrates are wet.

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

.2 Joint-Width Conditions:

.1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:

.1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

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 fo 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, mecury, lead, cadium, hexavalent chromium, barium or their compounds, except barium sulphate.

.3 Sealant and caulking compounds must no contain a total of volatile organic compound (VOC's) in excess of 100 grams per litre 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 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.

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

.7 Where sealants are qualified with primers use only these primers.

.8 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.

2.2 SEALANT MATERIAL DESIGNATIONS

.1 Single component, low odor, moisture cure, medium modulus, low VOC sealant for use in sealing air/vapour barrier penetrations, to ASTM C920, Type S, Grade NS, Class 35.

.1 ASTM C719: ± 35%.

.2 Ultimate Elongation: 450 - 550%.

.3 Modulus, 100%: 275 - 345 kPa.

.4 Shore A Hardness: 25 ± 5.

.5 Tensile Strength: 1034 – 1378 kPa.

.6 Maximum VOC: 5 g/L.

.2 Single component, medium modulus, high-performance, neutral-cure silicone sealant for general purpose exterior use, to ASTM C920, Type S, Grade NS, Class 35, Use NT, M, A and O.

.1 ASTM C719: ± 25%.
.2 Ultimate Elongation: 550%.
.3 Modulus, 50% extension: 380 kPa.
.4 Shore A Hardness: 25 ± 5.
.5 Tensile Strength: 1240 kPa.
.6 Maximum VOC: 35 g/L.
.7 Colour to be selected from manufacturer's standard range.

.3 Single component, low modulus, neutral-cure silicone sealant for general purpose masonry use, to ASTMC920, Type S, Grade NS, Class 50, Use T, NT, M, G, A and O.

.1 ASTM C719: ± 50%.
.2 Ultimate Elongation: 1600%.
.3 Modulus, 50% extension: 193 kPa.
.4 Shore A Hardness: 15.
.5 Tensile Strength: 690 kPa.
.6 Maximum VOC: 22 g/L.
.7 Colour to be selected from manufacturer's standard range.

.4 Two-component, high modulus, neutral-cure flexible silicone rubber sealant for use with aluminum window and curtain wall fabrication, assembly and glazing installation, to ASTM C1184 and ASTM C920, Type M, Grade NS, Class 12 ½, Use NT.

.1 ASTM C719: ± 25%.
.2 Ultimate Elongation: 120%.
.3 Shore A Hardness: 30 - 40.
.4 Tensile Strength: 2000 kPa.
.5 Maximum VOC: < 18 g/L.

.5 Single component, medium modulus, neutral-cure silicone sealant for general roofing applications, to ASTM C920, Type S, Grade NS, Class 50, Use NT, G, A and O.

.1 ASTM C719: ± 50%.

.2 Shore A Hardness: 35.

.3 Tensile Strength: 415 kPa.

.4 Maximum VOC: 28 g/L.

.5 Colour to be selected from manufacturer's standard range.

.6 Single component, chemical cure, silicone rubber sealant, for use with plumbing fixtures, showers, sinks, tubs, and junction of counter tops and adjacent wall finishes, to ASTM C920, Type S, Grade NS, Class 25, Use NT.

.1 Shore A Hardness: 25.

.2 Tensile Strength: 2100 kPa.

.3 Maximum VOC: 36 g/L.

.4 Colour to be selected from manufacturer's standard range.

.7 Single component, high-performance, elastomeric polyurethane sealant, paintable, for general purpose interior use, to ASTM C920, Type S, Grade NS, Class 35, Use NT, M, A, T, O and I.

.1 ASTM C719: 35%.

.2 Ultimate Elongation: 800%.

.3 Shore A Hardness: 25 - 30.

.4 Tensile Strength: 2400 kPa.

.5 Maximum VOC: 35 g/L.

.6 Colour to be selected from manufacturer's standard range.

.8 Single component, non-skinning, non-hardening, synthetic rubber sealant for use in acoustical applications, to CAN/CGSB 19.21.

.1 Shrinkage: maximum 20%.

.2 Maximum VOC: 53 g/L.

.3 Sag: Maximum 4.0 mm.

.9 Two-component, non-sag, tamper resistant, elastomeric polyurethane sealant, for use in interior joints, penetrations, doors, windows, perimeters of fixtures, where a flexible security sealant is required due to idle tampering or vandalism, to ASTM C920, type M, Grade NS, Class 12.5, Use T_1, M and O.

.1 Ultimate Elongation: 175 - 200%.

.2 Shore A Hardness: 40 - 45.

.3 Tensile Strength: 2000 to 2400 kPa.

.4 Maximum VOC: Activator - < 25 g/L, Base - < 100 g/L.

.5 Colour to be selected from manufacturer's standard range.

2.3 ACCESSORIES

.1 Primer: Type as recommended by sealant manufacturer. Primer to be compatible with joint forming materials.

.2 Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer and compatible with joint forming materials.

.3 Preformed Compressible and Non-Compressible back-up materials.

.1 Polyethylene, Urethane, Neoprene or Vinyl Foam.

.1 Extruded closed cell foam backer rod.

.2 Size: oversize 30 to 50 %.

.2 Neoprene or Butyl Rubber.

.1 Round solid rod, Shore A hardness 70.

.3 High Density Foam.

.1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m^3 density, or neoprene foam backer, size as recommended by manufacturer.

.4 Bond Breaker Tape.

.1 Polyethylene bond breaker tape which will not bond to sealant.

PART 3 EXECUTION

3.1 PROTECTION

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

3.2 SURFACE PREPARATION

.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 All joint forming materials to be primed prior to sealant installation.

.6 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.

3.7 CLEANING

.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.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Moisture testing of substrates.

.2 Surface preparation of substrates as required for acceptance of paint, including cleaning, small crack repair, patching, caulking, and making good surfaces and areas to limits defined under MPI Repainting Maintenance Manual requirements.

.3 Specific pre-treatments noted herein or specified in the MPI Repainting Maintenance Manual.

.4 Sealing/touch-up, spot priming, and/or full priming surfaces for repainting in accordance with MPI Repainting Maintenance Manual requirements.

.5 Provision of safe and adequate ventilation as required where toxic and/or volatile/flammable materials are being used over and above temporary ventilation supplied by others.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock Up Requirements.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 61 00 - Common Product Requirements.

.5 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

.6 Section 01 78 00 - Closeout Submittals.

.7 Section 09 01 90.62 - Exterior Re-Painting.

.8 Section 09 91 13 - Exterior Painting.

.9 Section 09 91 23 - Interior Painting.

1.3 REFERENCES

.1 Maintenance Repainting Manual by the Master Painters Institute (MPI), including Identifiers, Evaluation, Systems, Preparation and Approved Product List.

.2 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings) of the Environmental Protection Agency (EPA).

.3 National Fire Code of Canada.

1.4 QUALITY ASSURANCE

.1 Contractor shall have a minimum of five years proven satisfactory experience. Provide a list of last three comparable jobs including, job name and location, specifying authority, and project manager.

.2 Qualified journeymen who have a "Tradesman Qualification Certificate of Proficiency" shall be engaged in repainting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with applicable trade regulations.

.3 Conform to latest MPI requirements for interior repainting work including cleaning, preparation and priming.

.4 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be in accordance with the latest edition of the MPI Approved Product List and shall be from a single manufacturer for each system used.

.5 Paint materials such as linseed oil, shellac, turpentine, etc. shall be the highest quality product of an approved manufacturer listed in MPI Maintenance Repainting Manual and shall be compatible with other coating materials as required.

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

.7 Standard of Acceptance: When viewed using final lighting source surfaces shall indicate the following:

.1 Walls: No defects visible from a distance of 1000 mm at 90^{o} to surface.

.2 Ceilings: No defects visible from floor at 45^{o} to surface.

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

1.5 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

.1 Provide paint products meeting MPI "Environmentally Friendly" E2 or E3 ratings based on VOC (EPA Method 24) content levels.

1.6 SCHEDULING OF WORK

.1 Submit work schedule for various stages of painting to Owner for approval. Submit schedule a minimum of two (2) working days in advance of proposed operations.

.2 Paint occupied facilities in accordance with approved schedule. Schedule operations to approval of Owner such that painted surfaces will have dried and cured sufficiently before occupants are affected.

.3 Obtain written authorization from Owner for changes in work schedule.

.4 Schedule repainting operations to prevent disruption by other trades if applicable and by occupants in and about the building.

1.7 SUBMITTALS

.1 Submit full range colour sample chips for review and selection. Indicate where colour availability is restricted.

.2 Submit product data and manufacturer's installation/application instructions for paints and coating products to be used.

.3 Submit WHMIS SDS - Safety Data Sheets for paint and coating materials to be used.

.4 Upon completion, submit records of products used. List products in relation to finish system and include the following:

- .1 Product name, type and use (i.e. materials and location).
- .2 Manufacturer's product number.
- .3 Colour code numbers.
- .4 MPI Environmentally Friendly classification system rating.
- .5 Manufacturer's Safety Data Sheets (SDS).

.5 Submit duplicate 200 x 300 mm sample panels of each paint, stain, clear coating, with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards submitted on the following substrate materials:

- .1 3 mm plate steel for finishes over metal surfaces.
- .2 13 mm birch plywood for finishes over wood surfaces.
- .3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
- .4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.

.6 When approved, samples shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

1.8 QUALITY CONTROL

.1 Provide a mock-up in accordance with requirements of Section 01 43 39 – Mock Up Requirements, to Owner's requirements.

.2 Prepare and repaint mock-up designated interior room, surface or item to requirements specified herein, with specified paint or coating showing selected colours, gloss/sheen, textures and workmanship to MPI Maintenance Repainting Manual standards for review and approval.

1.9 DELIVERY, HANDLING AND STORAGE

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

.2 Deliver and store materials in original containers, sealed, with labels intact.

.3 Labels shall clearly indicate:

.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.

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

.5 Observe manufacturer's recommendations for storage and handling.

.6 Store materials and equipment in a secure, dry, well-ventilated area with temperature range between 7°C to 30°C. Store materials and supplies away from heat generating devices and sensitive products above minimum temperature as recommended by manufacturer.

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

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

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

.10 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 the National Fire Code of Canada.

1.10 SITE REQUIREMENTS

.1 Heating, Ventilation and Lighting:

.1 Ventilate enclosed spaces.

.2 Perform no repainting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10°C for 24 hours before, during and after paint application and until paint has cured sufficiently.

.3 Where required, provide continuous ventilation for seven days after completion of application of paint.

.4 Provide temporary ventilating and heating equipment where permanent facilities are not available.

.5 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate lighting facilities shall be provided by General Contractor.

.2 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Unless specifically pre-approved by Owner and applied product manufacturer, perform no repainting work when:

.1 Ambient air and substrate temperatures are below 10°C.

.2 Substrate temperature is over 32°C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.

.4 Relative humidity is above 85% or when dew point is less than 3°C variance between air/surface temperature.

.5 Rain or snow is forecast to occur before paint has thoroughly cured.

.6 It is foggy, misty, raining or snowing at site.

.2 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except use a simple "cover patch test" on concrete floors to be repainted.

.3 Perform no repainting work when maximum moisture content of substrate exceeds:

.1 12% for concrete and masonry (clay and concrete brick/block).

.2 15% for wood.

.3 12% for plaster and gypsum board.

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

.3 Application Requirements:

.1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when 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 noted herein.

.3 Apply paint when previous coat of paint is dry or adequately cured, unless otherwise pre-approved by the specific coating manufacturer.

.4 Apply paint finishes when conditions forecast for entire period of application fall within manufacturer's recommendations.

.5 Do not apply paint when:

.1 Temperature is expected to drop below 10^{o}C before paint has thoroughly cured.

.2 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's limits.

.3 Surface to be painted is wet, damp or frosted.

.6 Provide and maintain cover when paint must be applied in damp or cold weather. Heat substrates and surrounding air to comply with temperature and humidity conditions specified by manufacturer. Protect until paint is dry or until weather conditions are suitable.

.7 Schedule repainting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.

.8 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.

1.11 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials 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 Place materials defined as hazardous or toxic in designated containers.

.4 Ensure emptied containers are sealed and stored safely.

.5 Unused paint, coating materials must be disposed of at official hazardous material collections site as approved by Owner.

.6 Paint, stain and wood preservative finishes and related materials (thinners, solvents, etc.) are 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.

.7 Materials that cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

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

.9 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:

- .1 Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.
- .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 an approved legal manner in accordance with hazardous waste regulations.

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

.11 Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Please refer to the design package and drawings for product selection.

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

.3 Paint materials for repaint systems shall be products of a single manufacturer.

.4 Low odour products: whenever possible, select products exhibiting low odour characteristics. If two products are otherwise equivalent, select the product with the lowest odour. Only qualified products with E2 or E3 "Environmentally Friendly" rating are acceptable for use on this project.

.5 Paints, coatings, thinners, solvents, cleaners and other fluids used in repainting, shall:

- .1 Be water-based, water soluble, water clean-up.
- .2 Be non-flammable.
- .3 Not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.
- .4 Be manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
- .5 Be manufactured without compounds which contribute to smog in the lower atmosphere.
- .6 Be manufactured in a manner where matter generating a 'Biochemical Oxygen Demand' (BOD) in undiluted production plant effluent discharged to a natural watercourse or a sewage treatment facility lacking secondary treatment does not exceed 15 mg/L.
- .7 Be manufactured in a manner where the total suspended solids (TSS) content in undiluted production plant effluent discharged to a natural watercourse or a sewage treatment facility lacking secondary treatment does not exceed 15 mg/L.

.6 Paints and coatings must be manufactured and transported in a manner that steps of processes, including disposal of waste products arising therefrom, will meet requirements of applicable governmental acts, by-laws and regulations including, for facilities located in Canada, Fisheries Act and Canadian Environmental Protection Act (CEPA).

.7 Paints and coatings must not be formulated or manufactured with formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavelant chromium or their compounds.

.8 Water-borne paints and stains, and water borne varnishes must meet a minimum "Environmentally Friendly" E2 rating.

2.2 COLOURS

.1 Please refer to the design package and drawings for product selection.

.2 Second coat in a three coat repaint 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. On-site tinting of painting materials is allowed with Owner written permission.

.2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

.3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or such organic solvents to thin water-based paints.

.4 Thin paint for spraying according in strict accordance with paint manufacturer' instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Owner.

.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 paint formulas requires a two coat finish as indicated in the MPI Repainting Maintenance Manual.

.2 RIN 2.1 - Asphalt Surfaces: (zone/traffic marking on interior drive and parking areas, etc.).

.1 RIN 2.1B - Alkyd Zone/Traffic Marking.

.3 RIN 3.1 - Concrete Vertical Surfaces: (including soffits).

.1 RIN 3.1A - Latex G4 finish.

.4 RIN 3.2 - Concrete Horizontal Surfaces: (floors and stairs, etc.).

.1 RIN 3.2A - Latex Floor Enamel G4.

.5 RIN 4.1 - Clay Masonry Units: (pressed and extruded brick).

.1 RIN 4.1A - Latex G4 finish.

.6 RIN 4.2 - Concrete Masonry Units: (Concrete Block and Concrete Brick).

.1 RIN 4.2A - Latex G4 finish.

.7 RIN 5.1 - Structural Steel and Metal Fabrications.

.1 RIN 5.1K - 2 Component Epoxy finish.

.8 RIN 5.3 - Galvanized Metal: (High Contact/High Traffic Areas (Doors, Frames, Railings, Pipes, Handrails, etc.). Low Contact/Low traffic areas (Overhead Decking, Pipes, Ducts, etc.)

.1 RIN 5.3C - Alkyd G5 finish.

.9 RIN 6.2 - Dimension Lumber: (Columns, Beams, Exposed Joists, Underside of Decking, etc.)

.1 RIN 6.2A - Latex G4 (over latex primer).

.10 RIN 6.3 - Dressed Lumber: (Including Doors, Door and Window Frames, Mouldings, etc.)

.1 RIN 6.3A - Latex G5 finish.

.11 RIN 6.4 - Wood Panelling and Casework: (Partitions, Panels, Shelving, Millwork, etc.).

.1 RIN 6.4B – Latex G4 finish.

.12 RIN 6.5 - Wood Floors and Stairs: (Including Hardwood Flooring).

.1 RIN 6.5A - Alkyd Floor Enamel G4 (over primer).

.13 RIN 9.2 - Plaster and Gypsum Board: (gypsum wallboard, drywall, "sheet rock type material", etc.,

.1 RIN 9.2A - Latex G5 (over latex sealer) for walls.

.2 RIN 9.2A - Latex G1 (over latex sealer) for ceilings.

.14 RIN 10.1 - Canvas and Cotton Coverings:

.1 RIN 10.1B - Alkyd G5 finish.

PART 3 EXECUTION

3.1 GENERAL

.1 Perform preparation and operations for interior painting in accordance with MPI Maintenance Repainting Manual requirements except where otherwise specified.

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

3.2 EXISTING CONDITIONS

.1 Prior to commencing work, thoroughly examine site conditions and existing interior substrates to be repainted. Report in writing to Owner damages, defects, or unsatisfactory or unfavourable conditions or surfaces that will adversely affect this work.

.2 Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple "cover patch test" and report findings to Owner . Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.3 Maximum moisture content as follows:

.1 Concrete: 12%.

.2 Clay and Concrete Block/Brick: 12%.

.3 Wood: 15%.

.4 No repainting work shall commence until such adverse conditions and defects have been corrected and surfaces and conditions are acceptable to the Painting Subcontractor and Inspection Agency. Commencement of work shall not be held to imply acceptance of surfaces except as qualified herein.

.5 Degree of surface deterioration (DSD) shall be assessed using MPI Identifiers and Assessment criteria indicated in the MPI Maintenance Repainting Manual. MPI DSD ratings and descriptions are as follows:

Condition	Description
DSD-0	Sound Surface (includes visual (aesthetic) defects that do not affect film's protective properties).
DSD-1	Slightly Deteriorated Surface (indicating fading; gloss reduction, slight surface contamination, minor pin holes scratches, etc.).
DSD-2	Moderately Deteriorated Surface (small areas of peeling, flaking, slight cracking, staining, etc.).
DSD-3	Severely Deteriorated Surface (heavy peeling, flaking, cracking, checking, scratches, scuffs, abrasion, small holes and gouges).
DSD-4	Substrate Damage (repair or replacement of surface required by others).

3.3 PROTECTION

.1 Protect existing surfaces and adjacent fixtures and furnishings from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces as directed by Owner.

.2 Cover or mask windows and other ornamental hardware adjacent to areas being painted to prevent damage and to protect from paint drops and splatters. Use non-staining coverings.

.3 Protect items that are permanently attached such as Fire Labels on doors and frames.

.4 Protect factory finished products and equipment.

.5 Protect general public and building occupants in and about the building.

.6 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and surface mounted equipment, fittings and fastenings prior to undertaking re-painting operations. Items shall be securely stored and re-installed after painting is completed.

.7 Move and cover furniture and portable equipment as necessary to carry out repainting operations. Replace as painting operations progress.

.8 As repainting operations progress, place "WET PAINT" signs in occupied areas to approval of Owner.

3.4 CLEANING AND PREPARATION

.1 Clean and prepare interior surfaces to be repainted in accordance with MPI Maintenance Repainting Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

- .1 Remove dust, dirt, and 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 surface contaminants.
- .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
- .4 Allow surfaces to drain completely and to dry thoroughly. Allow sufficient drying time and test surfaces using an electronic moisture meter before commencing work.
- .5 Use water-based cleaners in place of organic solvents where surfaces will be repainted using water based paints.

.6 Many water-based paints cannot be removed with water once dried. Minimize the use of kerosene or such organic solvents to clean up water-based paints.

.2 Where required, pressure wash exterior surfaces prior to repainting in accordance with MPI standards for type of surfaces and recommended pressures to ensure complete removal of loose paint, stains, dirt, and foreign matter. This work to be carried out by qualified tradesman experienced in pressure water cleaning. Use of spray equipment such as water hose cleaning will not be considered satisfactory unless specified herein. Allow sufficient drying time and test surfaces using an electronic moisture meter before commencing work.

.3 Clean metal surfaces to be repainted by removing rust, dirt, oil, grease and foreign substances in accordance with MPI requirements. Remove such contaminates from surfaces, pockets and corners to be repainted by brushing with clean brushes, blowing with clean dry compressed air, or brushing/vacuum cleaning as required.

.4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.

.5 Do not apply paint until prepared surfaces have been accepted by Owner.

.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.

3.5 APPLICATION

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

.2 Brush and Roller Application:

.1 Apply paint in a uniform layer using brush and/or roller of types 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 shall be free of roller tracking and heavy.

.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 properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.

.2 Keep paint ingredients properly mixed in containers during paint application by either continuous mechanical agitation or intermittent agitation frequently as necessary.

.3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.

.4 Back roll spray applications and brush out runs and sags immediately.

.5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.

.4 Use dipping, sheepskins or daubers when no other method is practical in places of difficult access and when specifically authorized by Owner.

.5 Apply paint coats in a continuous manner and allow surfaces to dry and properly cure between coats for minimum time period as recommended by manufacturer. Minimum dry film thickness of coats shall not be less than that recommended by the manufacturer. Repaint thin spots or bare areas before next coat of paint is applied.

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

.7 Repaint 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.

.8 Repaint top, bottom, and vertical edges of doors to be repainted.

.9 Repaint inside of cupboards and cabinets as specified for outside surfaces.

.10 Repaint closets and alcoves to match existing, unless otherwise scheduled or noted.

3.6 PARTITION MARKING AND IDENTIFICATION

.1 Contractor to stencil on both sides of fire rated separations, fire barriers, smoke barriers and smoke partitions the fire rating for that assembly and wall type (i.e.: **1 HOUR FIRE SEPARATION**).

.2 Stenciled fire ratings and wall types to be minimum 100 mm high **RED** letters, minimum 150 mm above finished ceilings, and minimum 2400 mm o.c. along partition.

3.7 FIELD QUALITY CONTROL

.1 Field inspection of exterior painting operations to be carried out by Owner.

.2 Advise Owner when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

.3 Co-operate with Owner and provide access to areas of work.

3.8 CLEAN-UP

.1 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

.2 Keep work area free from an unnecessary accumulation of tools, equipment, surplus materials and debris.

.3 Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.

.4 Clean equipment and dispose of wash water used for water borne materials, solvents used for oil based materials as well as other cleaning and protective materials (e.g. rags, drop cloths, masking papers, etc.), paints, thinners, paint removers/strippers in accordance with the safety requirements of authorities having jurisdiction and as noted herein.

.5 Painting equipment shall be cleaned in leak-proof containers that will permit particulate matter to settle out and be collected. Sediment remaining from cleaning operations shall be recycled or disposed of in a manner acceptable to authorities having jurisdiction.

.6 Paint and coatings in excess of repainting requirements shall be recycled as noted herein.

3.9 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 affected exposed surfaces. Remove smears and spatter immediately as operations progress, using compatible solvent.

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

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

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock-Up Requirements.

.3 Section 01 61 00 - Common Product Requirements.

.4 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.5 Section 01 78 00 - Closeout Submittals.

.6 Section 07 92 00 - Joint Sealants.

.7 Section 09 21 16 – Gypsum Board Assemblies.

.8 Section 10 28 10 – Toilet and Bath Accessories.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)

.1 ANSI A108.1, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).

.2 CTI A118.6, Specification for Ceramic Tile Grouts (included in ANSI A108.1).

.2 American Society for Testing and Materials (ASTM)

.1 ASTM C144, Specification for Aggregate for Masonry Mortar.

.2 ASTM C207, Specification for Hydrated Lime for Masonry Purposes.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.2 CGSB 71-GP-22M, Adhesive, Organic, for Installation of Ceramic Wall Tile.

.3 CAN/CGSB-75.1, Tile, Ceramic.

.4 CAN/CGSB-25.20, Surface Sealer for Floors.

.4 Canadian Standards Association (CSA)

.1 CAN/CSA-A3000, Cementitious Materials Compendium (Consists of A5, A8, A23.5, A362, A363, A456.1, A456.2, A456.3).

.5 Terrazzo Tile and Marble Association of Canada (TTMAC)

.1 Tile Specification Guide 09300, Tile Installation Manual.

.2 Tile Maintenance Guide

1.3 SUBMITTALS

.1 Include manufacturer's information on:

.1 Ceramic tile, marked to show each type, size, and shape required.

.2 Dry-set Portland cement mortar and grout.

.3 Divider strip.

.4 Reinforcing tape.

.5 Levelling compound.

.6 Waterproofing isolation membrane.

.2 Submit duplicate 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.

.3 Trim shapes, bullnose cap and cove including bullnose cap and base pieces at internal and external corners of vertical surfaces, each type, colour, and size.

.4 Adhere tile samples to 11 mm thick plywood and grout joints to represent project installation.

1.4 DELIVERY, STORAGE AND HANDLING

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

.2 Deliver, store and handle products in a manner to avoid damage or contamination.

.3 Have materials delivered to job site prior to installation.

.4 Deliver all products to job site in manufacturer’s unopened cartons with all labels intact and legible.

.5 Keep cartons dry and protect from vandalism and away from heavy traffic area.

.6 Store cartons in upright position.

1.5 ENVIRONMENTAL CONDITIONS

.1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12° C for 48 h before, during, and 48 h after, installation.

.2 Do not install tiles at temperatures less than 12° C or above 38°C.

.3 Do not apply epoxy mortar and grouts at temperatures below 15° C or above 25° C.

1.6 QUALIFICATIONS

.1 Tile setters: Minimum 5 years proven experience.

1.7 MOCK-UP

.1 Construct mock-ups in accordance with Section 01 43 39 – Mock Up Requirements.

1.8 QUALITY ASSURANCE

.1 Provide certificate of quality compliance from tile manufacturer.

.2 Provide certificate of quality compliance from tile installer upon satisfactory completion of installation.

PART 2 PRODUCTS

2.1 FLOOR TILE

.1 Ceramic tile: to CAN/CGSB-75.1, Type 7, Class MR I, size as indicated on drawings, square edges, slip resistant surface, colour as selected by Owner. Matching coved base, size as indicated on drawings.

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.

2.3 MORTAR AND ADHESIVE MATERIALS

.1 Portland cement: to CSA-A5, type 10.

.2 Sand: to ASTM C144, passing 16 mesh.

.3 Hydrated lime: to ASTM C207, Type N.

.4 Latex additive: formulated for use in portland cement mortar and thin set bond coat.

.5 Water: potable and free of minerals and chemicals which are detrimental to mortar and grout mixes.

.6 Dry set mortar: to ANSI A118.1.

2.4 GROUT

.1 Portland cement grout: as recommended by tile manufacturer.

.2 Dry curing wall grout: as recommended by tile manufacturer.

.3 Grout preparation: to manufacturer's instructions.

.4 Colouring Pigments:

- .1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C979.
- .2 Colouring pigments to be added to grout by manufacturer.
- .3 Job coloured grout are not acceptable.

2.5 ACCESSORIES

.1 Thresholds: marble, 12 mm thick, rounded edges two sides, honed finish to exposed surfaces, size to suit door opening and frame width.

.2 Sealant: acrylics one part, mildew resistant, in accordance with Section 07 92 00 - Joint Sealants.

.3 Floor sealer and protective coating: to tile and grout manufacturer's recommendations.

2.6 MORTAR AND ADHESIVE MIXES

.1 Mortar bed for floors: 1 part Portland cement, 4 parts sand, 1 part water. Adjust water volume depending on water content of sand. Latex additive

may be included. Mortar bed for walls 1 part portland cement, 1/5 Dry set mortar: mix to manufacturer's instructions.

.2 Organic adhesive: pre-mixed.

.3 Mix bond and levelling coats, and grout to manufacturer's instructions.

.4 Adjust water volumes to suit water content of sand.

2.7 CLEANING COMPOUNDS

.1 Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.

.2 Materials containing acid or caustic material are not acceptable.

PART 3 EXECUTION

3.1 WORKMANSHIP

.1 Do tile work in accordance with TTMAC Tile Installation Manual, “Ceramic Tile”, latest edition.

.2 Apply tile 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, external angles bullnosed.

.9 Use bullnose edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane.

.10 Install divider strips at junction of tile flooring and dissimilar materials.

.11 Allow minimum 24 h after installation of tiles, before grouting.

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

.13 Make control joints where indicated. Make joint width same as tile joints. Fill control joints with sealant in accordance with Section 07 92 00 - Joint Sealants. Keep building expansion joints free of mortar and grout.

3.2 FLOOR TILE

.1 Install in accordance with TTMAC detail 311F-2002.

3.3 FLOOR SEALER AND PROTECTIVE COATING

.1 Apply in accordance with manufacturer's instructions.

3.4 COMMISSIONING

.1 Train user staff in the care and cleaning of ceramic tile and in the application of sealers.

.2 Train user staff in the repair and or replacement of damaged tiles.

END OF SECTION

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 01 78 00 - Closeout Submittals.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM F1066, Specification for Vinyl Composition Floor Tile.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-25.20, Surface Sealer for Floors.

.2 CAN/CGSB-25.21, Detergent-Resistant Floor Polish.

1.3 SUBMITTALS

.1 Submit duplicate tile in size specified, 300 mm long base.

1.4 CLOSEOUT SUBMITTALS

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

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Maintain air temperature and structural base temperature at flooring installation area at 18º C to 30º C for 48 hours before, during and for 48 hours after installation, and at relative humidity not greater than 60%.

1.6 WARRANTY

.1 Flooring materials shall be warranted by the manufacturer against defects in materials and workmanship for a period of five (5) years from the date of Substantial Completion.

.2 Contractor shall provide a two (2) year warranty from the date of substantial completion against defects in workmanship.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Please refer to the design package and drawings for product selection.

.2 Resilient flooring 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 ct (CEPA)

.3 Vinyl composition tile (VCT): to ASTM F1066, Composition 1 - non asbestos Class 2 - through pattern tile, plain surface, minimum 3.0 mm thick, minimum 305 mm x 305 mm unless otherwise indicated, in colour selected by Owner.

.4 Linoleum Tile: renewable, polymer based floor tile having a nominal total thickness of minimum 2.0 mm, minimum 305 mm x 305 mm unless otherwise indicated, composed of polyester resin and fillers. Pigment with colours and textures to be dispersed uniformly throughout total thickness.

.5 Vinyl flooring must:

.1 Floor tile to confirm to ASTM F1066, Class 2 – through pattern, for size, squareness, thickness, indentation, impact, deflection, resistance to chemicals and resistance to heat.

.2 Not be manufactured or formulated with cadium (Cd), chromium (Cr), lead (Pb,), mercury (Gg), and nickel (Ni);

.3 Not contain >0.01% by weight of arsenic (As);

.4 Not contain >1% by weight of tin (Sn), or zinc (Zn);

.5 Not be manufactured or formulated with short-chained chlorinated paraffin waxes (CS≤13), or nonyl phenol;

.6 Not contain or be manufactured with materials derived from species listed on the Convention on International Trade in Endangered Species (CITES).

.6 Feature strip: of same material and thickness as adjacent work, width as indicated on drawings, colour as selected by Owner.

.7 Resilient base: rubber, coved, minimum 1200 mm length and 101.6 mm high x 2.0 mm thick, including external corners for coved base only, of colour selected by Owner.

.8 Primers and adhesives: waterproof, solvent-free, recommended by flooring manufacturer for specific material on applicable substrate, above, at or below grade.

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

.10 Metal edge strips: aluminum extruded, smooth, mill finish with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

.11 Sealer: to CAN/CGSB 25.20M, type recommended by flooring manufacturer.

.12 Wax: to CAN/CGSB-25.21 type recommended by flooring manufacturer.

PART 3 EXECUTION

3.1 INSPECTION

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

3.2 SUB-FLOOR TREATMENT

.1 Remove all tile adhesive from existing floor areas to receive new tile.

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

.3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.

.4 Old vinyl flooring to be removed by trained personnel (may contain asbestos).

.5 Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.

3.3 TILE APPLICATION

.1 Provide a high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to the outside. Do not let contaminated air recirculate through a district or whole building air distribution system. Upon completion of work, maintain ventilation at maximum capacity until building occupation.

.2 To minimize emissions from adhesives, use water-based, solvent-free styrene-butadiene-rubber adhesive for linoleum. Butadiene exposure may cause eye and nose irritations, headaches, dizziness, and vomiting.

.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 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.

.5 Install flooring to square grid pattern with all joints aligned, with pattern grain alternating to produce basket weave pattern.

.6 As installation progresses, and after installation, roll flooring in 2 directions including resilient tile with 45 kg minimum roller to ensure full adhesion.

.7 Cut tile and fit neatly around fixed objects.

.8 Install feature strips and floor markings where indicated. Fit joints tightly.

.9 Install flooring in pan type floor access covers. Maintain floor pattern.

.10 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.

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

.12 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.4 BASE APPLICATION

.1 Lay out base to keep number of joints at minimum. Base joints at maximum length available or at internal or premoulded corners.

.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 300 mm each leg. Wrap around toeless base at external corners.

3.5 INITIAL CLEANING AND WAXING

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

.2 Clean, seal and wax floor and base surface to flooring manufacturer's instructions. In carpeted areas clean, seal and wax base surface before carpet installation.

3.6 PROTECTION OF FINISHED WORK

.1 Protect new floors after initial waxing until final inspection.

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

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock-Up Requirements.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 61 00 - Common Product Requirements.

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

.6 Section 01 78 00 - Closeout Submittals.

.7 Section 06 20 00 – Finish Carpentry.

.8 Section 06 40 00 - Architectural Woodwork.

.9 Section 08 11 00 – Metal Doors & Frames.

.10 Section 09 21 16 – Gypsum Board Assemblies.

1.2 REFERENCES

.1 Environmental Protection Agency (EPA)

.1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings).

.2 SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.

.2 Master Painters Institute (MPI)

.1 MPI Architectural Painting Specifications Manual.

.3 Society for Protective Coatings (SSPC)

.1 SSPC Painting Manual, Volume Two, Systems and Specifications Manual.

.4 National Fire Code of Canada.

1.3 QUALITY ASSURANCE

.1 Contractor shall have a minimum of five years proven satisfactory experience. When requested, provide a list of last three comparable jobs including, job name and location, specifying authority, and project manager.

.2 Qualified journeymen shall be engaged in painting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.

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

1.4 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

.1 Provide paint products meeting MPI "Environmentally Friendly" E2 or E3 ratings based on VOC (EPA Method 24) content levels.

.2 Where indoor air quality (odour) is a problem, use only MPI listed materials having a minimum E2 or E3 rating.

1.5 SCHEDULING

.1 Submit work schedule for various stages of painting to Owner for approval. Submit schedule minimum of two (2) working days in advance of proposed operations.

.2 Obtain written authorization from Owner for any changes in work schedule.

.3 Schedule painting operations to prevent disruption of occupants in and about the building.

1.6 SUBMITTALS

.1 Submit product data and manufacturer's installation/application instructions for each paint and coating product to be

.2 Submit product data for the use and application of paint thinner.

.3 Submit WHMIS SDS - Safety Data Sheets. Indicate VOCs during application and curing.

.4 Upon completion, submit records of products used, records to be included in Operating and Maintenance Manuals. List products in relation to finish system and include the following:

.1 Product name, type and use

.2 Manufacturer's product number

.3 Colour numbers

.4 MPI Environmentally Friendly Classification System Rating

.5 Manufacturer's Safety Data Sheets (SDS)

.5 Submit full range colour sample chips to indicate where colour availability is restricted.

.6 Submit duplicate 200 x 300 mm sample panels of each paint with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards submitted on the following substrate materials:

.1 3.0 mm steel plate for finishes over metal surfaces.

.2 13 mm birch plywood for finishes over wood surfaces.

.3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.

.4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.

.7 When approved, sample panels shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

1.7 QUALITY CONTROL

.1 Provide mock-up in accordance with Section 01 43 39 – Mock Up Requirements.

.2 When requested by Owner, prepare and paint designated surface, area, room or item (in each colour scheme) to requirements specified herein, with specified paint or coating showing selected colours, gloss/sheen, textures and workmanship to MPI Painting Specification Manual standards for review and approval. When approved, surface, area, room and/or items shall become acceptable standard of finish quality and workmanship for similar on-site work.

1.8 DELIVERY, HANDLING AND STORAGE

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

.2 Deliver and store materials in original containers, sealed, with labels intact.

.3 Labels shall clearly indicate:

- .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.

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

.5 Provide and maintain dry, temperature controlled, secure storage.

.6 Observe manufacturer's recommendations for storage and handling.

.7 Store materials and supplies away from heat generating devices.

.8 Store materials and equipment in a well ventilated area with temperature range 7º C to 30º C.

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

.10 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Owner. After completion of operations, return areas to clean condition to approval of Consultant.

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

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

.13 Fire Safety Requirements:

- .1 Provide minimum 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 the National Fire Code of Canada.

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

.4 Ensure emptied containers are sealed and stored safely.

.5 Unused paint, coating materials must be disposed of at official hazardous material collections site as approved by Owner.

.6 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are regarded as hazardous products and are subject to regulations for disposal.

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

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

.9 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).

1.10 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:

.1 Ventilate enclosed spaces.

.2 Perform no painting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10° C for 24 hours before, during and after paint application until paint has cured sufficiently.

.3 Where required, provide continuous ventilation for seven days after completion of application of paint.

.4 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate lighting facilities shall be provided by General Contractor.

.2 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Unless specifically pre-approved by the specifying body, Paint Inspection Agency and the applied product manufacturer, perform no painting work when:

.1 Ambient air and substrate temperatures are below 10° C.

.2 Substrate temperature is over 32° C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer’s prescribed limits.

.4 The relative humidity is above 60% or when the dew point is less than 3° C variance between the air/surface temperature.

.2 Perform no painting work when the maximum moisture content of the substrate exceeds:

.1 12% for concrete and masonry (clay and concrete brick/block).

.2 15% for wood.

.3 12% for plaster and gypsum board.

.3 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple "cover patch test".

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

.3 Surface and Environmental Conditions:

.1 Apply paint finish only 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 only to adequately prepared surfaces and to surfaces within moisture limits noted herein.

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

.4 Additional Interior Application Requirements:

.1 Apply paint finishes only 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 Owner such that painted surfaces will have dried and cured sufficiently before occupants are affected.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Please refer to the design package and drawings for product selection.

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

.3 Paint materials for paint systems shall be products of a single manufacturer.

.4 Low odor products. Whenever possible, select products exhibiting low odor characteristics. If two products are otherwise equivalent, select the product with the lowest odor. Only qualified products with E2 or E3 ”Environmentally Friendly” rating are acceptable for use on this project.

.5 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids, shall:

.1 be water-based, water soluble, water clean-up.

.2 be non-flammable.

.3 be manufactured without compounds which contribute to ozone depletion in the upper atmosphere.

.4 be manufactured without compounds which contribute to smog in the lower atmosphere.

.5 do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.

.6 Water-borne surface coatings must be manufactured and transported in a manner that steps of process, including disposal of waste products arising therefrom, will meet requirements of applicable governmental acts, by-laws and regulations including, for facilities located in Canada, Fisheries Act and Canadian Environmental Protection Act (CEPA).

.7 Water-borne surface coatings must not be formulated or manufactured with aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavelant chromium or their compounds.

.8 Water-borne surface coatings must have a flash point of 61.0°C or greater.

.9 Both water-borne surface coatings and recycled water-borne surface coatings must be made by a process that does not release:

.1 Matter in undiluted production plant effluent generating a 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.

.2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.

.10 Water-borne paints and stains, and water borne varnishes must meet a minimum "Environmentally Friendly" E2 rating.

2.2 COLOURS

.1 Owner will provide Colour Schedule after contract award.

.2 Selection of colours will be from manufacturers full range of colours.

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

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

.5 For deep and ultra-deep colours; 4 coats may be required.

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Owner written permission.

.2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

.3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.

.4 Thin paint for spraying according in strict accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Owner.

.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 paint formulas require a three-coat finish as indicated in the MPI Architectural Painting Specifications Manual.

.2 Concrete Vertical Surfaces: including horizontal soffits

.1 INT 3.1A Latex G5 finish (over sealer).

.3 Concrete Horizontal Surfaces: floors and stairs

.1 INT 3.2B Alkyd floor enamel low gloss finish.

.4 Clay Masonry Units: pressed and extruded brick

.1 INT 4.1A Latex G5 finish.

.5 Concrete Masonry Units: smooth and split face block and brick.

.1 INT 4.2A Latex G5 finish.

.6 Structural Steel and Metal Fabrications: columns, beams, joists, etc.

.1 INT 5.1E Alkyd G5 finish.

.7 Galvanized Metal: doors, frames, railings, misc. steel, pipes, overhead decking, ducts, etc.

.1 INT 5.3A Latex G5 finish.

.8 Dimension Lumber: columns, beams, exposed joists, underside of decking, etc.

.1 INT 6.2D Latex G5 finish (over latex primer).

.9 Dressed Lumber: including doors, door and window frames casings, mouldings, etc.

.1 INT 6.3T Latex G5 finish (over latex primer).

.10 Wood Paneling and Casework: partitions, panels, shelving, millwork, etc.

.1 INT 6.4C Semi-transparent stain finish.

.11 Wood Floors and Stairs: including hardwood flooring, etc.

.1 INT 6.5B Polyurethane varnish gloss finish (over stain).

.2 INT 6.5C Polyurethane varnish gloss finish.

.12 Plaster and Gypsum Board: gypsum wallboard, drywall, “sheet rock type material”, etc and textured finishes:

.1 INT 9.2A Latex G5 finish (over latex sealer) for walls.

.2 INT 9.2A Latex G1 finish (over latex sealer) for ceilings.

.13 Canvas and Cotton coverings:

.1 INT 10.1B Alkyd G5 finish.

.14 Painting of interior game line layouts with colours as noted on approved game line layout drawing on interior resilient (gymnasium) flooring to be by others in accordance with MPI Architectural Painting Specification.

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 data sheet.

3.2 GENERAL

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

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

3.3 PROTECTION

.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage. If damaged, clean and restore such surfaces as directed by Owner.

.2 Cover or mask floors, windows and other ornamental hardware adjacent to areas being painted to prevent damage and to protect from paint drops and splatters. Use non-staining coverings.

.3 Protect items that are permanently attached such as Fire Labels on doors and frames.

.4 Protect factory finished products and equipment.

.5 Protect passing pedestrians, building occupants and general public in and about the building.

.6 Remove electrical cover plates, light fixtures, surface hardware on doors, door stops, bath accessories and other surface mounted fittings and fastenings prior to undertaking any painting operations. Store for re-installation after painting is completed.

.7 As painting operations progress place “WET PAINT” signs in occupied areas to approval of Owner.

3.4 EXAMINATION

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

.2 Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple “cover patch test” and report findings to Owner. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.3 Maximum moisture content as follows:

.1 Plaster and wallboard: 12%

.2 Masonry/Concrete: 12%

.3 Concrete Block/Brick: 12%

.4 Wood: 15%

3.5 CLEANING AND PREPARATION

.1 Clean and prepare surfaces in accordance with MPI 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. However, minimize the use of kerosene or any such organic solvents to clean up water-based paints.

.2 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.

.3 Sand existing surfaces with intact, smooth, high gloss coatings to provide adequate adhesion for new finishes.

.4 Where possible, prime 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.

.5 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.

.6 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 blowing with clean dry compressed air, or vacuum cleaning.

.7 Touch up of shop primers with primer as specified in applicable section. Major touch-up including cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas, shall be by supplier of fabricated material.

.8 Do not apply paint until prepared surfaces have been accepted by Owner.

3.6 APPLICATION

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

.2 Brush and Roller Application:

.1 Apply paint in a uniform layer using brush and/or roller of types suitable for application.

.2 Work paint into cracks, crevices and corners.

.3 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces shall be free of roller tracking and heavy stipple.

.4 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.

.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 properly 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 a uniform layer, with overlapping at edges of spray pattern.

.4 Brush out immediately all runs and sags.

.5 Use brushes 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 and only when specifically authorized by Owner.

.5 Apply coats of paint as a 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 tops of cupboards, cabinets and projecting ledges, both above and below sight lines as specified for surrounding surfaces.

.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.

.11 Wood, drywall, plaster, stucco, concrete, concrete masonry units and brick; if sprayed, must be back rolled.

3.7 FIELD QUALITY CONTROL

.1 Field inspection of interior painting operations to be carried out by Owner.

.2 Advise Owner when each applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

.3 Co-operate with Owner and provide access to all areas of the work.

.4 Standard of Acceptance:

.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.

3.8 RESTORATION

.1 Clean and re-install all 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 Owner. Avoid scuffing newly applied paint.

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

END OF SECTION

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 01 78 00 - Closeout Submittals.

1.2 SUBMITTALS

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

.2 Shop drawings; submit drawings stamped and signed for approval by Owner.

.3 Shop drawings to show:

- .1 Mounting arrangements.
- .2 Operating and maintenance clearances.

.4 Shop drawings and product data accompanied by:

- .1 Detailed drawings of bases, supports, and anchor bolts.
- .2 Acoustical sound power data, where applicable.
- .3 Points of operation on performance curves.
- .4 Manufacturer to certify current model production.
- .5 Certification of compliance to applicable codes.

.5 In addition to transmittal letter referred to in Section 01 33 00 - Submittal Procedures: use MCAC "Shop Drawing Submittal Title Sheet". Identify section and paragraph number.

.6 Closeout Submittals:

- .1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- .2 Operation and maintenance manual approved by, and final copies deposited with, Owner before final inspection.
- .3 Operation data to include:

.1 Control schematics for systems including environmental controls.

.2 Description of systems and their controls.

.3 Description of operation of systems at various loads together with reset schedules and seasonal variances.

.4 Operation instruction for systems and component.

.5 Description of actions to be taken in event of equipment failure.

.6 Valves schedule and flow diagram.

.7 Colour coding chart.

.4 Maintenance data to include:

.1 Servicing, maintenance, operation and trouble-shooting instructions for each item of equipment.

.2 Data to include schedules of tasks, frequency, tools required and task time.

.5 Performance data to include:

.1 Equipment manufacturer's performance datasheets with point of operation as left after commissioning is complete.

.2 Equipment performance verification test results.

.3 Special performance data as specified.

.4 Testing, adjusting and balancing reports as specified in Section 23 05 93 - Testing, Adjusting and Balancing for HVAC.

.6 Approvals:

.1 Submit 2 copies of draft Operation and Maintenance Manual to Owner for approval. Submission of individual data will not be accepted unless directed by Owner.

.2 Make changes as required and re-submit as directed by Owner.

.7 Additional data:

.1 Prepare and insert into operation and maintenance manual additional data when need for it becomes apparent during specified demonstrations and instructions.

.8 Site records:

.1 Owner will provide one (1) set of reproducible mechanical drawings or AutoCAD files. Provide sets of white prints as required for each phase of work. Mark changes as work progresses and as changes occur. Include changes to

existing mechanical systems, control systems and low voltage control wiring.

.2 Transfer information weekly to reproducibles, revising reproducibles to show work as actually installed.

.3 Use different colour for each service.

.4 Make available for reference purposes and inspection.

.9 As-built drawings:

.1 Prior to start of Testing, Adjusting and Balancing for HVAC, finalize production of as-built drawings.

.2 Identify each drawing in lower right hand corner in letters at least 12 mm high as follows: - "AS BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (Date).

.3 Submit to Owner for approval and make corrections as directed.

.4 Perform testing, adjusting and balancing for HVAC using as-built drawings.

.5 Submit completed reproducible as-built drawings with Operating and Maintenance Manuals.

.10 Submit copies of as-built drawings for inclusion in final TAB report.

1.3 QUALITY ASSURANCE

.1 Quality Assurance: in accordance with Section 01 45 00 - Quality Control.

.2 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4 MAINTENANCE

.1 Furnish spare parts in accordance with Section 01 78 00 - Closeout Submittals as follows:

.1 One set of packing for each pump.

.2 One casing joint gasket for each size pump.

.3 One glass for each gauge glass.

.2 Provide one set of special tools required to service equipment as recommended by manufacturers and in accordance with Section 01 78 00 - Closeout Submittals.

.3 Furnish one commercial quality grease gun, grease and adapters to suit different types of grease and grease fittings.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Waste Management and Disposal:

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

PART 2 PRODUCTS

2.1 MATERIALS

.1 All materials used on this project shall be new and CSA approved unless noted otherwise.

.2 Please refer to the design package and drawings for product selection.

PART 3 EXECUTION

3.1 PAINTING, REPAIRS AND RESTORATION

.1 Do painting in accordance with Section 09 91 23 - Interior Painting.

.2 Prime and touch up marred finished paintwork to match original.

.3 Restore to new condition, finishes which have been damaged.

3.2 CLEANING

.1 Clean interior and exterior of all systems including strainers. Vacuum interior of ductwork and air handling units.

3.3 FIELD QUALITY CONTROL

.1 Site Tests: conduct following tests in accordance with Section 01 45 00 - Quality Control and submit report as described in PART 1 - SUBMITTALS.

.1 Perform tests as specified in other sections of this specification.

.2 Manufacturer's Field Services:

.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.

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

.3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.4 DEMONSTRATION

.1 Owner will use equipment and systems for test purposes prior to acceptance. Contractor to supply labour, material, and instruments required for testing.

.2 Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating, controlling, adjusting, trouble-shooting and servicing of all systems and equipment during regular work hours, prior to acceptance.

.3 Use operation and maintenance manual, as-built drawings, and audio visual aids as part of instruction materials.

.4 Instruction duration time requirements as specified in appropriate sections.

.5 Owner may record these demonstrations on video tape for future reference.

3.5 PROTECTION

.1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

.1 Section includes:

.1 The supply and installation of plumbing fixtures and trim.

.2 Products installed but not supplied under this section as indicated elsewhere in the contract:

.1 Install rough-in for equipment supplied by others, complete with valves on hot and cold water supplies, waste and vent.

.2 Equipment installed by others.

.1 Connect with unions.

.3 Equipment not installed.

.1 Capped for future connection by others.

1.2 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

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

.3 Section 01 35 29.06 – Health and Safety Requirements.

.4 Section 01 78 00 – Closeout Submittals.

1.3 REFERENCES

.1 Canadian Standards Association (CSA)

.1 CAN/CSA-B45 Series, Plumbing Fixtures.

.2 CAN/CSA-B125, Plumbing Fittings.

.3 CAN/CSA-B651, Barrier-Free Design.

.2 Province of Ontario Building Accessibility Regulations.

1.4 SUBMITTALS

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

.2 Product Data: submit WHMIS SDS – Safety Data Sheets.

.1 Submit shop drawings and product data in accordance with Section 01 33 00 – Submittal Procedures.

.1 Indicate, for all fixtures and trim:

.1 Dimensions, construction details, roughing-in dimensions.

.3 Closeout Submittals:

.1 Submit maintenance data in accordance with Section 01 78 00 – Closeout Submittals

.2 Include:

.1 Description of fixtures and trim, giving manufacturer's name, type, model, year, capacity.

.2 Details of operation, servicing maintenance.

.3 List of recommended spare parts.

1.5 QUALITY ASSURANCE

.1 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 – Health and Safety Requirements.

1.6 DELIVERY STORAGE AND DISPOSAL

.1 Waste Management and Disposal:

.1 Separate waste materials for reuse and recycling in accordance with Waste Management and Disposal.

.2 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.3 Fold up metal and plastic banding, flatten and place in designated area for recycling.

1.7 WARRANTY

.1 Provide a written guarantee, signed and issued in the name of the owner, against defective materials and workmanship for a period of one (1) year from the date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURED UNITS

.1 Please refer to the design package and drawings for product selection.

.2 Fixtures: manufacture in accordance with CAN/CSA-B45 series.

.3 Trim, fittings: manufacture in accordance with CAN/CSA-B125.

.4 Exposed plumbing brass to be chrome plated.

.5 Number, locations: Architectural drawings to govern.

.6 Fixtures in any one location to be product of one manufacturer and of same type.

.7 Trim in any one location to be product of one manufacturer and of same type.

2.2 SERVICE SINKS

.1 Please refer to the design package and drawings for product selection.

2.3 STAINLESS STEEL COUNTER-TOP SINKS

.1 Please refer to the design package and drawings for product selection.

2.4 FIXTURE PIPING

.1 Hot and cold water supplies to each fixture:

.1 Chrome plated flexible supply pipes each with screwdriver handwheel stop, reducers, escutcheon for exposed supplies.

.2 Waste:

.1 Brass P trap with cleanout on each fixture not having integral trap.

.2 Chrome plated in all exposed places.

2.5 CHAIR CARRIERS

.1 Factory manufactured floor-mounted carrier systems for all wall-mounted fixtures

PART 3 EXECUTION

3.1 INSTALLATION

.1 Mounting heights:

.1 Standard: to comply with manufacturer's recommendations unless otherwise indicated or specified.

.2 Wall-hung fixtures: as indicated, measured from finished floor.

.3 Physically handicapped: to comply with most stringent of either NBCC or CAN/CSA B651, or Provincial Buildings Accessibility Act and Regulations.

3.2 ADJUSTING

.1 Conform to water conservation requirements specified this section.

.2 Do adjustments prior to pre-commissioning.

.3 Adjustments.

.1 Adjust water flow rate to design flow rates.

.2 Adjust pressure to fixtures to ensure no splashing at maximum pressures.

.4 Checks.

.1 Aerators: operation, cleanliness.

.2 Vacuum breakers, backflow preventers: operation under all conditions.

.3 Wash fountains: operation of flow-actuating devices.

.5 Thermostatic controls.

.1 Verify temperature settings, operation of control, limit and safety controls.

.6 Report verification checks in Commissioning Manual.

END OF SECTION