

# **UNIVERSITY OF TORONTO**

---

**TECHNICAL SPECIFICATIONS FOR**

**TOWER FOI RELOCATION**

481 SPADINA AVE  
TORONTO, ONTARIO  
**UNIVERSITY PROJECT NUMBER: P164-25-078**

**ISSUED FOR TENDER: JANUARY 21, 2026**

**DIVISIONS 2 – 10**

**CONSULTANT:**  
**UNIVERSITY, PLANNING, DESIGN AND CONSTRUCTION –**  
**DESIGN AND ENGINEERING**

---

TABLE OF CONTENTS

Pages

<b>Division 00 - Procurement and Contracting Requirements</b> .....	
All Sections of Work as listed herein are governed by Division 00 and General Conditions of the Contract and issued as a separate Document.	
<a href="#">Section 00 01 10 - Table of Contents</a> .....	2
<b>Division 01 – General Requirements</b> .....	
All Sections of Work as listed herein are governed by Division 01 General Requirements of the Contract and issued as a separate Document.	
<b>Division 02 - Existing Conditions</b>	
<a href="#">Section 02 26 00 – Hazardous Materials Assessment</a> .....	
Refer to Scope of Work – Designated Substances Abatement/Procedures issued as a separate Document as listed in Section 00 31 00.49.	
<a href="#">Section 02 41 19 - Selective Demolition</a> .....	3
<b>Division 03 - Concrete</b>	
<a href="#">Section 03 54 00 - Self-leveling Underlayment</a> .....	3
<b>Division 06 - Wood, Plastics and Composites</b>	
<a href="#">Section 06 10 53 - Miscellaneous Rough Carpentry</a> .....	4
<a href="#">Section 06 41 11 - Architectural Cabinetwork</a> .....	7
<b>Division 07 - Thermal and Moisture Protection</b>	
<a href="#">Section 07 84 00 - Firestopping</a> .....	9
<a href="#">Section 07 92 00 - Joint Sealants</a> .....	5
<b>Division 08 - Openings</b>	
<a href="#">Section 08 11 13 - Standard Metal Door Frames</a> .....	4
<a href="#">Section 08 14 16 - Flush Wood Doors</a> .....	4
<a href="#">Section 08 51 13 - Aluminum Windows</a> .....	4
<a href="#">Section 08 71 00 - Door Hardware - Common Requirements</a> .....	5
<a href="#">Section 08 71 01 - Door Hardware - Schedule</a> .....	1
<b>Division 09 - Finishes</b>	
<a href="#">Section 09 01 60.91 Vinyl Flooring Restoration</a> .....	3
<a href="#">Section 09 21 16 - Gypsum Board Assemblies</a> .....	8

[Section 09 51 13 - Acoustic Panel Ceilings](#)..... 3  
[Section 09 65 10 - Resilient Flooring](#)..... 4  
[Section 09 67 23 - Resinous Flooring](#)..... 5  
[Section 09 68 13 - Tile Carpeting](#) ..... 4  
[Section 09 91 10 - Painting](#) ..... 12

**Division 10 - Specialties**

[Section 10 28 14 - Toilet and Bath Accessories](#) ..... 4

**Mechanical Division**

Refer to the Mechanical Drawings for the Mechanical Specifications

**Electrical Division**

Refer to the Electrical Drawings and Electrical Specification Manual

END OF TABLE

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1      Alteration project procedures.
- .2      Removal of designated building equipment and fixtures.
- .3      Removal of designated construction.
- .4      Disposal of materials.
- .5      Identification of utilities.

**1.2            RELATED SECTIONS**

- .1      Section 00 31 00.49 – Scope of Work – Designated Substances Abatement/Procedures.

**1.3            ALTERATION PROJECT PROCEDURES**

- .1      Remove and cut Work in a manner to minimize damage and to provide means of restoring Products and finishes to specified condition.
- .2      Where new Work abuts or aligns with existing, provide a smooth and even transition.
- .3      When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Consultant for review.

**1.4            ADMINISTRATIVE REQUIREMENTS**

- .1      Sequencing: Sequence work to requirements of Section 01 10 00.
  - .1          Sequence activities to demolish the Work in the following stages order:
    - .1              Hoarding and enclosures for asbestos abatement by asbestos abatement contractor.
    - .2              Asbestos abatement by asbestos abatement contractor.
    - .3              Selective demolition in abated project site as required by abatement or demolition contractor.
- .2      Scheduling: Schedule work to requirements of Section 01 30 00.
  - .1          Schedule Work to precede new construction work.
  - .2          Describe demolition removal procedures and schedule.
- .3      Perform dusty, noisy and hazardous work:
  - .1          Between the hours as specified in Section 01 10 00.

**1.5            SUBMITTALS FOR REVIEW**

- .1      Section 01 30 00: Submission procedures.
- .2      Shop Drawings: Indicate demolition and asbestos abatement sequence and schedule.

**1.6            CLOSEOUT SUBMITTALS**

- .1      Section 01 78 39: Submission procedures.

- .2 Record Documentation: Accurately record actual locations of subsurface obstructions and capped utilities.

## **1.7 REGULATORY REQUIREMENTS**

- .1 Conform to applicable code for demolition work, dust control, products requiring electrical disconnection reconnection.
- .2 Obtain required permits from authorities.
- .3 Do not close or obstruct egress width to any building or site exit.
- .4 Do not disable or disrupt building fire or life safety systems without prior written notice to Owner as specified in Section 01 35 13.
- .5 Conform to applicable regulatory procedures when discovering hazardous or contaminated materials and notify Consultant and University Project Manager.

## **1.8 PROJECT CONDITIONS**

- .1 Conduct demolition to minimize interference with adjacent and occupied building areas.
- .2 Cease operations immediately if structure appears to be in danger and notify Consultant. Do not resume operations until directed.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Not Used.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Erect and maintain temporary partitions to prevent spread of dust, odours, and noise. Coordinate with Section 01 50 00.
- .2 Protect existing materials which are not to be demolished.
- .3 Prevent movement of structure; provide bracing and shoring.
- .4 Mark location and termination of utilities.
- .5 Provide appropriate temporary signage including signage for exit or building egress.

### **3.2 DEMOLITION**

- .1 Disconnect, remove and cap identify designated utilities within demolition areas.
- .2 Demolish in an orderly and careful manner. Protect existing supporting structural members.
- .3 Remove unused suspended ceiling system hangers, unused conduit and all manner of attached fasteners, blocking and fixturing at concrete surface which are scheduled as exposed finishes.
- .4 Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.
- .5 Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.

- .6 Remove temporary Work.

**3.3 SCHEDULES**

- .1 Remove the following equipment and materials for the Owner's retention. Deliver to location designated by Consultant]
  - .1
- .2 Fully remove and dispose of:
  - .1 Existing doors and frames as indicated on drawings.
  - .2 Cutting into existing plaster finishes as indicated on drawings.
  - .3 Existing wallcovering finishes.
  - .4 Existing gypsum board partitions as indicated on drawings.
  - .5 Floor and ceiling finishes.

**END OF SECTION**

**Part 1            General**

**1.1            GENERAL REQUIREMENTS**

- .1    Read and conform to:
  - .1       Sections of Division 00 and The General Conditions of the Contract.
  - .2       Schedule 1, Supplementary Conditions.
  - .3       Conform to Sections of Division 01 as applicable.

**1.2            SECTION INCLUDES**

- .1    Liquid applied cementitious self-leveling floor underlayment as required to provide level floor within tolerance and to requirements of other trades providing floor finishes, partition systems, door frames and glazed screen framing systems.

**1.3            RELATED SECTIONS**

- .1    Section 02 41 19 - Selective Demolition
- .2    Section 09 21 16 - Gypsum Board Assemblies
- .3    Section 09 65 10 - Resilient Flooring
- .4    Section 09 68 13 - Tile Carpeting

**1.4            REFERENCES**

- .1    ASTM C109M, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens).
- .2    CSA-A23.1-09/A23.2-09 - Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.

**1.5            SUBMITTALS FOR REVIEW**

- .1    Section 01 30 00: Submission procedures.
- .2    Product Data: Provide physical characteristics, product limitations, .
- .3    Shop drawings:
  - .1       Submit shop drawings in indicating Sections, details, materials, dimensions, thicknesses of each layer, maximum and minimum thicknesses, 3, 7, and 28 day load characteristics, and surface finishes.

**1.6            SUBMITTALS FOR INFORMATION**

- .1    Section 01 30 00: Submission procedures.
- .2    Manufacturer's Instructions: Indicate mix instructions.
- .3    Certificate: Certify that Products meet or exceed specified requirements.
- .4    Certificates: Submit certification from manufacturer, stating that materials proposed for use are compatible with specified floor finishes.

**1.7 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and Section 01 92 00: Submission procedures.

**1.8 QUALITY ASSURANCE**

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Applicator Qualifications: Company specializing in performing the work of this section with minimum five (5) years documented experience .

**1.9 ENVIRONMENTAL REQUIREMENTS**

- .1 Section 01 70 00: Environmental conditions affecting products on site.
- .2 Do not install underlayment until floor penetrations and peripheral work are complete.
- .3 Maintain minimum ambient temperatures of 10 degrees C, 24 hours before, during and 72 hours after installation of underlayment.
- .4 During the curing process, ventilate spaces to remove excess moisture.

**Part 2 Products**

**2.1 MANUFACTURERS**

- .1 Ardex Engineered Cements; Product: Ardex V1200 and Ardex Ardex P 51 Primer.
- .2 Other acceptable manufacturers offering functionally and aesthetically equivalent products.
- .3 Substitutions: Refer to Section 01 60 00.

**2.2 MATERIALS**

- .1 Underlayment: Cementitious based mix.
- .2 Water: Potable and not detrimental to underlayment mix materials.
- .3 Primer: Ardex P 51 Primer Manufacturer's recommended type.
- .4 Joint and Crack Filler: Latex based.

**2.3 MIXING**

- .1 Site mix materials in accordance with manufacturer's written instructions.
- .2 Mix to achieve following characteristics:
  - .1 Compressive strength to ASTM C109, 28 day 4100 psi.
  - .2 Flexural strength to ASTM C109: 28 day 1000 psi.
  - .3 Fire Hazard Classification: Flame Spread/Smoke Developed rating of 0/0.
- .3 Mix to self-leveling consistency.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.



- .2 Verify that substrate surfaces are clean, dry, unfrozen, do not contain petroleum bi-products, or other compounds detrimental to underlayment material bond to substrate.

### **3.2 PREPARATION**

- .1 Remove substrate surface irregularities. Fill voids and deck joints with filler. Finish smooth.
- .2 Vacuum clean surfaces.
- .3 Prime substrate to manufacturer's written instructions. Allow to dry.
- .4 Close floor openings.

### **3.3 APPLICATION**

- .1 Install underlayment to manufacturer's instructions.
- .2 Place to thickness indicated .
- .3 Place to minimum 3 mm thickness and maximum thickness as stated by material manufacturer.
- .4 Place before partition installation.

### **3.4 CURING**

- .1 Air cure to manufacturer's written instructions.

### **3.5 APPLICATION TOLERANCE**

- .1 Top Surface: Level to 3 mm in 3 m.
- .2 Install underlayment to tolerances listed in CSA-A23.1/A23.2.

### **3.6 PROTECTION OF FINISHED WORK**

- .1 Section 01 70 00: Protecting installed work.
- .2 Do not permit traffic over unprotected floor underlayment surfaces.

### **3.7 SCHEDULES**

- .1 Create level floor in work area.
- .2 Transition to existing floor surface; use stiff mix to slope to align with existing floor.

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1    Miscellaneous rough carpentry, including:
  - .1        Miscellaneous wood furring and grounds.
  - .2        Concealed wood blocking for support of metal door jambs.
  - .3        Concealed wood blocking for support of cabinets, countertops and shelves.
  - .4        Concealed wood blocking for support of audio visual display system items such as monitors and speakers.
  - .5        Electrical/ Communications panel mounting back board.
- .2    Fasteners.
- .3    Preservative treatment.
- .4    Fire retardant treatment.

**1.2            RELATED SECTIONS**

- .1    Section 08 11 13 - Standard Metal Doors and Frames
- .2    Section 08 31 13 - Access Doors and Frames
- .3    Section 09 21 16 - Gypsum Board Assemblies
- .4    Section 09 51 13 - Acoustic Panel Ceilings
- .5    Section 10 11 00 - Visual Display Surfaces
- .6    Section 12 31 00 - Manufactured Metal Casework

**1.3            REFERENCES**

- .1    ASTM A123/A123M-15 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .2    ASTM A153/A153M-09 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- .3    ASTM A653/A653M-13 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .4    CANPLY (Canadian Plywood Association) - Canadian Plywood Handbook.
- .5    CAN/CSA-O80 Series-08 (R2012) - Wood Preservation.
  - .1        CSA-O80.1-15 - Specification for Treated Wood.
  - .2        CSA-O80.3-15 - Preservative Formulations.
- .6    CSA-O121-08 (R2013) - Douglas Fir Plywood.
- .7    CSA-O151-09 - Canadian Softwood Plywood.
- .8    CSA-O153-13 - Poplar Plywood.

- .9 NLGA (National Lumber Grades Authority) - Standard Grading Rules for Canadian Lumber, 2010 edition.
- .10 NPA A208.1-2009 - Particleboard.

#### **1.4 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data: Provide technical data on wood preservative and fire retardant materials and application instructions.

#### **1.5 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and Section 01 92 00: Submission procedures.
- .2 Sustainable Design Closeout Documentation: .

#### **1.6 QUALITY ASSURANCE**

- .1 Perform Work in accordance with the following agencies:
  - .1 Lumber Grading Agency: Certified by NLGA.
  - .2 Plywood Grading Agency: Certified by CANPLY.
  - .3 Wood Based Panel Products: Marked with a recognized, visible grade stamp showing Grade or span rating as required.
- .2 Pressure Preservative Treated Wood: Marked with certification mark authorized by the Canadian Wood Preservers Bureau (CWPB) indicating producer, preservative type, retention and Use Category (UC).

#### **1.7 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01 60 00: Transport, handle, store, and protect products.
- .2 Store plywood panels flat and level.
- .3 Keep finish faces inward and cover stacks to protect from bumping and abrasion.
- .4 Protect tongue and groove plywood panel edges and corners.
- .5 Protect panels from sunlight, water or excessive humidity.
- .6 Store materials indoors in dry, well-ventilated area.

### **Part 2 Products**

#### **2.1 LUMBER MATERIALS**

- .1 Dimension Lumber: CSA-O141, softwood lumber unless indicated otherwise, S4S, maximum moisture content 19%; graded to NLGA Standard Grading Rules for Lumber. Finger jointed lumber not acceptable.
  - .1 Studs - Non-Structural: Grade Standard , species Spruce-Pine-Fir .
  - .2 Utility Shelving: Grade No. 2, species: any species.
  - .3 Furring Blocking Nailing Strips Grounds and Rough Bucks s: Grade Construction Standard No. 3 , species: any species; exterior wood pressure preservative treated.

## **2.2 PANEL MATERIALS**

- .1 Plywood: CSA-O153 as indicated in schedule below, certified and graded by CANPLY, meeting the requirements of CSA-O325.
  - .1 Telephone and Electrical Panel Back Boards: Plywood, thickness as indicated 19 mm, S1S.

## **2.3 FASTENERS AND ANCHORS**

- .1 Screws and Nails: Galvanized steel and Electroplated steel ; type and size suitable for application.
- .2 Anchors: Stainless steel Type 304 ; toggle bolt type for anchorage to hollow masonry, expansion shield and lag bolt type for anchorage to solid masonry or concrete and bolt or ballistic fastener for anchorages to steel.
- .3 Galvanized Coating for Exterior Work and Interior High Humidity Areas: Hot dip galvanized to ASTM A153/A153M.
- .4 Galvanized Coating for Treated Wood: Hot dip galvanized to ASTM A153/A153M, Class A or B1 (G185) zinc coating .

## **2.4 MISCELLANEOUS ACCESSORIES**

- .1 Adhesives: Waterproof adhesive, approved for use with type of construction indicated by manufacturers of both adhesives.
- .2 Polyethylene: Sheet polyethylene, 0.25 mm (10 mil) thick.

## **2.5 PRESERVATIVE TREATMENT**

- .1 Wood Preservative (Pressure Treatment): CAN/CSA-O80 Series, and in accordance with Table 2 - Use Categories for Specific Products, Uses, and Exposures of CSA-O80.1.
  - .1 UC1: Interior construction, above-ground and dry applications; use inorganic boron (SBX) preservative.
  - .2 UC2: Interior construction, above-ground and potentially damp applications; use inorganic boron (SBX) preservative waterborne alkali-based, type CA ACQ.
- .2 Wood Preservative (Surface Application): CSA-O80.3, copper naphthenate.
- .3 Fire Retardant (FRT): CAN/ULC-S102, chemically treated and pressure impregnated; capable of providing a maximum flame spread/smoke development rating required to OBC.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that site conditions are ready to receive work and opening dimensions are as indicated on Shop Drawings .

### **3.2 INSTALLATION**

- .1 Set members level and plumb, in correct position. Place horizontal members, crown side up.

- .2 Space furring at 400 mm on centre.
- .3 Install wood panels with Good One Side facing out.

**3.3 SITE APPLIED WOOD TREATMENT**

- .1 Apply preservative treatment to manufacturer's written instructions.
- .2 Brush apply two (2) coats of preservative treatment on wood requiring cutting or drilling after treatment and on wood in contact with cementitious materials.
- .3 Allow preservative to dry prior to erecting members.

**3.4 ERECTION TOLERANCES**

- .1 Framing Members: 6 mm from true position, maximum.

**3.5 SCHEDULES**

- .1 Miscellaneous wood furring and grounds.
- .2 Concealed wood blocking for support of metal door jambs.
- .3 Concealed wood blocking for support of cabinets, countertops and shelves.
- .4 Concealed wood blocking for support of audio visual display system items such as monitors and speakers.
- .5 Electrical/ Communications panel mounting back board.

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1 Custom shop fabricated lower Kitchenette Cabinets units with doors, drawers, shelves, cabinet hardware.
- .2 Custom shop fabricated upper Servery Cabinets units with doors, shelves, cabinet hardware.
- .3 Cabinet finishes: exposed surfaces finished with high pressure decorative laminate finishes and concealed and semi-exposed surfaces with melamine finishes.
- .4 Countertops:
  - .1 Kitchenette Cabinet units with post-formed plastic laminate countertops
  - .2 Washroom vanity counter tops: Post-formed plastic laminate countertops

**1.2            RELATED SECTIONS**

- .1 Section 06 10 53 Miscellaneous Rough Carpentry: Grounds and support framing.
- .2 Section 07 92 00 - Joint Sealants
- .3 Section 09 21 16 - Gypsum Board Assemblies
- .4 Section 09 65 10 - Resilient Flooring
- .5 Section 09 68 13 - Tile Carpeting
- .6 Section 09 91 10 – Painting
- .7 Mechanical Division: Plumbing fixtures.
- .8 Electrical Division – Power wiring and signal cabling for appliances

**1.3            REFERENCES**

- .1 ASTM A153/A153M-09 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- .2 BHMA A156.9-2010 - Cabinet Hardware.
- .3 CAN/ULC-S102-10 Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .4 CAN/CSA-O80 Series-08 (R2012) - Wood Preservation.
- .5 NAAWS North American Architectural Woodwork Standards – Edition 3.1, 2017 as amended.
- .6 NEMA LD3-2005 - High Pressure Decorative Laminates (HPDL).
- .7 NPA A208.1-2009 - Particleboard.
- .8 NPA A208.2-2009 - Medium Density Fiberboard (MDF), moisture resistant for Interior Applications.

**1.4            ADMINISTRATIVE REQUIREMENTS**

- .1 Section 01 30 00: Project management and coordination procedures.
- .2 Pre-installation Meetings: Convene one (1) week weeks before starting work of this section.

**1.5 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Shop Drawings: Indicate materials, component profiles and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location and schedule of finishes.
- .3 Product Data: Provide data for hardware accessories.
- .4 Samples:
  - .1 Submit two (2), 150 x 150 mm size samples, illustrating high pressure plastic laminate cabinet finish.
  - .2 Submit two (2), 150 x 150 mm size samples, illustrating countertop finish.
  - .3 Submit two (2) samples of drawer pulls hinges, illustrating hardware finish.

**1.6 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 10 and section 01 92 00: Submission procedures.

**1.7 QUALITY ASSURANCE**

- .1 Perform work to NAAWS, Custom quality.
- .2 Perform cabinet construction to NAAWS, Custom quality.
- .3 Perform cabinet construction to NAAWS as follows:
  - .1 Millwork Items: Servery Cabinets in: Counter, Upper and Lower Cabinets, Shelves, Drawers and Door Fronts Construction: Custom Grade.
- .4 Fabricator Qualifications: Company in good standing with AWMAC and specializing in fabricating Products specified in this section with minimum five (5) years documented experience.
- .5 Installer Qualifications: Company in good standing with AWMAC and specializing in performing the work of this section with minimum five (5) years documented experience and approved by the manufacturer.
- .6 Fire retardant Treated Wood: Marked with certification mark authorized by the Canadian Wood Preservers Bureau (CWPB) indicating producer, fire retardant type, retention and Use Category (UC).

**1.8 MOCK-UP**

- .1 Section 01 40 00: Requirements for mock-up.
- .2 Provide mock-up of one full size Kitchenette cabinet which includes countertop fitments, and cabinet hardware.
- .3 Locate where directed by Consultant.
- .4 Approved mock-up may remain as part of the Work.

**1.9 DELIVERY, STORAGE, AND PROTECTION**

- .1 Transport, handle, store, and protect products.
- .2 Protect units from moisture damage as specified in NAAWS.

**1.10 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 During and after installation of work of this section, maintain the same temperature and humidity conditions in building spaces as will occur after occupancy as specified in Section 2 of NAAWS Standard.

**1.11 WARRANTY**

- .1 Correct defective Work within a two (2) year period after Date of Ready for Take Over.

**Part 2 Products**

**2.1 LUMBER MATERIALS**

- .1 Lumber: To the requirements of NAAWS, grade specified.
- .2 Concealed Hardwood Lumber: Poplar/Maple/Birch, plain sawn, maximum moisture content of 6%; with vertical grain, of quality suitable for opaque finish.
- .3 Softwood Lumber: pine species, clear, plain sawn, maximum moisture content of 6% ; with vertical flat grain, of quality suitable for transparent finish.

**2.2 SHEET MATERIALS**

- .1 Sheet Materials: To the requirements of NAAWS, grade specified.
- .2 Softwood Plywood for Countertop at wet counters: Wood Veneer Core Fir species, plain sawn; of exterior grade quality, wood veneer facing Fir species plain sawn, Grade B G2S of quality suitable for support backing of surface countertop, surface knots filled with wood plugs.
- .3 Softwood Plywood for Countertop at dry counters, cabinet shelves, cabinet gables and doors: Wood Veneer Core Poplar species, plain sawn; wood veneer facing Poplar species plain sawn, Grade B G2S of quality suitable for opaque high pressure plastic laminate finish, surface knots filled with wood plugs.
- .4 Particleboard Core: NPA A208.1; composed of wood chips, medium density, moisture resistant, Class 1 fire retardant; of grade to suit application; sanded faces suitable for opaque high pressure plastic laminate finish.
- .5 Moisture resistant MDF.

**2.3 LAMINATE MATERIALS**

- .1 High Pressure Decorative Laminate: High pressure laminate, General Purpose, 1.02 mm (0.04 inch) thick; printed pattern colour range, with matte textured finish.
- .2 High Pressure Decorative Laminate Types:
  - .1 Plastic Laminate for Millwork Items: 2nd Floor Kitchen, Lower Cabinets, exposed surfaces:
    - .1 Cabinet Exterior Sides, Doors, and Drawer Fronts:
      - .1 Manufacturer: Formica
      - .2 Colour: Natural Maple
      - .3 Finish: Matte



- .2 Plastic Laminate for Millwork Items: 2nd Floor Kitchen, Upper Cabinets, exposed surfaces:
  - .1 Cabinet Exterior Sides, Door Fronts:
    - .1 Manufacturer: Formica
    - .2 Colour: Dover White
    - .3 Finish: Gloss
- .3 Plastic Laminate for Millwork Items: 2nd Floor Kitchen, Countertop, exposed surfaces:
  - .1 Post Formed Countertop:
    - .1 Manufacturer: Formica
    - .2 Colour: Storm
    - .3 Finish: Matte
- .4 Plastic Laminate for Millwork Items: 7th Floor Washrooms, Countertop, exposed surfaces:
  - .1 Post Formed Countertop:
    - .1 Manufacturer: Formica
    - .2 Colour: As selected by Consultant.
    - .3 Finish: Matte

## **2.4 HARDWARE: MILLWORK ITEMS**

- .1 Hardware: BHMA A156.9.
- .2 Shelf Rests: Formed steel channels and rests, cut for fitted rests spaced at 25 mm (1 inch) centres; chrome finish. Model No. 255 or 256; chrome finish by Knape & Vogt Canada Inc., or other manufacturer acceptable to the Consultant. Standards at 6" from top and bottom.
- .3 Shelf Brackets: Formed steel brackets, formed for attachment with lugs; chrome finish. One support per 12" length of standard
- .4 Drawer and Door Pulls by Richelieu:
  - .1 Kitchenette Cabinets: Lower and Upper Cabinet Door Pulls, Cabinet Drawer Pulls: Modern Metal Pull – 2288, 4" centre to centre, satin nickel finish..
- .5 Cabinet Locks: Deadbolt Rim Lock type, having zinc die cast body with minimum 1-1/4" (32mm) throw and Nickel-plated, Cat. No. 232.25.610 by Häfele Canada Inc., complete with Symo cylinder removable core, or other manufacturer acceptable to the Consultant. Provide offset cams where required. Provide two keys per lock. Locks shall be keyed alike in grouping for each cabinet location group, as directed later to meet the Consultant requirements.
- .6 Drawer Slides: Soft close, Self-closing, full extension, side mounting, zinc coated, steel ball bearing, minimum 100 lb. rated, by Knape & Vogt Canada Inc., Julius Blum Canada Ltd, Hettich or other manufacturer acceptable to the Consultant.
- .7 Upper and lower cabinets: Hinges: Spring hinges: 110 degree opening, nickel plated self-closing, soft closing steel hinge with zinc die cast screwed on cup by ., Julius Blum Canada Ltd, Hettich., or other manufacturer acceptable to the Consultant. Provide minimum of two (2) hinges per door and for doors over 3' - 0" in height provide one (1) additional hinges for every 12" in additional height. Provide heavy-duty hinges for 1-3/8" thick cabinet doors.
- .8 Press-In Plastic Bumpers: 59042011 by Richelieu, provide 2 per door and provide additional silencers for doors over 3'-0" in height.

- .9 Furniture bolts: Surface mounted, steel furniture bolts for screw mounting on inside of cabinet doors having "nickel plated" finish, and sized to suit cabinet door sizes, Cat. No. 251.10.703 by Häfele Canada Inc., or other manufacturer acceptable to the Consultant.
- .10 Vanity Counter Support Brackets: Richelieu K-R650 Kolossus Heavy-Duty Aluminum Brackets, Product # 40181810 – Projection 18", Height 18".

## **2.5 WOOD TREATMENT**

- .1 Fire Retardant: CAN/CSA-O80 Series, chemically treated and pressure impregnated; capable of providing a maximum flame spread/smoke development rating of 150, to CAN/ULC-S102 and in compliance to Ontario Building Code.

## **2.6 SHOP TREATMENT OF WOOD MATERIALS**

- .1 Shop brush apply wood materials requiring concealed wood blocking to ULC fire rating preservatives in compliance with Ontario Building Code
- .2 Provide ULC approved identification on fire retardant treated material.
- .3 Deliver fire retardant treated materials cut to required sizes. Minimize field cutting.

## **2.7 MILWORK ITEM: PLASTIC LAMINATE CASEWORK AT KITCHEN – BASE CABINETS, UPPER CABINETS**

- .1 Cabinet Construction:
  - .1 Flush overlay
  - .2 Cabinet gables, backs, doors, drawer fronts, drawer sides, bottoms, valances and adjustable shelves: particle board core.
  - .3 Cabinet countertop: solid wood veneer core marine grade plywood, Grade B G2S of quality suitable plastic laminate finish, surface knots filled with wood plugs.
  - .4 Cabinet Kick Plate:
    - .1 Solid lumber construction
    - .2 Vinyl base finish by Section 09 65 10
- .2 Exterior Exposed Surfaces:
  - .1 Doors and Drawer Fronts: High pressure decorative laminate.
  - .2 Edges: High pressure decorative laminate .
  - .3 Base Cabinet Gable sides exposed on exterior face, High pressure decorative laminate
  - .4 Upper Cabinet gable sides exposed on exterior face, High pressure decorative laminate
  - .5 Backsplash:
    - .1 100 mm high Post-Formed plastic laminate Countertop back splash.
- .3 Semi-Exposed Surfaces: thermo fused laminate:
  - .1 Cabinet Interior side surfaces: thermo fused laminate
  - .2 Shelves: : Edge banded, thermo fused laminate.
  - .3 Drawer Sides and Backs: Edge banded, thermo fused laminate.
  - .4 Drawer Bottoms: Edge banded, thermo fused laminate.
- .4 Semi-Exposed Surfaces: thermo fused laminate:
  - .1 Cabinet Interior side surfaces: thermo fused laminate
  - .2 Shelves: : Edge banded, thermo fused laminate.

- .3 Drawer Sides and Backs: Edge banded, thermo fused laminate.
- .4 Drawer Bottoms: Edge banded, thermo fused laminate.

**2.8 MILWORK ITEM: PLASTIC LAMINATE POST-FORMED COUNTERTOP AT 7<sup>TH</sup> FLOOR WASHROOMS**

- .1 Countertop Construction:
- .2 Comply with NAAWS Quality Standards, Custom grade requirements for counter construction supplemented as follows:
- .3 Base cabinet countertops shall be constructed of 19 mm marine grade plywood Grade B finished both sides. Seal edges to protect against moisture.
  - .1 Cabinet countertop: solid wood veneer core marine grade plywood, Grade B G2S of quality suitable plastic laminate finish, surface knots filled with wood plugs.
  - .2 Post formed front edge and backsplash.

**2.9 MILWORK ITEM: MDF VERTICAL WALL FINISHING TRIM AT ROOM T701**

- .1 Trim construction:
  - .1 Comply with NAAWS Quality Standards, Custom grade requirements for counter construction supplemented as follows:
  - .2 Moisture resistant MDF trim, length, width and configuration as shown on Drawings.
  - .3 Finish: smooth surfaces and edges, sanded ready for opaque paint finish.

**2.10 FABRICATION**

- .1 Shop prepare and identify components for matching during site assembly.
- .2 Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.
- .3 When necessary to cut and fit on site, provide materials with ample allowance for site cutting and scribing.
- .4 Apply plastic laminate finish and wood veneer finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline.
- .5 Apply laminate backing sheet to reverse side of laminate finished surfaces.
- .6 Fabricate Kitchenette countertop surfaces pressure glued to plywood core without visible joints. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal cut edges.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Verify existing conditions before starting work.
- .2 Verify adequacy of backing and support framing.
- .3 Verify location and sizes of utility rough-in associated with work of this section.

**3.2 INSTALLATION**

- .1 Install Work to NAAWS, Custom Grade.

- .2 Set and secure casework in place; rigid, plumb, and level.
- .3 Use fixture attachments in concealed locations for wall mounted components.
- .4 Use concealed joint fasteners to align and secure adjoining cabinet units and counter tops.
- .5 Carefully scribe casework abutting other components, with maximum gaps of 1 mm (1/32 inch). Do not use additional overlay trim for this purpose.
- .6 Secure cabinets bases to floor using appropriate angles and anchorages.
- .7 Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

### **3.3 ADJUSTING**

- .1 Test installed work for rigidity and ability to support loads.
- .2 Adjust moving or operating parts to function smoothly and correctly.

### **3.4 CLEANING**

- .1 Cleaning installed work.
- .2 Clean casework, counters, shelves, hardware, fittings, and fixtures.

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1    Provide tested and listed firestopping systems supplied from one source manufacturer.
- .2    Provide Manufacturer's Letter of Observation to document acceptability of the Firestopping work, based on Manufacturer's field review and/or Manufacturer's review of Firestopping Contractor's submitted Identification and documentation of each firestopped penetration and joint location as specified in Part 3 of this Section.
- .3    Firestopping means a system of material or combination of materials used to retain integrity of constructed fire-rated separation by maintaining an effective barrier against the spread of flame, smoke, and hot gases through penetrations in, or gaps and construction joints between fire rated wall and floor assemblies constructed as fire separations. Firestopping shall be used in specific locations, but not be limited to, as follows:
  - .1    Penetrations for the passage of duct, cable, cable tray, conduit, piping, electrical bus ways and raceways through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.
  - .2    Safing slot gaps between edge of floor slabs and curtain walls.
  - .3    Openings between structurally separate sections of wall or floors.
  - .4    Gaps between the top of walls and ceilings or roof assemblies.
  - .5    Expansion joints in walls and floors.
  - .6    Openings and penetrations in fire-rated partitions or walls containing fire doors.
  - .7    Openings around structural members which penetrate floors or walls.
- .4    Fire stopping and smoke seals are required at locations where mechanical and electrical assemblies penetrate fire-rated separations and shall be part of work of this Section.

**1.2            RELATED SECTIONS**

- .1    Section 01 11 00 – Cutting and core drilling existing concrete.
- .2    Section 09 21 16 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.
- .3    Mechanical Division– Heating, Ventilating, and Air-Conditioning (HVAC) and plumbing: work requiring firestopping.
- .4    Electrical Division: Electrical work requiring firestopping.

**1.3            REFERENCES**

- .1    ASTM E84-13a - Standard Test Method for Surface Burning Characteristics of Building Materials.
- .2    ASTM E119-12a - Standard Test Methods for Fire Tests of Building Construction and Materials.
- .3    ASTM E814-13a - Standard Test Method for Fire Tests of Penetration Firestop Systems.
- .4    ASTM E1966-07(2011) - Standard Test Method for Fire-Resistive Joint Systems.
- .5    ASTM E 2174 - Standard Practice for On-site Inspection of Installed Fire Stops.
- .6    ASTM E 2307 - Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-story Test Apparatus.

- .7 ASTM E 2393 Standard Practice for On-Site Inspection of Installed Fire Stop Joint Systems.
- .8 CAN/ULC-S101-07 - Standard Methods of Fire Endurance Tests of Building Construction and Materials.
- .9 CAN/ULC-S102-10 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .10 CAN/ULC-S102.2-10 - Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.
- .11 CAN/ULC-S115-11 - Standard Method of Fire Tests of Firestop Systems.
- .12 FM (Factory Mutual) - FM 4991-2001, Approval Standard for Approval of Firestop Contractors.
- .13 FCIA (Firestop Contractors International Association) - Manual of Practice.
- .14 International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments.
- .15 NFPA 101 - Life Safety Code.
- .16 NFPA 251 - Standard Methods of Tests of Fire Endurance of Building Construction and Materials, 2006 edition.
- .17 OPL (Omega Point Laboratories).
- .18 Ontario Building Code.
- .19 UL Qualified Firestop Contractor Program.
- .20 UL 263-2011 - Standard for Fire Tests of Building Construction and Materials (14th Edition).
- .21 UL 1479-2003 - Standard for Fire Tests of Through-Penetration Firestops (3rd Edition).
- .22 UL 1709-2011 - Standard for Rapid Rise Fire Tests of Protection Materials for Structural Steel (4th Edition).
- .23 UL 2079-2004 - Standard for Tests for Fire Resistance of Building Joint Systems (4th Edition).
- .24 ULC-FR-14 - Fire Resistance Directory (2014 Edition).
- .25 WHI (Intertek/Warnock Hershey).

#### **1.4 SYSTEM DESCRIPTION**

- .1 Tested and listed firestopping systems and Engineering Judgment (EJ) system and Equivalent Fire Resistance Rated Assembly (EFRRA) consisting of a material or materials, the wall or floor assembly, and penetrating items or gaps, assembled or placed in spaces, gaps, joints and building perimeters, to restore the fire resistance rating and or smoke resistant properties of a fire resistance rated assembly or smoke resistant assembly applied in accordance to Ontario Building Code, rating as listed and defined by type in CAN/ULC-S115 - Standard Method of Fire Tests of Firestop Systems:
  - .1 "F" Rating Fire
  - .2 "FT" Rating Fire & Temperature
  - .3 "FH" Rating Fire & Hose
  - .4 "FTH" Rating Fire Temperature & Hose
  - .5 "L" Rating Leakage Rate

**1.5 PERFORMANCE REQUIREMENTS**

- .1 Materials, accessories and application procedures listed by ULC-FR, WHI, or tested to CAN/ULC-S115 to comply with applicable building code requirements.
- .2 Firestopping Materials: CAN/ULC-S101 ASTM E119 ASTM E814, to achieve a fire rating as noted in Schedule at end of this section and as noted on Drawings .
- .3 Surface Burning Characteristics: CAN/ULC-S102 or CAN/ULC-S102.2, as applicable ASTM E84.
- .4 Smoke Resistance: For areas where smoke resistance is required, provide firestop systems with L-ratings of maximum 25.4l/sec/sq m (5.0 cfm/sq ft) opening area.
- .5 Environmental Resistance: Systems to be resistant to environmental conditions they will be exposed to, as apparent at design stage.

**1.6 ADMINISTRATIVE REQUIREMENTS**

- .1 Section 01 31 00: Project management and coordination procedures.
- .2 Coordination: Coordinate with other work having a direct bearing on work of this section.
- .3 Pre-installation Meetings: Convene one (1) week before starting work of this section.
- .4 Sequencing: Coordinate and sequence firestopping installation with all affected trades.

**1.7 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data: Provide manufacturer's written data on product characteristics, performance .
- .3 System Design Listings: Submit system design listings including illustrations from a qualified nationally recognized testing and inspection agency applicable to each firestop configuration.
- .4 Unlisted Firestopping Systems: Obtain an Engineering Judgment (EJ) or Equivalent Fire Resistance Rated Assembly (EFRRA) from firestop manufacturer where no specific third party tested, listed and classified firestop system is available for a particular firestop configuration. Engineering judgment documents must follow requirements set forth by the International Firestop Council.

**1.8 SUBMITTALS FOR INFORMATION**

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Manufacturer's written special preparation and installation requirements and tested and listed firestop systems designs.
- .3 Contractor's Certificates:
  - .1 Provide FCIA Member in Good Standing letter or certificate for the current year, on FCIA letterhead.
  - .2 Current ULC Qualified Firestop FM 4991 Approved Contractor Certificate and individual Designated Responsible Individual Certificate.
- .4 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

**1.9 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and section 01 92 00: Submission procedures.

**1.10 QUALITY ASSURANCE**

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience and FCIA Manufacturer Member in good standing.
- .3 Contractor Qualifications: Company specializing in performing the work of this section and as follows:
  - .1 FCIA Member in good standing.
  - .2 Minimum one (1) person employed at the firm who has passed the ULC Firestop Exam.
  - .3 The work is to be installed by a contractor with at least one of the following qualifications:
    - .1 ULC Qualified Firestop Contractor Program.
    - .2 FM approved in accordance with FM standard 4991 - Approval of Firestop Contractors.
    - .3 Fire Stop Specialty Contractor shall be certified by the Manufacturer as having received training in using manufacturer's firestopping systems products and is a Manufacturer's Accredited Fire Stop Specialty Contractor.
  - .4 FCIA Member in good standing.
  - .5 Licensed by the province or local authority where applicable.
  - .6 Completed not less than five (5) comparable scale projects.
- .4 Single Source Responsibility: Obtain firestop systems for each type of penetration and construction situation from a single primary firestop systems manufacturer. Obtain firestop systems for complete project, from a single primary firestop systems manufacturer, to the greatest extent possible.

**1.11 REGULATORY REQUIREMENTS**

- .1 Conform to applicable code for fire resistance ratings and surface burning characteristics.
- .2 Provide certificate of compliance from authority having jurisdiction indicating approval of materials, tested and listed systems or engineering judgments used.

**1.12 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01 60 00: Transport, handle, store, and protect products.
- .2 Deliver firestopping products in original, unopened containers with labels intact and legible, identifying product and manufacturer.
- .3 Store and handle firestopping materials to manufacturer's instructions.

**1.13 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Do not apply materials when temperature of substrate material and ambient air is below 15 degrees C.
  - .2 Maintain this minimum temperature before, during, and for three (3) days after installation of materials.
  - .3 Provide ventilation to manufacturer's instructions in areas to receive solvent cured materials.



**Part 2 Products**

**2.1 MANUFACTURERS**

- .1 Acceptable Materials Assemblies:
  - .1 A/D Fire Protection Systems Inc.
  - .2 3M Fire Protection Products.
  - .3 HILTI, Inc.
  - .4 Specified Technologies, Inc.
  - .5 Tremco (Canada) Limited.
- .2 Substitutions: Refer to Section 01 60 00.

**2.2 MATERIALS**

- .1 Fire Stopping Systems and Materials: Tested and listed by ULC-FR, WHI, OPL, and conforming to construction type, penetrant type, annular space requirements and fire rating involved in each separate instance.
- .2 Firestopping shall include the following types of construction details:
  - .1 Pre-installed firestop devices for use with non-combustible and combustible pipes (closed and open systems), conduit, and/or cable bundles penetrating concrete floors and/or gypsum walls.
  - .2 Sealants, caulking materials, or foams for use with non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT).
  - .3 Sealants or caulking materials for use with sheet metal ducts.
  - .4 Sealants, caulking or spray materials for use with fire-rated construction joints and other gaps.
  - .5 Pre-formed mineral wool designed to fit flutes of metal profile deck and gap between top of wall and metal profile deck; as a backer for spray material.
  - .6 Intumescent sealants, caulking materials for use with combustible items (penetrants consumed by high heat and flame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles and plastic pipe.
  - .7 Foams, intumescent sealants, or caulking materials for use with flexible cable or cable bundles.
  - .8 Non-curing, re-penetrable intumescent putty or foam materials for use with flexible cable or cable bundles.
  - .9 Wall opening protective materials for use with U.L.C. Listed metallic and specified non-metallic outlet boxes.
  - .10 Firestop collar or wrap devices attached to assembly around combustible plastic pipe (closed and open piping systems).
  - .11 Materials used for large openings and complex penetrations made to accommodate cable trays and bundles, multiple steel and copper pipes, electrical bus ways in raceways.
  - .12 Non curing, re-penetrable materials used for large size/complex penetrations made to accommodate cable trays and bundles, multiple steel and copper pipes, electrical bus ways in raceways.
  - .13 Sealants or caulking materials used for openings between structurally separate sections of wall and floors.

- .14 For blank openings made in fire-rated wall or floor assemblies, where future penetration of pipes, conduits, or cables is expected.
- .3 General Criteria:
  - .1 Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience.
  - .2 Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.
  - .3 Firestopping Materials are either "cast-in-place" (integral with concrete placement) or "post installed." Provide cast-in-place firestop devices prior to concrete placement.
  - .4 Firestopping seals except for wall joints in visible areas must be of easily identifiable colour, such as red or yellow to be clearly distinguished from other building materials. In visible areas latex based, firestopping shall be paintable firestopping material.
  - .5 Service penetration components and assemblies, including back-up materials and supports shall be certified in accordance with CAN4-S115 or CAN/ULC-S101, and be ULC listed by a certified authority recognized by building Code officials in locality in which Building is situated.
  - .6 Site system assembly shall be in accordance with ULC S 115 labelled and listed system design limitations, unless proposed assembly is approved by authorities having jurisdiction and meets University's approval. Combined and/or built-up Site systems shall be designed in accordance with approved restrictions and technical evaluations acceptable to University and authorities having jurisdiction.
  - .7 Sealants and putty for overhead and vertical joints shall be non-sagging; seals for floors, self-levelling. Flexible fire stop sealant shall provide movement capability in fire rated joint applications. Sealants shall be compatible with base materials such as without limitations masonry, concrete, metal gypsum board and other similar items.
  - .8 Products shall have a compressive strength capable of providing self-support at a penetrating item, and shall maintain their integrity as tested in a ULC vertical application.
  - .9 Products shall be compatible with abutting dissimilar architectural coatings and finishes at floors, walls, ceilings, waterproofing membranes and the like. Check with Room Finish Schedule and manufacturer of selected materials being installed.
  - .10 Integral Pipe Sleeves/Firestopping Components: Other Sections within Mechanical Division may specify fire-rated pipe sleeves, 'O' clearance pipe/sleeve assemblies, and integral firestopped penetration devices and accessories listed by authorized testing and certification authorities. These systems may eliminate need for separate firestopping applications at certain designated locations, and it shall be responsibility of this Section to determine any and all locations where such devices will be utilized on Project.
  - .11 Products shall be non-asbestos containing materials.

## **2.3 ACCESSORIES**

- .1 Primer: Type recommended by firestopping manufacturer for specific substrate surfaces.
- .2 Forming/Packing Material: Permanent type, suitable for application.
- .3 Installation Accessories: Clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping are ready to receive the work of this section.
- .3 Verify tested and listed systems selected are applicable to the conditions encountered.
- .4 Do not proceed with installation until unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- .1 Coordinate construction of openings, penetrations and construction joints to ensure that the fire stop systems are installed according to specified requirements.
- .2 Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration fire stop systems. Coordinate construction and sizing of joints to ensure that fire-resistive joint systems are installed according to specified requirements.
- .3 Coordinate fire stopping with other trades so that obstructions are not placed in the way prior to the installation of the fire stop systems.
- .4 Clean substrate surfaces as recommended in manufacturer's written instructions, of dirt, dust, grease, oil, loose material, or other matter which may affect bond of firestopping material and performance of firestop system for fire or smoke resistant situations.
- .5 Remove incompatible materials which may affect bond.
- .6 Install damming and backing materials to arrest liquid material leakage.

**3.3 APPLICATION**

- .1 Apply primer and firestopping materials to manufacturer's written instructions.
- .2 Install material at walls or partition openings which contain penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping to tested and listed system or engineering judgment.
- .3 Consult with mechanical engineer, project manager, and damper manufacturer prior to installation of ULC firestop systems that might hamper the performance of fire dampers as it pertains to duct work.
- .4 Apply firestopping material in sufficient thickness to achieve rating , to uniform density and texture.
- .5 Compress fibred material to achieve a density of 40% of its uncompressed density.
- .6 Place intumescent coating in sufficient coats to achieve rating required.
- .7 Dam Material: Remove dam material after firestopping material has cured.
- .8 Do not cover up through-penetration fire stop and joint system installations that will become concealed behind other construction until each installation has been examined by the building inspector, per requirements of Building Code of Ontario.

**3.4 FIELD QUALITY CONTROL**

- .1 Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.

- .2 Keep areas of work accessible until inspection by applicable code authorities.
- .3 Inspection of through-penetration firestopping shall be performed in accordance with ASTM E 2174, "Standard Practice for On-Site Inspection of Installed Fire Stops" or other recognized standard.
- .4 Perform under this section patching and repairing of firestopping caused by cutting or penetrating of existing firestop systems already installed by other trades.
- .5 Manufacturer's Field Services: During Installation, provide periodic destructive testing inspections to assure proper installation/application. After installation is complete, submit findings in writing indicating whether or not the installation of the tested system identified was installed correctly.

### **3.5 IDENTIFICATION & DOCUMENTATION**

- .1 The firestop contractor shall supply documentation for each single application addressed. This documentation shall identify each penetration and joint location on the entire project.
- .2 Provide Manufacturer's Letter of Observation to document acceptability of the Firestopping work, based on Manufacturer's field review and/or Manufacturer's review of Firestopping Contractor's Work indicated on the Documentation Form specified herein.
- .3 The Documentation Form for through penetrations is to include:
  - .1 A Sequential Location Number
  - .2 The Project Name
  - .3 Date of Installation
  - .4 Detailed description of the penetrations location
  - .5 Tested System or Engineered Judgment Number
  - .6 Type of assembly penetrated
  - .7 A detailed description of the size and type of penetrating item
  - .8 Size of opening
  - .9 Number of sides of assemblies addressed
  - .10 Hourly rating to be achieved
  - .11 Installers Name
- .4 The Documentation Form for Construction Joints is to include:
  - .1 A Sequential Location Number
  - .2 The Project Name
  - .3 Date of Installation
  - .4 Detailed description of the Construction Joints location
  - .5 Tested System or Engineered Judgment Number
  - .6 Type of Construction Joint
  - .7 The Width of the Joint
  - .8 The Lineal Footage of the Joint
  - .9 Number of sides addressed
  - .10 Hourly rating to be achieved
  - .11 Installers Name
- .5 Copies of these documents shall be provided to the Firestopping Systems Manufacturer and General Contractor for distribution to the Consultant, at the completion of the project.

**3.6 CLEANING**

- .1 Section 01 74 00: Cleaning installed work.
- .2 Clean adjacent surfaces of firestopping materials.

**3.7 PROTECTION OF FINISHED WORK**

- .1 Section 01 7 00: Protecting installed work.
- .2 Protect adjacent surfaces from damage by material installation.

**3.8 SCHEDULES**

- .1 Shaft fire walls: 1 hour.
- .2 Stair walls: 1 hours.
- .3 Floor to Floor: 2 hours
- .4 Room to room partitions: Partitions between adjacent rooms: 1 hour.
- .5 Walls and Floors to mechanical and Electrical Room: metallic pipe and conduit: 2 hour.
- .6 Smoke resistance: For areas where smoke resistance is required, provide firestop systems with L-Ratings of 25.4l/sec/sq m (5.0 cfm/sq ft).

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1        Preparing substrate surfaces.
- .2        Sealant and joint backing.

**1.2            RELATED SECTIONS**

- .1        Section 06 41 11 - Architectural Cabinetwork
- .2        Section 07 84 00 - Firestopping
- .3        Section 09 21 16 - Gypsum Board Assemblies
- .4        Section 09 51 13 - Acoustic Panel Ceilings
- .5        Section 09 91 10 – Painting
- .6        Mechanical Division – Pipe penetrations
- .7        Electrical Division– Pipe penetrations

**1.3            REFERENCES**

- .1        ASTM C834-10 - Standard Specification for Latex Sealants.
- .2        ASTM C919-12 - Standard Practice for Use of Sealants in Acoustical Applications.
- .3        ASTM C920-14 - Standard Specification for Elastomeric Joint Sealants.
- .4        ASTM C1184-13 - Standard Specification for Structural Silicone Sealants.
- .5        ASTM C1193-13 - Standard Guide for Use of Joint Sealants.
- .6        ASTM C1311-10 - Standard Specification for Solvent Release Sealants.
- .7        ASTM C1330-02(2013) - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
- .8        ASTM C1401-09a - Standard Guide for Structural Sealant Glazing.

**1.4            PERFORMANCE REQUIREMENTS**

- .1        Sealant Design: Design structural sealant to withstand specified loads without breakage, loss, and failure of seals, product deterioration, and other defects.

**1.5            ADMINISTRATIVE REQUIREMENTS**

- .1        Section 01 30 00: Project management and coordination procedures.
- .2        Coordination:
  - .1            Coordinate with other work having a direct bearing on work of this section.
  - .2            Coordinate the work with all sections referencing this section.

**1.6            SUBMITTALS FOR REVIEW**

- .1        Section 01 30 00: Submission procedures.

- .2 Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations and colour availability.
- .3 Structural Sealant Joint Design: Confirmation that design data provided by Consultant have been reviewed and approved by sealant manufacturer.
- .4 Shop Drawings: Indicate sealant joints and dimensions, materials, structural bite, glueline thickness, joint profile, and support framing.

**1.7 SUBMITTALS FOR INFORMATION**

- .1 Section 01 30 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements.
  - .1 Indicate special procedures, surface preparation, perimeter conditions requiring special attention.

**1.8 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and Section 01 92 00: Submission procedures.

**1.9 QUALITY ASSURANCE**

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Perform sealant application work to ASTM C1193 .
- .3 Perform structural sealant application work to ASTM C1401.
- .4 Perform acoustical sealant application work to ASTM C919.
- .5 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.
- .6 Applicator Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

**1.10 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

**1.11 WARRANTY**

- .1 Warranty: Provide a two (2) year period after Date of Ready for Take Over: Workmanship and material warranty against failure to meet specified requirements including coverage for installed sealants and accessories which fail to achieve water tight seal air tight seal, exhibit loss of adhesion or cohesion, or do not cure.
- .2

**Part 2 Products**

**2.1 SEALANTS**

- .1 Siliconized Acrylic Latex (Type A): ASTM C834; Type OP , Grade NF; single component, non-sagging, non-staining, non-bleeding, paintable; colour: white, paintable

- .1 Elongation Capability 12.5%.
- .2 Service Temperature Range -54 to 82 degrees C.
- .3 Shore A Hardness Range 15 to 25.
- .4 Product: Tremflex 834, manufactured by Tremco, Inc..
- .2 Butyl Sealant (Type B): ASTM C1311, single component, solvent release, non-skinning, non-sagging, colour selected by Consultant.
  - .1 Elongation Capability +/- 10%.
  - .2 Service Temperature Range -28 to 82 degrees C.
  - .3 Shore A Hardness Range 10 to 30.
  - .4 Product: Tremco Butyl Sealant, manufactured by Tremco, Inc..
- .3 Acoustic Sealant (Type C): ASTM C1311, Acoustic grade, single component, solvent release, non-skinning, non-sagging, Grey colour.
  - .1 Elongation Capability 7.5%.
  - .2 Service Temperature Range -28 to 82 degrees C.
  - .3 Shore A Hardness Range 10 to 30.
  - .4 Product: Tremco Acoustical/Curtainwall Sealant, manufactured by Tremco, Inc..
- .4 Silicone Sealant (Type D): ASTM C920, Type S, Grade NS, Class 100/50, Use NT, SWRI Validated; single component, neutral curing, non-sagging, non-staining, non-bleeding, low modulus; colour as selected.
  - .1 Elongation Capability +/-150 %.
  - .2 Service Temperature Range -54 to 82 degrees C.
  - .3 Shore A Hardness Range 15 to 45.
  - .4 Product: Dow Corning 790, manufactured by Dow Corning, or CWS by Dow.
  - .5 Product: Spectrem 1, manufactured by Tremco, Inc.
  - .6 Product: Spectrem 3, manufactured by Tremco, Inc.
- .5 Sanitary Silicone Sealant (Type E): ASTM C920, Grade NS, Class 25, Use NT; single component, acetox curing, non-sagging, non-staining, mildew resistant; colour as selected.
  - .1 Elongation Capability 25%.
  - .2 Service Temperature Range -54 to 82 degrees C.
  - .3 Shore A Hardness Range 15 to 35.
  - .4 Product: DC 786, manufactured by Dow corning.
  - .5 Product: Sanitary 1700, manufactured by GE.
  - .6 Product: Tremsil 200 Sanitary, manufactured by Tremco, Inc..

## **2.2**

### **ACCESSORIES**

- .1 Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- .2 Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- .3 Joint Backing: ASTM C1330, round, closed cell ; polyethylene foam rod, oversized 30% to 50% larger than joint width.
- .4 Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.



- .5 Masking tape: Non-staining, non-absorbent type compatible with sealant and adjacent surfaces.
- .6 Setting Blocks and Spacers: Compatible with silicone sealant and recommended by sealant manufacturer.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that substrate surfaces and joint openings are clean, dry, and free of frost and ready to receive work.
- .3 Verify that joint backing and release tapes are compatible with sealant .

#### **3.2 PREPARATION**

- .1 Remove loose materials and foreign matter which might impair adhesion of sealant.
- .2 Clean and prime joints to sealant manufacturer's written instructions.
- .3 Perform preparation to ASTM C1193 for solvent release and latex base sealants .
- .4 Perform preparation to sealant manufacturer's written instructions.
- .5 Protect elements surrounding the work of this section from damage or disfiguration.

#### **3.3 INSTALLATION**

- .1 Perform installation in accordance with ASTM C1193 for solvent release and latex base sealants, ASTM C919 for acoustical sealants .
- .2 Install sealant to sealant manufacturer's written instructions.
- .3 Measure joint dimensions and size materials to achieve required 2:1 width/depth ratios.
- .4 Install joint backing to achieve a neck dimension no greater than 1/3 of the joint width.
- .5 Install bond breaker where joint backing is not used.
- .6 Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- .7 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- .8 Tool joints concave channel shaped as detailed.

#### **3.4 CLEANING**

- .1 Section 01 70 00: Cleaning installed work.
- .2 Clean adjacent soiled surfaces.

#### **3.5 PROTECTION OF FINISHED WORK**

- .1 Section 01 7 00: Protecting installed work.
- .2 Remove masking tape and excess sealant.
- .3 Protect sealants until cured , remove temporary glass supports.

**3.6**

**SCHEDULE**

- .1 Type – A – Interior, Non-fire-rated: door frame/ walls, interior wall to wall joints, interior wall pipe penetrations.
- .2 Type – D – Exterior wall penerations.
- .3 Type – E - Joint between wall construction and cabinet casework, countertops and washroom countertops.

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1        Non-Fire Rated Hollow Metal Steel Frames.

**1.2            RELATED SECTIONS**

- .1        Section 08 14 16 - Flush Wood Doors
- .2        Section 08 71 00 - Door Hardware - General: Hardware, silencers .
- .3        Section 09 91 10 - Painting: Field painting of doors and frames.

**1.3            REFERENCES**

- .1        ASTM A653/A653M-13 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2        ASTM C553-13 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
- .3        ASTM E90-09 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- .4        ASTM E413-10 - Classification for Rating of Sound Insulation.
- .5        CSA-W59-13 - Welded Steel Construction (Metal Arc Welding).
- .6        CSDMA (Canadian Steel Door Manufacturers Association).
  - .1        Recommended Dimensional Standards for Commercial Steel Doors and Frames, 2000.
  - .2        Recommended Selection and Usage Guide for Commercial Steel Doors and Frame Products, 2009.

**1.4            ADMINISTRATIVE REQUIREMENTS**

- .1        Section 01 30 00: Project management and coordination procedures.
- .2        Coordination:
  - .1        Coordinate with other work having a direct bearing on work of this section.
  - .2        Coordinate the work with frame opening construction, door, and hardware installation.
- .3        Sequencing: Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.

**1.5            SUBMITTALS FOR REVIEW**

- .1        Section 01 30 00: Submission procedures.
- .2        Product Data: Indicate door and frame configurations and finishes, location of cut-outs for hardware reinforcement.
- .3        Shop Drawings:
  - .1        Indicate frame elevations, reinforcement, anchor types and spacing, location of cut-outs for hardware, and finish.

- .2 Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, louvres and finishes.

## **1.6 SUBMITTALS FOR INFORMATION**

- .1 Section 01 30 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements.
- .3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

## **1.7 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and section 01 92 00: Submission procedures.
- .2 Sustainable Design Closeout Documentation: .

## **1.8 QUALITY ASSURANCE**

- .1 Conform to requirements of CSDMA. Maintain one (1) copy of document on site.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.

## **1.9 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01 60 00: Transport, handle, store, and protect products.
- .2 Remove doors and frames from wrappings or coverings upon receipt on site and inspect for damage.
- .3 Store in vertical position, spaced with blocking to permit air circulation between components.
- .4 Store materials on planks or dunnage, out of water and covered to protect from damage.
- .5 Clean and touch up scratches or disfigurement caused by shipping or handling with zinc-rich primer.

## **Part 2 Products**

### **2.1 MANUFACTURERS**

- .1 Acceptable manufacturers:
  - .1 Ali-Porte Inc.;
  - .2 Ambico Ltd.;
  - .3 Artek Door Limited;
  - .4 Daybar Industries Limited;
  - .5 Metal Door Ltd.;
  - .6 Fleming Steel Doors & Frames
- .2 Substitutions: Refer to Section 01 60 00 .

### **2.2 MATERIALS**

- .1 Sheet Steel: Galvanized steel to ASTM A653/A653M, commercial grade (CS), Type B.

- .1 Interior Doors: Coating designation ZF75 .
- .2 Reinforcement Channel: CSA-G40.20/G40.21, Type 44W, ZF75 coating designation to ASTM A653/A653M.

### **2.3 FABRICATION - FRAMES**

- .1 Interior Frames: 1.6 mm thick base metal thickness.
  - .1 Door Frames: Welded type construction.
  - .2 Transom Frames: Welded type construction.
  - .3 Sidelight Assemblies: Welded type construction.
- .2 Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier.
- .3 Reinforce frames wider than 1 200 mm with roll formed steel channels fitted tightly into frame head, flush with top.
- .4 Prepare frames for silencers. Provide three (3) single silencers for single doors and mullions of double doors on strike side.

### **2.4 FINISHES**

- .1 Factory Finish: galvanized and prime painted ready for field paint finishing.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that opening sizes and tolerances are acceptable; check floor area within path of door swing for flatness.
- .3 Verify doors and frames are correct size, swing, rating and opening number.
- .4 Remove temporary shipping spreaders.

### **3.2 INSTALLATION**

- .1 Install doors and frames to CSDMA.
- .2 Coordinate with masonry, gypsum board, concrete wall construction for anchor placement.
- .3 Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.
- .4 Set frames plumb, square, level and at correct elevation.
- .5 Secure anchorages and connections to adjacent construction.
- .6 Brace frames rigidly in position while building-in. Install wood spreaders at third points of frame rebate height to maintain frame width. Provide vertical support at centre of head for openings exceeding 1 200 mm in width.
- .7 Remove wood spreaders after frames have been built-in.
- .8 Make allowance for deflection to ensure structural loads are not transmitted to frame product.

- .9 Install doors, and hardware in accordance with hardware templates and manufacturer's instructions.
- .10 Adjust operable parts for correct clearances and function.
- .11 Install door silencers.
- .12 Finish paint as specified in Section 09 91 10.
- .13 Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.

### **3.3 ERECTION TOLERANCES**

- .1 Maximum Diagonal Distortion: 1.5 mm measured with straight edges, crossed corner to corner.

### **3.4 SCHEDULE**

- .1 This section is associated with:
  - .1 Door Schedule on the Drawings
  - .2 Section 08 71 00 Door Hardware Requirements
  - .3 Section 08 71 01 Door Hardware Schedule

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1 Flush wood doors: flush swing configuration; non-rated.

**1.2            RELATED SECTIONS**

- .1 Section 08 11 13 - Standard Metal Door Frames
- .2 Section 08 71 00 - Door Hardware - Common Requirements
- .3 Section 08 71 01 - Door Hardware - Schedule
- .4 Section 09 91 10 - Painting

**1.3            REFERENCES**

- .1 ANSI A135.4 - Basic Hardboard Standard, Edition 12.
- .2 ASTM E90-09 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- .3 ASTM E413-10 - Classification for Rating of Sound Insulation.
- .4 NAAWS North American Architectural Woodwork Standards – Edition 3.1, 2017 as amended.

**1.4            ADMINISTRATIVE REQUIREMENTS**

- .1 Section 01 30 00: Project management and coordination procedures.
- .2 Coordination:
  - .1 Coordinate with other work having a direct bearing on work of this section.
  - .2 Coordinate the work with door opening construction, door frame and door hardware installation.

**1.5            SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data: Indicate door core materials and construction; facing type, type and characteristics.
- .3 Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special blocking for hardware, special beveling, factory machining criteria . Identify cut-outs for glazing .
- .4 Samples:
  - .1 Submit two (2) samples of door construction, 150 mm x150 mm in size cut from top corner of door.

**1.6            CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and Section 01 92 00: Submission procedures.
- .2 Sustainable Design Closeout Documentation: .

**1.7 QUALITY ASSURANCE**

- .1 Perform work in accordance with AWMAC standards, Premium Grade . Maintain one (1) copy of document on site.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience .

**1.8 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01 60 00: Transport, handle, store, and protect products.
- .2 Package, deliver and store doors in accordance with NAAWS.
- .3 Accept doors on site in manufacturer's packaging. Inspect for damage.
- .4 Deliver materials only when Project is ready for installation and when area of operation is enclosed, plaster and concrete work dry and area broom clean.
- .5 Protect doors from exposure to natural and artificial light after delivery.
- .6 Maintain indoor temperature and humidity within range recommended by NAAWS.

**1.9 WARRANTY**

- .1 Provide warranty to include coverage for failure to meet specified requirements, to the following term:
  - .1 Interior Doors: Two (2) year period after Date of Ready for Take Over.
- .2 Include coverage for delamination of veneer warping beyond specified installation tolerances defective materials telegraphing core construction.

**Part 2 Products**

**2.1 MANUFACTURERS**

- .1 Acceptable manufacturers offering functionally and aesthetically equivalent products.
  - .1 Baillargeon Doors
  - .2 Lambton Door.
  - .3 Marshfield Door Systems.
- .2 Substitutions: Refer to Section 01 60 00 and comply with procedures for substitution requests.

**2.2 DOOR CONSTRUCTION**

- .1 Flush Wood Doors: Premium quality, standard duty performance .
  - .1 Core (Non-Rated): Solid particleboard core.
  - .2 Thickness: 44 mm.
  - .3 Door Construction: 5-ply .
  - .4 Facing (Interior): ANSI A135.4, Class 2 - Standard 4 - Service , Type S2S hardboard, 3 mm (1/8 inch) thick; for paint finish.
  - .5 Exposed Edges: Vertical and top edges, Solid wood .



**2.3 ADHESIVE**

- .1 Facing Adhesive: Type I - waterproof.

**2.4 ACCESSORIES**

- .1 Glazing Stops: Wood, of same species as door edges, mitered corners; prepared for countersink style, tamper proof screws.
- .2 Glass: Clear tempered glass as specified in Section 08 80 50.

**2.5 FABRICATION**

- .1 Fabricate non-rated doors to AWMAC requirements.
- .2 Provide lock blocks at lock edge and full blocking at top, hinge side of door for hardware reinforcement.
- .3 Fit door edge trim to edge of stiles after applying veneer facing.
- .4 Factory machine doors for recessed hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware. Provide solid blocking for through bolted hardware.
- .5 Factory fit doors for frame opening dimensions identified on Shop Drawings.
- .6 Provide edge clearances in accordance with NFPA 80.

**2.6 FINISHES**

- .1 Door paint finish system shall be factory finished using Post Catalyzed paint product Matador by Columbia Industrial Supply [www.columbiaindustrialsupplies.com](http://www.columbiaindustrialsupplies.com)
- .2 Seal door top edge with sealer to match door facing.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify mechanical, electrical, plumbing, HVAC and other building components affecting work of this Section are in place and functioning.
- .3 Verify that opening sizes and tolerances are acceptable.
- .4 Verify frames set square, plumb, level, and in plane. Report openings not within tolerance before hanging doors.

**3.2 INSTALLATION**

- .1 Install doors to manufacturer's requirements.
- .2 Trim non-rated door width by cutting equally on both jamb edges.
- .3 Trim door height by cutting bottom edges to a maximum of 19 mm.
- .4 Machine cut for hardware.

- .5 Coordinate installation of doors with installation of frames specified in Section 08 11 13 and hardware specified in Section 08 71 00 and 08 71 01.
- .6 Coordinate installation of glass and glazing.
- .7 Install door louvres plumb and level.

### **3.3 TOLERANCES**

- .1 Conform to AWMAC requirements for fabrication and installation tolerances.

### **3.4 ADJUSTING**

- .1 Adjust door for smooth and balanced door movement.

### **3.5 SCHEDULES**

- .1 This section is associated with:
  - .1 Door Schedule on the Drawings
  - .2 Section 08 71 00 Door Hardware requirements
  - .3 Section 08 71 01 Door Hardware Schedule

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1    Sealed insulated glass units installed as window infill panels.
- .2    Aluminum mounting brackets and stops.
- .3    Glazing tape
- .4    Sealants.

**1.2            RELATED SECTIONS**

- .1    Section 07 92 00 - Joint Sealants: Perimeter sealant and back-up materials.

**1.3            REFERENCES**

- .1    AA (Aluminum Association) DAF 45-2003 - Designation System for Aluminum Finishes.
- .2    AAMA CW-10-15 - Care and Handling of Architectural Aluminum from Shop to Site.
- .3    AAMA 2603-15 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
- .4    ASTM B209M-14 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- .5    ASTM E331-00(2009) - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
- .6    ASTM F588-14 - Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact.
- .7    CAN/CSA-A440.4-07 (R2012) - Window, Door, and Skylight Installation.

**1.4            SYSTEM DESCRIPTION**

- .1    Windows: factory fabricated, factory finished, vision glass, infill panels, related flashings, anchorage and attachment devices.
- .2    Configuration: Fixed double-glazed sealed units.
- .3    Glazing: Exterior.

**1.5            PERFORMANCE REQUIREMENTS**

- .1    Windows: Conform to CSA-A440S1, Product Designation Class CW-PG30-FW; and labeled by CSA.
- .2    System Design: Design and size components to withstand dead loads and live loads caused by positive and negative wind loads acting normal to plane of wall to AAMA/WDMA/CSA-101/S.I.2/A440, Canadian Supplement.
  - .1       Minimum Design Pressure 1440 PA
  - .2       Minimum Water Resistance Test Pressure 220 PA
- .3    Member Deflection: Limit member deflection to 1/175 of the longer dimension with full recovery of glazing materials.

- .4 Assembly: To accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing.
- .5 Air Infiltration/Exfiltration: Limit air infiltration/exfiltration for fixed units as 0.2 L/s/sq m.
- .6 Water Leakage: None, in accordance with AAMA/WDMA/CSA/101/I.S.2/A440.
- .7 Air and Vapour Seal: Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.

## **1.6 ADMINISTRATIVE REQUIREMENTS**

- .1 Section 01 30 00: Project management and coordination procedures.
- .2 Pre-Installation Meeting: Convene one (1) week before starting work of this section.

## **1.7 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data: Provide component dimensions, anchorage and fasteners, glass, internal drainage details.
- .3 Shop Drawings: Indicate opening dimensions, framed opening tolerances, affected related work and installation requirements.
- .4 Samples:
  - .1 Submit two (2) samples illustrating, factory finished aluminum surfaces, insulating glass units glazing gasket and tape materials.

## **1.8 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and section 01 92 00: Submission procedures.

## **1.9 QUALITY ASSURANCE**

- .1 Comply with CSA-A440S1.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years experience.
- .3 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience.

## **1.10 MOCK-UP**

- .1 Section 01 40 00: Requirements for mock-up.
- .2 Mock-ups: Build mock-ups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
- .3 Build mock up for type(s) of window(s) indicated, in location(s) shown on Drawings.
- .4 Locate where directed by Consultant.
- .5 Approved mock-up may remain as part of the Work.

## **1.11 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01 60 00: Transport, handle, store, and protect products.

- .2 Protect factory finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.

**1.12 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Do not install sealants when ambient temperature is less than 5 degrees C.
  - .2 Maintain this minimum temperature during and after installation of sealants.

**1.13 WARRANTY**

- .1 Correct defective Work within a five (5) year period after Date of Ready for Take Over.
- .2 Provide five (5) year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same.
- .3 Warranty: Include coverage for degradation of colour finish.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Extruded Aluminum: ASTM B221; 6063-T5 alloy and temper.
- .2 Sheet Aluminum: ASTM B209.
- .3 Steel Sections: Profiled to suit mullion sections.
- .4 Fasteners: Stainless steel.

**2.2 COMPONENTS**

- .1 Frames and Stops: Aluminum, thermally broken, profile size as required, applied glass stops.
- .2 Sills: 1.5 mm thick, brake formed aluminum; sloped for positive wash; fit under sash leg to 13 mm beyond wall face; one-piece full width of opening jamb angles to terminate sill end.
- .3 Infill Panel: Internally reinforced, glazing edge sealed:
- .4 Fasteners: Stainless steel.

**2.3 SEALED INSULATING GLASS UNITS**

- .1 Insulated Glass Units - Low E, double pane with interior and exterior pane of glass shall be CAN/CGSB 12.1, clear, tempered; minimum 6 mm thick; Low E coating on #2 surface within unit; interpane space filled with argon gas; with warm edge closed cell polymer foam silicone sealant edge seal; total unit thickness of 19 mm.
  - .1 Edge Seal Colour: grey.

**2.4 GLAZING ACCESSORIES**

- .1 Setting Blocks: ASTM C864], Option I Silicone; [80 to 90] Shore A durometer hardness tested to ASTM D2240, length of <25 mm for each sq m of glazing or minimum x height to suit glazing method and pane weight and area.

- .2 Glazing Tape: Preformed butyl compound with integral EPDM shim spacing device coiled on release paper; black colour: POLYshim II Tape by Tremco

## **2.5 SEALANT MATERIALS**

- .1 Sealant and Backing Materials: As specified in Section 07 92 00 of Types described below.
  - .1 Perimeter Sealant: Silicone Type D.
  - .2 Sealant Used Within System (Not Used for Glazing): Silicone Type D.

## **2.6 FABRICATION**

- .1 Fabricate components with minimum clearances and shim spacing around perimeter of assembly yet enabling installation and dynamic movement of perimeter seal.
- .2 Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.
- .3 Prepare components to receive anchor devices. Fabricate anchors.
- .4 Arrange fasteners and attachments to ensure concealment from view.
- .5 Prepare components with internal reinforcement for operating hardware.
- .6 Factory glaze sealed insulated glass units.

## **2.7 FINISHES**

- .1 Silicon Modified Polyester Coating: Minimum 0.04 mm dry film thickness.
  - .1 Colour: As selected by Consultant to match existing windows.
  - .2 Location: Interior and exterior exposed aluminum surfaces.
- .2 Shop and Touch-Up Primer for Steel Components: [SSPC-Paint 25, zinc oxide alkyd] [MPI #76, quick-dry alkyd primer] [MPI #79, anti-corrosive alkyd primer].
- .3 Touch-Up Primer for Galvanized Steel Surfaces: [SSPC-Paint 20, Type I - Inorganic] [SSPC-Paint 20, Type II - Organic] [MPI #18, inorganic] [MPI #19, organic] zinc-rich primer.
- .4 Concealed Steel Items: Primed with iron oxide paint.
- .5 Apply one (1) coat of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify wall openings and adjoining air and vapour seal materials are ready to receive work of this Section.

### **3.2 INSTALLATION**

- .1 Install glazing, stops, glazing tapes to manufacturer's written instructions.
- .2 Install window assembly to CAN/CSA-A440.4.

- .3 Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.
- .4 Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.
- .5 Install sill and sill end angles.
- .6 Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- .7 Coordinate attachment and seal of perimeter air barrier and vapour retarder materials.
- .8 Install glass infill panels as specified in, to glazing method required to achieve performance criteria.
- .9 Install perimeter sealant to method required to achieve performance criteria. Type D Silicone, foam rod backing materials, and installation criteria as specified in Section 07 92 00.

**3.3 ERECTION TOLERANCES**

- .1 Section 01 73 00: Tolerances.
- .2 Material and Unit Size Tolerances: As specified in AAMA/WDMA/CSA 101/I.S.2/A440.

**3.4 CLEANING**

- .1 Section 01 74 00: Cleaning installed work.
- .2 Remove protective material from factory finished aluminum surfaces.
- .3 Wash surfaces by method recommended and acceptable to sealant and window manufacturer, rinse and wipe surfaces clean.
- .4 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant and window manufacturer.

**END OF SECTION**

**Cylinders and Keys:**

Large Format Interchangeable Cylinders (Medeco LFIC) for locks on the doors scheduled. Cylinders and keys supplied and installed by Owner.

Medeco keying, supplied and installed by Owner.

**Door Hardware included in Construction Contract:**

**Item 1**

Door 209 Meeting Room T209, LH  
3 Hinges - 3CB1 4.5 X 4 C26D  
1 Floor Stop GSH209 C26D

Note: Lockset supplied and installed by Owner (University of Toronto Lock Shop)

Lockset Information for door prep:

Trim: Salto XS4 AJ660A00IM38W-26D- LH.

Mortise Lockset: SaltoXS4 LA1T0570A20IM8-L-26D- LH

**END OF SECTION**



**Part 1 General**

**1.1 SECTION INCLUDES**

- .1 Existing vinyl composite tile flooring refinishing, restoration and sealing.

**1.2 RELATED SECTIONS**

- .1 Section 09 65 10 - Resilient Flooring: Provide new vinyl composite tiles where shown on Drawings.

**1.3 REFERENCES**

- .1 ASTM E84-15a - Standard Test Method for Surface Burning Characteristics of Building Materials.
- .2 ASTM F1066-04(2014)e1 - Standard Specification for Vinyl Composition Floor Tile.
- .3 CAN/ULC-S102.2-10 - Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.

**1.4 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data: Provide data on specified products, describing performance characteristics

**1.5 SUBMITTALS FOR INFORMATION**

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements including special procedures.

**1.6 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 10: Submission procedures.
- .2 Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

**1.7 QUALITY ASSURANCE**

- .1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years experience.
- .2 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience.

**1.8 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Protect roll materials from damage by storing [on end].

**1.9 SITE CONDITIONS**

- .1 Ambient Conditions:

- .1 Store materials for three (3) days prior to installation in area of installation to achieve temperature stability.
- .2 Maintain ambient temperature required by product manufacturer three (3) days prior to, during, and twenty-four (24) hours after installation of materials.

## **Part 2 Products**

### **2.1 MANUFACTURERS – CLEANING AND SEALING SOLUTIONS**

- .1 Product Manufacturer: Armstrong.
- .2 Substitutions: Refer to Section 01 6 00.

### **2.2 MATERIALS - CLEANING AND SEALING SOLUTIONS**

- .1 Floor Stripper and Cleaner: Armstrong Flooring S-325 New Beginning Floor Stripper and Cleaner
- .2 Sealer and polish: Armstrong Flooring S-385 Satinkeeper Low Gloss Floor Finish

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.

### **3.2 STRIPPING EXISTING SEALER, CLEANING AND REMOVAL OF SCRATCHES ON EXISTING VINYL COMPOSITE FLOORING**

- .1 Stripping, cleaning and to remove scratches from VCT flooring, use the following procedure:
- .2 Apply undiluted Armstrong Flooring S-325 New Beginning FloorStripper and Cleaner stripping solution over entire area. Let it set for the recommended amount of time per the manufacturer and then scrub. Start with a 3M Blue or Green pad or equivalent brush. It is important to scrub the floor until the cleaning solution turns the color of the floor. This will help to smooth out the major scratches.
- .3 Wear rubber gloves and avoid contact with skin including knees.
- .4 Vacuum up dirty solution.
- .5 Rinse thoroughly with clean, warm water and allow to dry.
- .6 Evaluate the appearance of the flooring and if some scratching still remains, continue with the following steps:
- .7 Wet area with water or a neutral detergent and scrub with a Red pad or equivalent brush making multiple passes over the scratched area; this should make the tile surface look almost as smooth as when it came out of the box.
- .8 Rinse thoroughly and allow to dry.

### **3.3 APPLICATION OF SEALER AND POLISH**

- .1 Apply sealer and polish: Armstrong Flooring S-385 Satinkeeper Low Gloss Floor Finish
- .2 Application Instructions:

- .3 Floor Prep: Vacuum thoroughly
- .4 Applying Polish: Initially, apply two thin coats with a clean damp sponge mop or microfiber applicator mop and allow at least 30 minutes drying time between coats.
- .5 Make sure the entire surface is coated.
- .6 Dries in approximately 30 minutes – do not buff.
- .7 In high humidity areas, Satinkeeper may take longer than 30 minutes to dry.

### **3.4 PROTECTION OF FINISHED WORK**

- .1 Section 01 70 00: Protecting installed work.

### **3.5 SCHEDULES**

- .1 Refer to Drawing for Floor Finishes Plans for areas identified with existing vinyl composition tile that requires cleaning and sealing work.

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1      Gypsum board and joint treatment: Walls, ceilings and bulkheads.
- .2      Light gauge metal stud wall, ceiling and bulkhead framing.
- .3      Structural metal lightweight stud, ceiling, bulkhead framing and bracing.

**1.2            RELATED SECTIONS**

- .1      Section 06 10 53 - Miscellaneous Rough Carpentry
- .2      Section 06 41 11 - Architectural Cabinetwork
- .3      Section 07 84 00 - Firestopping
- .4      Section 07 92 00 - Joint Sealants
- .5      Section 08 11 13 - Standard Metal Door Frames
- .6      Section 09 51 13 - Acoustic Panel Ceilings
- .7      Section 09 91 10 - Painting
- .8      Section 10 28 14 - Toilet and Bath Accessories
- .9      Mechanical Division
- .10     Electrical Division

**1.3            REFERENCES**

- .1      ASTM C475/C475M-12 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- .2      ASTM C645-13 - Standard Specification for Non-structural Steel Framing Members.
- .3      ASTM C665-12 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- .4      ASTM C754-11 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- .5      ASTM C840-13 - Standard Specification for Application and Finishing of Gypsum Board.
- .6      ASTM C1002-07(2013) - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- .7      ASTM C1047-10a - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- .8      ASTM C1396/C1396M-13 - Standard Specification for Gypsum Board.
- .9      ASTM E90-09 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- .10     CAN/ULC-S101-07 - Standard Methods of Fire Endurance Tests of Building Construction and Materials.
- .11     CAN/ULC-S102-10 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

- .12 CAN/ULC-S702-09 - Standard for Mineral Fibre Thermal Insulation for Buildings (Includes Amendment 1, 2012).
- .13 Gypsum Association GA-214-10 - Recommended Levels of Gypsum Board Finish.
- .14 Gypsum Association GA-216-13 - Application and Finishing of Gypsum Panel Products.
- .15 Gypsum Association GA-600-12 - Fire Resistance Design Manual.
- .16 Gypsum Association GA-801-07 - Handling and Storage of Gypsum Panel Products: A Guide for Distributors, Retailers, and Contractors.
- .17 ULC-FR-14 - Fire Resistance Directory (2014 Edition).

#### **1.4 SYSTEM DESCRIPTION**

- .1 Acoustic Attenuation for Interior Partitions: 55 STC to ASTM E90.
- .2 Thermal Insulation Identified for Interior Partitions.

#### **1.5 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data:
  - .1 Provide data on metal framing gypsum board, joint tape, thermal insulation.
- .3 Shop Drawings: Indicate special details associated with acoustic seal for openings, firestopping seal for openings and continuity of building envelope vapour barrier and thermal insulation.
- .4 Shop Drawings: For structural metal lightweight stud, ceiling, bulkhead framing and bracing, provide:
  - .1 Calculations for loadings and stresses of engineered framing in accordance to Ontario Building Code requirements stamped and signed by a licenced Professional Structural Engineer.
  - .2 Indicate component details, framed openings, bearing, anchorage, loading, welds, type and location of fasteners and accessories or items required of related work.
  - .3 Indicate stud, ceiling joist, bulkhead framing and bracing layout.
  - .4 Describe method for securing studs to tracks and for bolted and welded framing connections.

#### **1.6 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and section 01 92 00: Submission procedures.

#### **1.7 QUALITY ASSURANCE**

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Obtain services of professional engineer with experience in type of work of comparable complexity and scope, licensed to practice in Province of Ontario to design, review, and provide professional services for work of this Section related to specially fabricated framing such as for bulkhead and ceiling support framing.
- .3 Perform Work for non-structural framing in accordance with ASTM C840, GA-214, GA-216, GA-600. Maintain one (1) copy on site.
- .4 Perform Work for structural framing in accordance with ASTM C955, GA-214, GA-216, GA-600. Maintain one (1) copy on site.

- .1 Performance Criteria:
  - .1 Calculate structural properties of framing members to CSSBI 51, and for welding steel:
    - .1 CSA-W47.1, CSA-W55.3, CSA-W59 requirements. Maintain one (1) copy on site.
  - .2 Size components to withstand design loads as follows:
    - .1 Vertical Assembly: live and dead loads
    - .2 Horizontal Assembly: live and dead loads.
  - .3 Calculate Maximum Allowable Deflection: of span.
  - .4 Structural Metal Lightweight Stud, Ceiling, Bulkhead Framing and Bracing Assembly:
    - .1 Design to CAN/CSA-S136 and CSSBI 51.
    - .2 Design to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to cyclic temperature ranges.
    - .3 Design assembly to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.
    - .4 Seismic Loads: Design and size components to withstand seismic loads and sway displacement as calculated in accordance with code applicable at place of the Work.
- .5 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience .
- .6 Handling Gypsum Board: Comply with GA-801.

## **Part 2 Products**

### **2.1 MANUFACTURERS**

- .1 Other acceptable manufacturers offering functionally and aesthetically equivalent products.
  - .1 CertainTeed.
  - .2 CGC.
  - .3 Westroc.
- .2 Substitutions: Refer to Section 01 60 00 .

### **2.2 FRAMING MATERIALS**

- .1 Non-structural Metal Stud Framing: Studs and Tracks: ASTM C645, GA-216, GA-600; galvanized sheet steel, minimum 0.45 mm (26 gauge).
  - .1 Fasteners: ASTM C1002, GA-216.
  - .2 Furring, Framing, and Accessories: ASTM C645, GA-216, GA-600.
  - .3 Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- .2 Studs and Tracks as required by Structural Engineer engaged by this Section: Provide type, and thicknesses as required by Professional Structural Engineer in accordance to the design submitted in Shop Drawings.

- .1 Structural Framing Materials: Materials: Cold-rolled steel conforming to CAN/CSA-S136], with metallic coating to ASTM A653/A653M, minimum Z180 zinc coating thickness.
  - .1 Studs: ASTM C955, formed to channel shape, solid or punched web, knurled faces; minimum 1.2 mm (18 ga) thick.
  - .2 Track: Formed steel; channel shaped; same width as studs, tight fit; solid web; minimum 1.2 mm (18 ga) thick.
  - .3 Joists: Formed to channel shape, solid or punched] web; minimum 1.2 mm (18 ga) thick.
  - .4 Bracing, Furring, Bridging: Formed sheet steel; minimum 1.2 mm (18 ga) thick.
  - .5 Plates, Gussets, Clips: Formed sheet steel; minimum 1.2 mm (18 ga) thick.
  - .6 Welding Materials: CSA-W59.
- .2 Bolts, Nuts and Washers: A325M, hot-dip galvanized to minimum requirements of CSSBI.
- .3 Self-drilling, Self-tapping Screws: Steel, hot dip galvanized to minimum requirements of CSSBI.
- .4 Anchorage Devices: Drilled expansion bolts, Powder actuated concrete fasteners are not permitted; hot-dip galvanized to minimum requirements of CSSBI.
- .3 Touch-Up Primer for Galvanized Surfaces: SPCC-Paint 20, inorganic zinc-rich.

## **2.3 FABRICATION OF FRAMING MEMBERS**

- .1 Fabricate assemblies of formed sections of sizes and profiles required.
- .2 Provide cut-outs centred in webs of members to accommodate services and through-the knockout style bridging.
- .3 Fit, reinforce, and brace framing members to suit design requirements.
- .4 Fit and assemble in largest practical sections for delivery to site, ready for installation.
- .5 Do welding to CAN/CSA-S136]or CSA-W59, as applicable.

## **2.4 GYPSUM BOARD MATERIALS**

- .1 Gypsum Board: ASTM C1396/C1396M, paper-faced; 1220 mm (48 inches) wide, maximum available length in place; tapered edges, ends square cut.
  - .1 Regular core, 16 mm (5/8 inch) thick.
  - .2 Fire rated core, 16 mm (5/8 inch) thick.
  - .3 Water-resistant Gypsum Wallboard: Comply with ASTM C1396 for 15.9 mm(5/8 in.) Type X:
    - .1 CGC Sheetrock® Brand Mold Tough® Panels Firecode® X (UL Type SCX) are 15.9 mm(5/8 in.) Type X panels

## **2.5 ACCESSORIES**

- .1 Thermal and Acoustic Insulation for Interior Steel Stud Partitions: CAN/ULC-S702; preformed Rockwool fibre, friction fit type, Rockwool AFB.
- .2 Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board. As specified in Section 07 92 00 - Joint Sealants.
- .3 Corner Beads: GA-216 ASTM C1047, metal corner bead.

- .4 Edge Trim: ASTM C1047 GA-216; Type U casing bead L bead LK bead LC bead Control joint.
- .5 Joint Materials: GA-216 ASTM C475/C475M.
  - .1 Reinforcing tape, adhesive, and water.
  - .2 Joint compound: Asbestos-free.
- .6 Gypsum Board Fasteners: ASTM C1002, Type S Type W.
- .7 Top of Wall Acoustic Gasket Tape at Rooms T203 and T204: M-D Building Products 1/4-inch x 1-inch x 13-ft. Expand 'N Seal Expanding Foam Weather-Strip Grey, Model # WS31233:
  - .1 Website: <https://www.homedepot.ca/product/m-d-building-products-1-4-inch-x-1-inch-x-13-ft-expand-n-seal-expanding-foam-weather-strip-grey/1001122617>

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that site conditions are ready to receive work and opening dimensions are as instructed by the manufacturer indicated on shop drawings.

#### **3.2 METAL STUD INSTALLATION**

- .1 Install studs to ASTM C475/C475M GA-216 GA-600 and manufacturer's written instructions.
- .2 Align floor and ceiling tracks; locate to wall partition layout. Secure in place with fasteners or by welding at structural studs at maximum. Coordinate installation of acoustic sealant with ceiling and floor tracks.
- .3 Metal Stud Spacing: 400 mm (16 inches) on centre.
- .4 Extend stud framing to ceiling underside of structure. Attach ceiling runner securely to building structure to manufacturer's written instructions and details indicated.
- .5 Refer to Drawings for indication of partitions extending stud framing through the ceiling to the structure above. Maintain clearance under structural building members to avoid deflection transfer to studs. Provide extended leg ceiling runners.
- .6 Construct corners using minimum three studs. Double stud wall openings, door jambs, and window jambs.
- .7 Erect load bearing studs one piece full length. Splicing of studs is not permitted.
- .8 Erect load bearing studs, brace, and reinforce to develop full strength, to achieve design requirements.
- .9 Blocking: Nail or screw wood blocking to studs. Bolt or screw steel channels to studs. Install blocking for support of plumbing fixtures wall cabinets.
- .10 Coordinate placement of insulation in multiple stud spaces after erection.
- .11 Install intermediate studs above and below openings to align with wall stud spacing.
- .12 Provide deflection allowance in stud track, directly below horizontal building framing at non-load bearing framing.
- .13 Attach [cross studs] [furring channels] to studs for attachment of fixtures anchored to walls.



- .14 Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.
- .15 Touch-up field welds and damaged [galvanized] [primed] surfaces with primer.

### **3.3 CEILING FRAMING INSTALLATION**

- .1 Install to manufacturer's written instructions ASTM C754 and GA-216.
- .2 Coordinate location of hangers with other work.
- .3 Install ceiling framing independent of walls, columns, and above ceiling work.
- .4 Place joists at 300 mm to 400 mm on centre; not more than 50 mm from abutting walls. Connect joists to supports using [fastener] [welding] method.
- .5 Set ceiling joists parallel and level, with lateral bracing and bridging.
- .6 Locate joist end bearing directly over load bearing studs or provide load distributing member to top of stud track.
- .7 Provide web stiffeners at reaction points.
- .8 Reinforce openings in ceiling suspension system which interrupt main carrying channels or furring channels, with lateral channel bracing. Extend bracing minimum 600 mm past each end of openings.
- .9 Laterally brace entire suspension system.
- .10 Touch-up field welds and damaged [galvanized] [primed] surfaces with primer.

### **3.4 WALL AND CEILING ASSEMBLIES FOR FIRE RATINGS**

- .1 Install wall and ceiling assemblies as required for fire resistance ratings indicated and to GA-600 requirements.

### **3.5 ACOUSTIC AND THERMAL ACCESSORIES INSTALLATION**

- .1 Install resilient channels at maximum 600 mm (24 inches) on centre. Locate joints over framing members.
- .2 Install insulation and vapour barrier in exterior walls and ceiling .
- .3 Place thermal/ acoustic insulation in partitions tight within spaces, around cut openings, behind and around electrical and mechanical items within or behind partitions, and tight to items passing through partitions spaces without gaps or voids. Do not compress insulation.
- .4 Place vapour retarder on warm side of insulation; lap and seal sheet retarder joints over member face.
- .5 Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- .6 Extend vapour retarder tight to full perimeter of adjacent window and door frames and other items interrupting the plane of membrane. Tape seal in place.
- .7 Install thermal/acoustic sealant within partitions in accordance with manufacturer's written instructions.
- .8 Install acoustic sealant at gypsum board perimeter at:
  - .1 Metal Framing: Two (2) beads.
  - .2 Base Layer.
  - .3 Face Layer.

- .4 Caulk all penetrations of partitions by conduit, pipe, duct work, rough-in boxes.
- .9 Install acoustic gasket tape at top of new wall constructed to the underside of existing suspended acoustic tile and T-bar ceiling in Rooms T203 and T204.

### **3.6 GYPSUM BOARD INSTALLATION**

- .1 Install gypsum board to ASTM C840 GA-216 GA-600 manufacturer's written instructions.
- .2 Erect single layer standard gypsum board in most economical direction , with ends and edges occurring over firm bearing.
- .3 Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.
- .4 Use screws when fastening gypsum board to metal furring or framing.
- .5 Double Layer Applications: Use gypsum backing board for first layer, placed perpendicular parallel to framing or furring members. Use fire rated gypsum backing board for fire rated partitions and ceilings.
- .6 Double Layer Applications: Secure second layer to first with fasteners . Apply adhesive to manufacturer's written instructions.
- .7 Place second layer perpendicular parallel to first layer. Offset joints of second layer from joints of first layer.
- .8 Erect gypsum soffit board perpendicular to supports, with staggered end joints over supports.
- .9 Treat cut edges and holes in moisture resistant gypsum board exterior gypsum soffit board with sealant.
- .10 Place control joints consistent with lines of building spaces as directed.
- .11 Place corner beads at external corners as indicated. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials as indicated.

### **3.7 JOINT TREATMENT**

- .1 Finish to ASTM C840 GA-214, Level 4.
- .2 Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
- .3 Feather coats on to adjoining surfaces so that camber is maximum 0.8 mm (1/32 inch).

### **3.8 TOLERANCES**

- .1 Maximum Variation of Finished Gypsum Board Surface from True Flatness: 3 mm in 3 m (1/8) in any direction.

### **3.9 SCHEDULES**

- .1 Finish Level 1: Above finished ceilings concealed from view.
- .2 Finish Level 4: Walls exposed to view.
- .3 Finish Level 4: Ceilings exposed to view.

**END OF SECTION**

**Part 1 General**

**1.1 SECTION INCLUDES**

- .1 Acoustic tile.
- .2 Acoustic tile adhesive for the tile that are to be glued in place
- .3 Acoustic tile hemmed angle molding to support lay-in removable tile

**1.2 RELATED SECTIONS**

- .1 Section 09 21 16 - Gypsum Board Assemblies: partition system.
- .2 Mechanical Division - Fire Suppression: Sprinkler heads in ceiling system.
- .3 Mechanical Division - Heating, Ventilating, and Air-Conditioning (HVAC): Air diffusion devices in ceiling system.
- .4 Electrical Division – Electrical : Light fixtures in ceiling system.
- .5 Electrical Division – Fire alarm components in ceiling system.

**1.3 REFERENCES**

- .1 ASTM E1264-08e1 - Standard Classification of Acoustical Ceiling Products.
- .2 ULC-FR-14 - Fire Resistance Directory (2014 Edition).

**1.4 PERFORMANCE REQUIREMENTS**

- .1 Suspension System: Maximum deflection of 1:240 for acoustic ceiling system including integral mechanical and electrical components.

**1.5 ADMINISTRATIVE REQUIREMENTS**

- .1 Section 01 30 00: Project management and coordination procedures.
- .2 Sequencing:
  - .1 Sequence work to ensure acoustic ceilings are not installed until dust generating activities have terminated, and overhead work is completed, tested, and approved.
  - .2 Install acoustic units after interior wet work is dry.

**1.6 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data: Provide data on metal grid system components, acoustic units.
- .3 Shop Drawings: Indicate grid layout and related dimensioning, junctions with other work or ceiling finishes, interrelation of mechanical and electrical items related to system.
- .4 Samples:
  - .1 Submit two (2) samples, full size, illustrating material and finish of acoustic units.

**1.7 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and section 01 92 00: Submission procedures.

- .2 Sustainable Design Closeout Documentation: .

## **1.8 MAINTENANCE MATERIAL SUBMITTALS**

- .1 Section 01 78 39 and section 01 92 00: Maintenance and extra material requirements.
- .2 Extra Stock Materials: Provide 5% of acoustical panels installed, and 2% of ceiling grid systems to Owner.

## **1.9 QUALITY ASSURANCE**

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Conform to AWCCBC requirements.
- .3 Grid Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- .4 Acoustic Unit Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

## **1.10 REGULATORY REQUIREMENTS**

- .1 Conform to applicable code for fire rated assembly combustibility requirements for materials.

## **1.11 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Maintain uniform temperature of minimum 16 degrees C (60 degrees F), and maximum humidity of 40% prior to, during, and after acoustic unit installation.

## **Part 2 Products**

### **2.1 SUSPENSION SYSTEM - MATERIALS**

- .1 Non-fire Rated Grid: ASTM C635/C635M, Suspension System:
  - .1 Ceiling Type C1 Suspension System:
    - .1 New 12" x 12" Acoustic tile adhered to new suspended gypsum board ceiling
  - .2 Ceiling Type C2 Suspension System:
    - .1 New 12" x 12" Acoustic tile adhered to existing suspended gypsum board ceiling
  - .3 Ceiling Type C3 Suspension System:
    - .1 24" x 48" Acoustic lay-in tile Suspension System detailed on the Drawings:
      - .1 Supply and install light gauge steel or aluminum angle to trim the opening in suspended gypsum board ceiling and adhere to the gypsum board with polyurethane construction adhesive.
      - .2 Supply and install perimeter 3/4" or 7/8" hemmed Angle Molding to carry the tile. Hemmed Angle Molding shall be fastened to adhered angle trim with screws.
  - .4 Ceiling Type C4 Suspension System:
    - .1 New 24" x 48" Acoustic lay-in tile installed into existing T-Bar grid.

- .5 Ceiling Type C5 Suspension System:
  - .1 New 24" x 24" Acoustic lay-in tegular tile installed into existing T-Bar grid.
- .6 Ceiling Type C6 Suspension System:
  - .1 New 24" x 24" Acoustic lay-in tile square edge, installed into existing T-Bar grid.

## **2.2 ACOUSTIC UNIT MATERIALS**

- .1 Acoustic Tile: ASTM E1264, conforming to the following:
  - .1 Ceiling Type C1 Acoustic Tile:
    - .1 Match existing 305 mm x 305 mm x 19 mm (12" x 12" x 3/4") incombustible mineral fibre, fissured texture, adhered to new suspended gypsum board ceiling, white factory-painted exposed surface: Armstrong Fine Fissured Tile Concealed, Item No. 746, 12' x 12" x 5/8"
      - .1 Glue the 12" x 12" ceiling tile onto the suspended gypsum board ceiling using Henry 237 AcoustiGum Acoustical Ceiling Tile Adhesive.
  - .2 Ceiling Type C2 Acoustic Tile:
    - .1 Match existing 305 mm x 305 mm x 19 mm (12" x 12" x 3/4") incombustible mineral fibre, fissured texture, adhered to existing suspended gypsum board ceiling, white factory-painted exposed surface: Armstrong Fine Fissured Tile Concealed, Item No. 746, 12' x 12" x 5/8"
      - .1 Glue the 12" x 12" ceiling tile onto the suspended gypsum board ceiling using Henry 237 AcoustiGum Acoustical Ceiling Tile Adhesive.
  - .3 Ceiling Type C3 Acoustic Tile:
    - .1 Armstrong Fissured Medium Texture Tile, Square Lay-in Item No. 755, 24' x 48" x 5/8"
      - .1 Lay the 24" x 48" ceiling tile into a perimeter Hemmed Angle Molding.
  - .4 Ceiling Type C4 Acoustic Tile:
    - .1 Armstrong Fissured Medium Texture Tile, Square Lay-in Item No. 755, 24' x 48" x 5/8"
      - .1 Lay the 24" x 48" ceiling tile into existing.
  - .5 Ceiling Type C5 Acoustic Tile:
    - .1 Armstrong Fissured Medium Texture Tile, Square Lay-in Item No. 756, 24' x 24" x 5/8"
      - .1 Lay the 24" x 24" ceiling tile into existing.
  - .6 Ceiling Type C6 Acoustic Tile:
    - .1 Armstrong Fissured Medium Texture Tile, Tegular Lay-in Item No. 705, 24' x 24" x 5/8"
      - .1 Lay the 24" x 24" ceiling tile into existing.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that layout of hangers will not interfere with other work.

### **3.2 INSTALLATION - ACOUSTIC UNITS**

- .1 Install acoustic units to manufacturer's written instructions.
- .2 Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.
- .3 Lay directional patterned units as indicated on Drawings. Fit border trim neatly against abutting surfaces.
- .4 Install units after above ceiling work is complete.
- .5 Install acoustic units level, in uniform plane, and free from twist, warp, and dents.
- .6 Cutting Acoustic Units:
  - .1 Cut to fit irregular grid and perimeter edge trim.
- .7 Where bullnose concrete block corners round obstructions occur, provide preformed closures to match perimeter molding.
- .8 Lay acoustic insulation for a distance of 1 200 mm (48 inches) either side of acoustic partitions as indicated.

**3.3 ERECTION TOLERANCES**

- .1 Maximum Variation from Flat and Level Surface: 3 mm in 3 m (1/8 inch in 10 ft).
- .2 Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

**3.4 SCHEDULE**

- .1 Refer to Room Finish Schedule and as specified in this Section.

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1    Resilient vinyl tile flooring.
- .2    Resilient vinyl base.
- .3    Resilient vinyl transitions accessories

**1.2            RELATED SECTIONS**

- .1    Section 03 54 00 - Self-leveling Underlayment
- .2    Section 06 41 11 - Architectural Cabinetwork
- .3    Section 08 11 13 - Standard Metal Door Frames
- .4    Section 09 21 16 - Gypsum Board Assemblies: Wall materials to receive application of base.
- .5    Section 09 01 60.91 Vinyl Flooring Restoration
- .6    Section 09 68 13 - Tile Carpeting

**1.3            REFERENCES**

- .1    ASTM E84-15a - Standard Test Method for Surface Burning Characteristics of Building Materials.
- .2    ASTM F1066-04(2014) e1 - Standard Specification for Vinyl Composition Floor Tile.
- .3    ASTM F1861-08(2012)e1 - Standard Specification for Resilient Wall Base.
- .4    CAN/ULC-S102.2-10 - Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.

**1.4            SUBMITTALS FOR REVIEW**

- .1    Section 01 30 00: Submission procedures.
- .2    Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colours available.
- .3    Shop Drawings: Indicate seaming plan, borders and patterns.
- .4    Samples:
  - .1    Submit two (2) samples, 300 x 300 mm in size illustrating colour and pattern for each floor material for each colour specified.
  - .2    Submit two (2) 300 mm long samples of base and transition strip material for each colour specified.

**1.5            SUBMITTALS FOR INFORMATION**

- .1    Section 01 30 00: Submission procedures.
- .2    Installation Data: Manufacturer's special installation requirements including special procedures, perimeter conditions requiring special attention .

**1.6 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and Section 01 92 00: Submission procedures.
- .2 Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

**1.7 MAINTENANCE MATERIAL SUBMITTALS**

- .1 Section 01 78 40: Maintenance and extra material requirements.
- .2 Extra Stock Materials to Turn Over to University:
  - .1 6100 Lin mm of base of each base and transition material specified.
  - .2 Leave 1 carton of tile for each 93 m<sup>2</sup> (1000 sq ft) or less of each colour of vinyl tile installed, for University's future use. Label cartons as to contents and indicate areas where tiles were used.

**1.8 QUALITY ASSURANCE**

- .1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.
- .2 Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years documented experience and approved by the manufacturer.

**1.9 REGULATORY REQUIREMENTS**

- .1 Conform to applicable code for flame/smoke rating requirements to CAN/ULC-S102.2 .

**1.10 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01 60 00: Transport, handle, store, and protect products.
- .2 Protect roll materials from damage by storing .

**1.11 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Store materials for three (3) days prior to installation in area of installation to achieve temperature stability.
  - .2 Maintain ambient temperature required by adhesive manufacturer three (3) days prior to, during, and twenty-four (24) hours after installation of materials.

**Part 2 Products**

**2.1 MANUFACTURERS – VINYL COMPOSITION TILE FLOORING**

- .1 Tarkett; Product: VCT II.
- .2 Substitutions: Refer to Section 01 60 00 .

**2.2 MATERIALS - VINYL COMPOSITION TILE FLOORING**

- .1 Vinyl Composition Tile: ASTM F1066.



- .1 Tarkett; Product: VCT II.
  - .1 Colour and pattern through total thickness.
  - .2 Colour: 522 Steel Works (1'x1' tiles)
  - .3 See Drawings for Floor Finish Plans for locations: All areas receiving new VCT and the 2nd floor Kitchen.

## **2.3 MATERIALS – VINYL BASE**

- .1 Manufacturers:
  - .1 Johnsonite; Product: Traditional Carpet Base, 4 1/8" high:
    - .1 Colour: 63 Burnt Umber
    - .2 Use at all areas receiving new carpet and drywall walls in elevator lobbies
  - .2 Johnsonite; Product: Traditional Carpet Base, 4 1/8" high:
    - .1 Colour: Colonial Grey CG
    - .2 Use all areas receiving new VCT and the 2nd floor Kitchen
  - .3 Substitutions: Refer to Section 01 60 00 .

## **2.4 ACCESSORIES**

- .1 Subfloor Filler: type recommended by adhesive material manufacturer.
- .2 Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.
- .3 Edge Strips: Flooring material:
  - .1 At floor finish transition strip between vinyl composite tile flooring and carpet tile:
    - .1 Product: Wheeled Traffic Transition. Profile .080" to .08" Material.
    - .2 Colour: as selected by Consultant.
- .4 Sealer and Wax: Types recommended by flooring manufacturer.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify concrete floors are dry to a maximum moisture content of 7%, and exhibit negative alkalinity, carbonization, or dusting.
- .3 Verify floor and lower wall surfaces are free of substances that may impair adhesion of new adhesive and finish materials.

### **3.2 PREPARATION**

- .1 Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
- .2 Prohibit traffic until filler is cured.
- .3 Vacuum clean substrate.
- .4 Apply primer to floor and base surfaces.

**3.3 INSTALLATION – VINYL COMPOSITE TILE FLOORING**

- .1 Install vinyl tile flooring to manufacturer's written instructions.
- .2 Spread only enough adhesive to permit installation of materials before initial set.
- .3 Set flooring in place, press with heavy roller to attain full adhesion.
- .4 Lay flooring with joints and seams in accordance with seaming plan and to produce minimum number of seams to areas indicated in Room Finish Schedule and notes on Drawings.
- .5 Install vinyl tile flooring parallel to length of room. Provide minimum of one third (1/3) full tile width.
- .6 Terminate flooring at centreline of door openings where adjacent floor finish is dissimilar.
- .7 Install edge strips at unprotected or exposed edges, and where flooring terminates.
  - .1 Secure resilient strips by adhesive.
- .8 Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- .9 Install flooring in pan type floor access covers. Maintain floor pattern.
- .10 At movable partitions install flooring under partitions without interrupting floor pattern.
- .11 Install edge strips where indicated. Fit joints tightly.

**3.4 INSTALLATION - BASE**

- .1 Fit joints tight and vertical. Maintain minimum measurement of 450 mm between joints.
- .2 Mitre internal corners. At external corners, 'V' cut back of base strip to 2/3 of its thickness and fold. At exposed ends, use premoulded units.
- .3 Install base on solid backing. Bond tight to wall and floor surfaces.
- .4 Scribe and fit to door frames and other interruptions.

**3.5 CLEANING**

- .1 Section 01 70 00: Cleaning installed work.
- .2 Remove access adhesive from floor, base, and wall surfaces without damage.
- .3 Clean, seal, and wax floor and base surfaces in accordance with manufacturer's written instructions.

**3.6 PROTECTION OF FINISHED WORK**

- .1 Section 01 70 00: Protecting installed work.
- .2 Prohibit traffic on floor finish for forty-eight (48) hours after installation.

**3.7 SCHEDULES**

- .1 Refer to Drawings for Room Finish Schedule, Floor Plans and Details.

END OF SECTION

**Part 1 General**

**1.1 SECTION INCLUDES**

- .1 Repair of fluid applied epoxy flooring.

**1.2 RELATED SECTIONS**

- .1 Division 22 – Plumbing: plumbing fixtures.
- .2 Division 26 - Electrical: Recessed electrical access covers.

**1.3 REFERENCES**

- .1 [ASTM C722-04(2012) - Standard Specification for Chemical-Resistant Monolithic Floor Surfacing.]
- .2 [ASTM D570-98(2010)e1 - Standard Test Method for Water Absorption of Plastics.]
- .3 [ASTM D638-14 - Standard Test Method for Tensile Properties of Plastics.]
- .4 [ASTM D695-15 - Standard Test Method for Compressive Properties of Rigid Plastics.]
- .5 [ASTM D905-08(2013) - Standard Test Method for Strength Properties of Adhesive Bonds in Shear by Compression Loading.]
- .6 [ASTM D1044-13 - Standard Test Method for Resistance of Transparent Plastics to Surface Abrasion.]
- .7 [ASTM D1360-98(2011) - Standard Test Method for Fire Retardancy of Paints (Cabinet Method).]
- .8 [ASTM E84-15a - Standard Test Method for Surface Burning Characteristics of Building Materials.]
- .9 [ASTM E96/E96M-15 - Standard Test Methods for Water Vapor Transmission of Materials.]
- .10 [CAN/ULC-S102-10 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.]

**1.4 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data: Provide data on specified products, describing physical, performance characteristics; sizes, patterns and colours available.
- .3 Samples: Submit two (2) samples, 150 mm in size illustrating colour and pattern for each floor material for each colour specified.

**1.5 SUBMITTALS FOR INFORMATION**

- .1 Section 01 30 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements indicating special procedures, perimeter conditions requiring special attention.

**1.6 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and section 01 92 00: Submission procedures.
- .2 Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, procedures for stain removal, repairing surface, and suggested schedule for cleaning.

**1.7 MAINTENANCE MATERIAL SUBMITTALS**

- .1 Section 01 78 40: Maintenance and extra material requirements.
- .2 Extra Stock Materials: Provide 8 L (2 gal) of flooring material, of each colour selected, for building maintenance purposes.

**1.8 QUALITY ASSURANCE**

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years experience.
- .3 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience [and approved by the manufacturer].
- .4 Supervisor Qualifications: Trained by product manufacturer.

**1.9 REGULATORY REQUIREMENTS**

- .1 Conform to applicable code for flame/smoke rating requirements in accordance with CAN/ULC-S102.

**1.10 MOCK-UP**

- .1 Section 01 43 00: Requirements for mock-up.
- .2 Provide mock-up including flooring.
- .3 Locate where directed by Consultant.
- .4 Approved mock-up may remain as part of the Work.

**1.11 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Store resin materials in a dry, secure area.
- .3 Maintain minimum temperature of 13 degrees C.
- .4 Store materials for three days prior to installation in area of installation to achieve temperature stability.

**1.12 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Maintain ambient temperature required by manufacturer three (3) days prior to, during, and twenty-four (24) hours after installation of materials.

**1.13 WARRANTY**

- .1 Provide a three (3) year warranty from the date of Ready for Takeover, to include coverage for failure to meet specified requirements.
- .2 Include coverage against flooring delamination from substrate and degradation of surface finish.

**Part 2 Products**

**2.1 MANUFACTURERS**

- .1 Sherwin Williams; Product:
  - .1 Prime with Resuflor MPE
  - .2 Bodycoat with Resuflor
  - .3 Topcoat with Resuflor HTS
- .2 Other acceptable manufacturers offering functionally [and aesthetically] equivalent products.
  - .1 Sika Equivalent Product
- .3 Substitutions: Refer to Section 01 62 00.

**2.2 MATERIALS**

- .1 Flooring System: ASTM C722.
- .2 Matrix: Epoxy thermosetting with coloured mineral filler.
- .3 Prime floor with Resuflor MPE @ 6 mil DFT ( 250 sqft / gallon)
- .4 Bodycoat with Resuflor MPE @ 12-14 mils DFT ( 135 – 115 sqft/ gallon)
- .5 Topcoat with Resuflor HTS 100 @ 3 mils DFT ( 500 sqft / gallon)
- .6 Non-slip Surfacing: Mineral, colour as selected.
- .7 Flooring: Conform to the following Performance characteristics:
  - .1 Abrasion Resistance ASTM D4060, CS-17 wheel, 1000gm load, 1000 cycles: 83.1 mg loss
  - .2 Adhesion to Concrete ASTM D4541 >1,435 psi (9.9 MPa), concrete failure
  - .3 Adhesion to Concrete ASTM D7234 >480 psi (3.3 MPa) (max psi machine can register)
  - .4 Coefficient of Friction ASTM D2047 0.42
  - .5 Compressive Strength ASTM D695 13,500 psi (93.079 MPa)
  - .6 Percent Elongation ASTM D2370 5
  - .7 Shore D Hardness ASTM D2240 80-85 @ 0 sec ; 75-80 @ 15 sec
  - .8 Tensile Strength ASTM D2370 8,000 psi (55,158 MPa)
  - .9 Fire Resistance: [ASTM D1360], weight loss not to exceed limit for non-combustibility.
  - .10 Impact Resistance-Gardner Impact Tester-160 in/lb; no cracking, chipping or delamination.

**2.3 ACCESSORIES**

- .1 Epoxy Scratchcoat Mastic: Subfloor filler and subfloor patching compound:
  - .1 Resuflor 3513 by Sherwin Williams

**2.4 COLOURS**

- .1 Matrix: Colour as selected.
- .2 Aluminum Strips: Colour as selected.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that surfaces are smooth and flat with maximum variation of 6 mm in 3 m, and are ready to receive work.
- .3 Verify concrete floors [have cured a minimum [twenty-eight (28)] days] are dry to a maximum moisture content of [7%], and exhibit negative alkalinity, carbonization, or dusting.
- .4 Verify floor and lower wall surfaces are free of substances that may impair adhesion of new adhesive and finish materials.

**3.2 PREPARATION**

- .1 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with sub-floor filler.
- .2 Apply, trowel, and float filler to achieve smooth, flat, hard surface. Grind irregularities above the surface level. Prohibit traffic until filler is cured.
- .3 Remove any wax or other contaminants from the floor. Abrade the floor to a texture similar to ICRI CSP 3.
- .4 Vacuum clean substrate.
- .5 Apply primer to surfaces.

**3.3 INSTALLATION - FLOORING**

- .1 Install flooring to manufacturer instructions.
- .2 Apply to a minimum thickness of 3 mm.
- .3 Finish to smooth level surface.
- .4 Install flooring in pan type floor access covers.
- .5 At movable partitions install flooring under partitions without interrupting floor pattern.
- .6 Cove at vertical surfaces.

**3.4 PROTECTION OF FINISHED WORK**

- .1 Section 01 78 40: Protecting installed work.
- .2 Prohibit traffic on floor finish for forty-eight (48) hours after installation.

- .3 Barricade area to protect flooring until cured.

### **3.5 SCHEDULES**

- .1 See Room Finish Schedule on Drawings

**END OF SECTION**

**Part 1 General**

**1.1 SECTION INCLUDES**

- .1 Carpet tile.
- .2 Accessories.

**1.2 RELATED SECTIONS**

- .1 Section 03 54 00 - Self-leveling Underlayment: Floor substrate surface.
- .2 Section 09 21 16 - Gypsum Board Assemblies: Wall materials to receive application of base.
- .3 Section 09 65 10 - Resilient Flooring: Base finish.

**1.3 REFERENCES**

- .1 ASTM D2859-06(2011) - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.
- .2 ASTM E84-15a - Standard Test Method for Surface Burning Characteristics of Building Materials.
- .3 ASTM E648-15e1 - Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
- .4 CAN/ULC-S102-10 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .5 CAN/ULC-S102.2-10 - Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.
- .6 CRI Carpet Installation Standard - 2011
- .7 NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source, 2011 Edition.

**1.4 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data: Provide data on specified products, describing performance, physical characteristics; sizes, patterns, colours available, method of installation.
- .3 Shop Drawings: Indicate layout of joint direction of carpet weave.
- .4 Samples: Submit two (2) carpet tiles illustrating colour pattern design for each carpet colour selected.

**1.5 SUBMITTALS FOR INFORMATION**

- .1 Section 01 30 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements indicating special procedures, perimeter conditions requiring special attention.
- .3 Sustainable Design:
  - .1 Provide required documentation for Product recycled content, regional materials low-emitting materials.



- .2 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

## **1.6 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and Section 01 92 00: Submission procedures.
- .2 Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
- .3 Sustainable Design Closeout Documentation: .

## **1.7 MAINTENANCE MATERIAL SUBMITTALS**

- .1 Extra Stock Materials: Provide carpet tiles of each colour and pattern selected.

## **1.8 QUALITY ASSURANCE**

- .1 Products of This Section: Manufactured to ISO 9000 and ISO 14000 certification requirements.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.
- .3 Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years documented experience and approved by the manufacturer.

## **1.9 REGULATORY REQUIREMENTS**

- .1 Conform to applicable code for carpet flammability requirements in accordance with CAN/ULC-S102 .
- .2 Conform to ASTM E648 Class I for flooring radiant panel test.
- .3 Conform to ASTM D2859 for surface flammability ignition test.

## **1.10 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Store materials for three (3) days prior to installation in area of installation, to achieve temperature stability.
  - .2 Maintain minimum 21 degrees C ambient temperature three (3) days prior to, during and twenty-four (24) hours after installation materials.

## **Part 2 Products**

### **2.1 MANUFACTURERS - CARPET TILE TYPE 1**

- .1 Product Manufacturer: Tarkett.
- .2 Product: GeoKnit
- .3 Substitutions: Refer to Section 01 60 00.

### **2.2 CARPET TILE TYPE 1**

- .1 Carpet Tile: Closed Loop, Fusion bonded, manufactured in one colour dye lot.
  - .1 Tile Size: Nominal 24" x 24".
  - .2 Thickness: 6 mm.

- .3 Carpet Tile:
  - .1 Style: Tarkett GeoKnit 10887
  - .2 Colour: Shadow Gris 42710

- .2 Carpet Tile: Closed Loop, Fusion Bonded, manufactured in one colour dye lot.

## **2.3 ACCESSORIES**

- .1 Sub-Floor Filler: White premix latex; type recommended by flooring material manufacturer.
- .2 Primers and Adhesives: Compatible with carpet material and Recommended by carpet manufacturer. Releasable type.
- .3 Base and Transition Strips: As specified in Section 09 65 10.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that surfaces are smooth and flat with maximum variation of 6 mm in 3 m, and are ready to receive work.
- .3 Verify concrete floors are dry to a maximum moisture content of 7%; and exhibit negative alkalinity, carbonization, or dusting.

### **3.2 PREPARATION**

- .1 Prepare floor to CRI Carpet Installation Standard.
- .2 Remove subfloor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with subfloor filler.
- .3 Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
- .4 Vacuum clean substrate.

### **3.3 INSTALLATION**

- .1 Install carpet tile, accessories and adhesive to manufacturer's written instructions in compliance to CRI Carpet Installation Standard.
- .2 Install carpet tile accessories and adhesive in accordance with manufacturer's written instructions.
- .3 Integrate and blend carpet from different cartons to ensure minimal variation in colour match.
- .4 Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- .5 Lay main field colour carpet tile to the following pattern:
  - .1 For Carpet Tile Type 1: vertical ashlar pattern, set parallel to building lines.
- .6 Locate change of floor finish type, colour or pattern between rooms under door centerline.
- .7 Fully adhere carpet tile to substrate.
- .8 Place carpet tile dry over substrate.
- .9 Bind cut edges where not concealed by edge strips.

- .10 Refer to Room Finish Schedule and Drawing details for base finish up vertical surfaces to form base where scheduled.

**3.4 CLEANING**

- .1 Section 01 70 00: Cleaning installed work.
- .2 Remove excess adhesive without damage, from floor, base, and wall surfaces.
- .3 Clean and vacuum carpet surfaces.

**3.5 PROTECTION OF FINISHED WORK**

- .1 Section 01 70 00: Protecting installed work.
- .2 Do not permit traffic over unprotected floor surface.

**3.6 SCHEDULES**

- .1 Refer to Room Finish Schedule and Drawings for rooms to receive carpet tile types.
- .2 Refer to Room Finish Schedule and Drawings for rooms to receive wall base types: resilient base.

**END OF SECTION**

**Part 1            General**

**1.1            SECTION INCLUDES**

- .1      Surface preparation.
- .2      Painting.
- .3      Supply and install paint as indicated on the Drawings, Room Finish Schedule and specified herein. Provide painting including but not limited to following:
- .4      Exposed means visible in completed Work. In case of closets, cabinets and drawers, it includes their interiors.
- .5      Provide paint to exposed building surfaces as indicated on the Drawings, Room Finish Schedule and specified herein.
- .6      Paint Products which are installed throughout the Work that are required to be painted or finished and that are left unfinished or unpainted by other sections of the Work.
- .7      Painting and finishing shall include all new surfaces and all existing base building surfaces and as noted on Drawings.

**1.2            RELATED SECTIONS**

- .1      Section 01 11 00 – Miscellaneous General Work: cutting and patching and making good at mechanical and electrical service penetrations and exposed mechanical and electrical service lines
- .2      Section 08 11 13 - Standard Metal Door Frames
- .3      Section 08 14 16 - Flush Wood Doors
- .4      Section 08 31 13 - Access Doors and Frames
- .5      Section 09 21 16 - Gypsum Board Assemblies
- .6      Mechanical Division - Heating, Ventilating, and Air-Conditioning (HVAC) and Mechanical Identification.
- .7      Electrical Division – Electrical Identification.

**1.3            REFERENCES**

- .1      ASTM D523-89 - Test Method for Specular Gloss
- .2      OPCA - Ontario Painting Contractors Association
- .3      SSPC - Steel Structures Painting Council, "Steel Structures Painting Manual, Vol. 2"
- .4      ULC - Underwriters' Laboratories of Canada
- .5      CAN/ULC-S102 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

**1.4            ADMINISTRATIVE REQUIREMENTS**

- .1      Section 01 30 00: Project management and coordination procedures.
- .2      Coordination: Coordinate with other Work having a direct bearing on Work of this section.
- .3      Scheduling:

- .1 Schedule painting operations to prevent disruption of and by other trades.
- .2 Schedule painting operations to prevent disruption of occupants in and about building.

#### **1.5 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data:
  - .1 Submit Product data on all specified finishing products.
  - .2 Submit copies of WHMIS MSDS - Material Safety Data Sheets.
- .3 Samples:
  - .1 Submit two (2) samples, 100 x 150 mm (4 x 6 inch) in size illustrating selected colours and textures for each colour selected.
- .4 Installation Data: Manufacturer's special installation requirements including special surface preparation procedures and substrate conditions requiring special attention.
- .5 Schedule:
  - .1 If requested, submit Work schedule for various stages of Work when painting occupied areas for Consultant's review and Owner's approval.
  - .2 Submit schedule minimum of forty-eight (48) hours in advance of proposed operations.
  - .3 Obtain written authorization from Consultant for changes in Work schedule.

#### **1.6 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and Section 01 92 00: Submission procedures.
- .2 Record Documentation: Upon completion, provide itemized list of products used including the following:
  - .1 Manufacturer's name.
  - .2 Product name, type and use.
  - .3 Colour coding number.
  - .4 Manufacturer's Material Safety Data Sheets (MSDS).

#### **1.7 MAINTENANCE MATERIAL SUBMITTALS**

- .1 Section 01 78 39: Maintenance and extra material requirements.
- .2 Extra Stock Materials: Provide properly packaged maintenance material as follows.
  - .1 4 (1 gal) of each coating type and colour to Owner.
  - .2 Label each container with colour, type, texture and room locations in addition to manufacturer's label.

#### **1.8 QUALITY ASSURANCE**

- .1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.
- .2 Installer Qualifications: Qualified journeypersons or apprentices, provided they work under direct supervision of qualified journeyperson in accordance with trade regulations Company specializing in performing the work of this section with minimum three (3) years documented experience.

- .3 Conform to OPCA Painting Manual requirements for materials, preparation and workmanship.
- .4 Paint Products: Paint manufacturers and paint Products listed under the Approved Product List section of the OPCA manual and in this Section.

**1.9 REGULATORY REQUIREMENTS**

- .1 Conform to applicable code for flame and smoke rating requirements for finishes, storage, mixing, application and disposal of paint and related waste materials.

**1.10 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01 60 00: Transport, handle, store, and protect products.
- .2 Deliver products to site in sealed and labeled containers showing manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, colour designation, and written instructions for mixing and reducing.
- .3 Store paint materials at minimum ambient temperature of 7 degrees C (45 degrees F) and a maximum of 32 degrees C (90 degrees F), in dry, ventilated area and as required by manufacturer's written instructions.
- .4 Provide adequate fireproof storage lockers and warnings as required by authorities having jurisdiction for storing toxic and volatile/explosive/flammable materials.

**1.11 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Do not perform painting or decorating Work when ambient air and substrate temperatures are below 10 degrees C (50 degrees F) for both interior and exterior work, or as required by paint product manufacturer.
  - .2 Do not perform painting or decorating Work when relative humidity is above 85% or when dew point is less than 3 degrees C (5 degrees F) variance between the air/surface temperature required by paint Product manufacturer.
  - .3 Provide suitable weatherproof covering and sufficient heating facilities to maintain minimum ambient air and substrate temperatures for twenty-four (24) hours before, during and after paint application.
  - .4 Do not perform painting and decorating Work when maximum moisture content of substrate exceeds:
    - .1 Wood: 15%.
    - .2 Plaster and Gypsum Wallboard: 12 %.
    - .3 Masonry, Concrete, and Concrete Unit Masonry: 12%.
    - .4 Concrete Floors: 8%.
  - .5 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple cover patch test.
  - .6 Test concrete, masonry and plaster surfaces for alkalinity as required.
  - .7 Provide minimum lighting level of 323 lux (30 ft candles) is provided on surfaces to be painted or decorated.

**1.12 WASTE MANAGEMENT AND DISPOSAL**

- .1 Dispose of waste materials in accordance with Provincial Local authorities having jurisdiction.

- .2 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.
- .3 Place non-reusable materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
- .4 To reduce contaminants entering waterways, sanitary/storm drain systems or into the ground, adhere to the following procedures:
  - .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.
  - .5 Dry out empty paint cans prior to disposal or recycling.
  - .6 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.
- .5 Set aside and protect surplus and uncontaminated finish materials and deliver or arrange collection for verifiable re-use or re-manufacturing.

## **1.13 WARRANTY**

- .1 Warrant work of this Section for period of 5 years after Date of Ready for Take Over against defects and/or deficiencies in accordance with General Conditions of the Contract. Promptly correct any defects or deficiencies which become apparent within warranty period, to satisfaction of Consultant and at no expense to Owner. Defects include but are not limited to; material shrinkage, cracking, splitting and defective workmanship including but are not limited to failure in bubbling, blistering and delamination.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 "Top Line" products only are acceptable. Supply top line quality, manufactured by Benjamin Moore & Co. Ltd., or Dulux line by I.C.I. (Canada) Paints Inc., or Sico Paints, or Pratt & Lambert Paints Inc., or Sherwin-Williams Company, or other manufacturer acceptable to the University.
- .2 University reserves right to refuse any paint or finishing material if in his/her opinion it is not suitable or adequate for the use for which it is proposed.
- .3 Paint and finishing materials for each procedure listed in Finish Schedule shall be products of single manufacturer, and while based on products manufactured by Sherwin Williams other equivalent named paints by specified Top Line Products are acceptable. Paint and finishing materials shall be highest grade available by the manufacturer for the specific application. Products submitted as "or equal" options must be within 5g/l of the VOC content and meet the same performance specifications of the products listed herein.
- .4 Finish Schedule are based on products manufactured by:
  - .1 Benjamin Moore and Co. Ltd.
  - .2 General Paints

- .3 ICI Paints (Canada) Inc. – Dulux line
- .4 Niagara
- .5 PPG Canada Inc. (Coatings and Resins Division)
- .6 Para Paints Canada Inc.
- .7 Sherwin-Williams Company
- .8 Sico Coatings
- .5 Paint shall have excellent flowing and brushing properties. Paint shall cure free of sags, runs, wrinkles to yield desired finish specified
- .6 All paints must meet the VOC guidelines in accordance with the VOC Legislation announced by the Government of Canada, Canada Gazette, and in effect as of September 9th, 2010. All materials used shall be lead and mercury free and shall have the lowest VOC content possible while maintaining the performance characteristics required for the project.
- .7 Where required, paints and coatings shall meet flame spread and smoke developed ratings designated by local Code requirements and/or authorities having jurisdiction.
- .8 PAINT SUPPLIERS: Sherwin-Williams or equal as noted in acceptable list of suppliers. Note: equal products must be within 5 grams of the VOC limits associated with the SW product and meet or exceed the performance characteristics of the SW product listed for the specific application.
- .9 Other manufacturer's products bearing EcoLogo shall be deemed acceptable provided they meet other requirements specified herein.

## **2.2 MIXING AND TINTING**

- .1 Coatings: Ready-mixed and pre-tinted; re-mix all 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 Paste, Powder or Catalyzed Paint: Mixed in accordance with manufacturer's written instructions.
- .3 Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.
  - .1 Do not exceed paint manufacturer's recommendations for addition of thinner. Do not use kerosene or any such organic solvents to thin water-based paints.
  - .2 Thin paint for spraying in accordance with paint manufacturer's instructions.

## **2.3 COLOUR SCHEDULE**

- .1 Finish: To Custom, Premium Grade finish requirements, colour locations as shown on Drawings and selected by Consultant.
  - .1 Paint 1: PT-1 – Walls, Doors and Frames:
    - .1 100% latex, eggshell sheen.
    - .2 Colour: Benjamin Moore, Oxford White CC30.
  - .2 Paint 2: PT-2 – Wall in 2nd Floor Kitchenette:
    - .1 100% latex, eggshell sheen.
    - .2 Colour: Grey as selected by Consultant.
  - .3 Paint 3: PT-3 – Elevator Doors and Frames.
    - .1 Corotech Alkyd Urethane Enamel, gloss sheen.



- .2 Colour: Benjamin Moore, Blackberry 2119-20
- .4 Paint 4: PT-4 – Doors in Elevator Lobbies leading to Suites.
  - .1 Latex/acrylic semigloss
  - .2 Colour: As selected by Consultant
- .5 Paint 5: PT-5 - Washroom Partitions where indicated on the Drawings
  - .1 1st Coat: Primer – Extreme Bond B51WQ1150 (2-4 mils dft)
  - .2 2nd Coat: Corotech Alkyd Urethane Enamel
  - .3 3rd Coat: Corotech Alkyd Urethane Enamel
  - .4 Colour: as selected by Consultant.

## 2.4 GLOSS/SHEEN RATINGS

- .1 Paint gloss is defined as the sheen rating of applied paint with the following values:

Gloss Level	Description	Gloss @ 60 degrees	Sheen @ 85 degrees
G1	Matte Finish (flat)	0 to 5	10 max.
G2	Velvet-Like Finish	0 to 10	10 to 35
G3	Eggshell Finish	10 to 25	10 to 35
G4	Satin-Like Finish	20 to 35	35 min.
G5	Traditional Semi-Gloss Finish	35 to 70	
G6	Traditional Gloss	70 to 85	
G7	High Gloss Finish	More than 85	

- .2 Gloss level ratings of painted surfaces as specified:

- .1 All walls Satin or Semi-gloss
- .2 All floors Semi-gloss
- .3 All trim and doors Semi-gloss
- .4 All signage Flat

## 2.5 INTERIOR PAINT SYSTEMS

- .1 Ferrous Metal - Unexposed
  - .1 No further finishing required except for touch-up of damaged surfaces with Procryl Universal Primer, B66-310 Series(2-4 mils dft)
- .2 Ferrous Metal - Exposed
  - .1 1st Coat: Pro Industrial Pro-Cryl Universal Primer, B66-310 Series (2-4 mils dft)
  - .2 2nd Coat: Pro Industrial 100 (2.2-3.5 mils dft)
  - .3 3rd Coat: Pro Industrial 100 (2.2-3.5 mils dft)
- .3 Hot Ferrous Metal under 122 deg C - (250 deg F) (Heating Radiators if exposed)
  - .1 1st coat SW Zero VOC Acrylic Paint B66-660 (1-1.5mils dft)
  - .2 2nd coat SW Zero VOC Acrylic Paint B66-660 (1-1.5mils dft)
- .4 Hot Ferrous Metal under 185 deg C - (400 deg F), (Valve bodies, strainers and other items on high temperature lines if exposed)
  - .1 2 coats heat resistant enamel containing not less than 40% solids by volume aluminum flakes.
  - .2 1st coat SW Silverbrite Aluminum Paint B59S11 (1-1.5mils dft)

- .3 2nd coat SW Silverbrite Aluminum Paint B59S11 (1-1.5mils dft)
- .5 Insulated Pipes, Ducts, Conduit, Valves, Fittings and Equipment and Ancillary Items where "Exposed" in Completed Work
  - .1 1st Coat: ProGreen 200 Interior Latex Primer, B28W600 (1.5mils dft)
  - .2 2nd Coat Pro Mar 200 0 VOC
  - .3 3rd Coat: Pro Mar 200 0 VOC
- .6 Non-insulated Pipes, Ducts, Conduit, Valves, Fittings and Equipment and Ancillary Items where "Exposed" in Completed Work
  - .1 1st Coat: Pro Industrial Pro-Cryl Universal Primer, B66-310 Series (2-4 mils dft)
  - .2 2nd Coat Pro Industrial Acrylic B66 Series
  - .3 3rd Coat: Pro Industrial Acrylic B66 Series
- .7 Galvanized Steel/Aluminum
  - .1 1st Coat: Pro Industrial Pro-Cryl Universal Primer, B66-310 Series (2-4 mils dft)
  - .2 2nd Coat: Pro Mar 200 0 VOC
  - .3 3rd Coat: Pro Mar 200 0 VOC
- .8 Elevator Doors and Frames
  - .1 1st Coat: Primer – Extreme Bond B51WQ1150 (2-4 mils dft)
  - .2 2nd Coat: Corotech Alkyd Urethan Enamel
  - .3 3rd Coat: Corotech Alkyd Urethan Enamel
- .9 Washroom Partitions where indicated
  - .1 1st Coat: Primer – Extreme Bond B51WQ1150 (2-4 mils dft)
  - .2 2nd Coat: Corotech Alkyd Urethan Enamel
  - .3 3rd Coat: Corotech Alkyd Urethan Enamel
- .10 Woodwork - Vertical Surfaces for Painting
  - .1 1st Coat: Wall & Wood Primer, B28W8111 (1.8 mils dft)
  - .2 2nd Coat: : Pro Industrial Acrylic B66 Series
  - .3 2nd Coat: : Pro Industrial Acrylic B66 Series
  - .4 Finish: (Semi-gloss) (High-gloss)
- .11 Woodwork - For Clear Finishes and Staining
  - .1 Follow manufacturer's instructions for number of coats and method of applying interior stain and clear finishes.
- .12 Woodwork - Natural or Stained Close Grain Wood (Fire Retardant) as per Flame Control chosen specific to project
  - .1 1 coat non bleeding alkyd stain
  - .2 1 coat sealer
  - .3 2 coats fire retardant intumescent varnish
  - .4 1 coat fire resistant varnish
  - .5 Finish: Semi-gloss
- .13 Woodwork - Natural or Stained Open Grain Wood (Fire Retardant) as per Flame Control chosen specific to project

- .1 1 coat stained filler
- .2 1 coat sealer
- .3 2 coats fire retardant intumescent varnish, flat
- .4 1 coat fire resistant varnish
- .5 Finish: Semi-gloss
- .14 Cast-In-Place Concrete - Vertical Surfaces
  - .1 1 coat Loxon Masonry Primer A24W3 (3.2mils dft)
  - .2 2nd Coat: Pro Mar 200 0 VOC
  - .3 3rd Coat: Pro Mar 200 0 VOC
  - .4 Finish: (Satin) (Semi-gloss)
- .15 Cast-In-Place Concrete Floors
  - .1 2 coats SW Waterbased Catalyzed Epoxy B70 Series(2.5-3mils dft)
  - .2 Finish: (Semi-gloss) (High-gloss)
- .16 Underside of Precast Concrete Floor Slabs
  - .1 coat Loxon Masonry Primer A24W3 (3.2mils dft)
  - .2 2nd Coat: Pro Mar 200 0 VOC
  - .3 3rd Coat: Pro Mar 200 0 VOC
  - .4 Finish: Flat
- .17 Concrete Block Masonry
  - .1 1 coat latex Preprite Block Filler B25W25 (8 mils dft)
  - .2 2nd Coat: Pro Mar 200 0 VOC
  - .3 3rd Coat: Pro Mar 200 0 VOC
  - .4 Finish: (Satin) (Semi-gloss)
- .18 Gypsum Board and Plaster - Vertical Surfaces
  - .1 1 coat latex Pro Mar 200 0 VOC Latex Sealer
  - .2 2nd Coat: Pro Mar 200 0 VOC (1.8 mils dft)
  - .3 3rd Coat: Pro Mar 200 0 VOC (1.8 mils dft)
  - .4 Finish: (Satin) (Semi-gloss)
- .19 Gypsum Board and Plaster – Ceilings
  - .1 1 coat SW Waterborne Dryfall Lo VOC B42 Series
  - .2 Finish: Flat
  - Or
  - .1 1 coat latex Pro Mar 200 0 VOC Latex Sealer
  - .2 2nd Coat: Pro Mar 200 0 VOC (1.8 mils dft)
  - .3 3rd Coat: Pro Mar 200 0 VOC (1.8 mils dft)
  - .4 Finish: Flat

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that substrate conditions surfaces are ready to receive work as instructed by the product manufacturer.
- .3 Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- .4 Test shop applied primer for compatibility with subsequent cover materials.
  - .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
  - .2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.
  - .3 Apply paint when previous coat of paint is dry or adequately cured.

**3.2 PREPARATION**

- .1 Strip and remove existing wallcoverings where indicated on Drawings
- .2 Prepare surfaces in accordance with OPCA requirements.
- .3 Remove and store or mask miscellaneous hardware and surface fittings such as electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to painting. Clean and replace upon completion of painting Work in each area. Remove doors before painting to paint bottom and top edges and re-hung.
- .4 Protect adjacent surfaces and areas, including rating and instruction labels on doors, frames, equipment, piping, from painting operations with drop cloths, shields, masking, templates, or other suitable protective means.
- .5 Correct defects and clean surfaces which affect work of this section. Start of finish painting of defective surfaces indicates acceptance of substrate and making good defects will be at no cost to Owner.
- .6 Confirm preparation and primer used with fabricator of steel items.
- .7 Seal with shellac and seal marks which may bleed through surface finishes.
- .8 Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- .9 Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- .10 Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply compatible latex based sealer or primer.
- .11 Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
- .12 Concrete Floors: Remove contamination; acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- .13 Copper Surfaces Scheduled for a Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Apply vinyl etch primer immediately following cleaning.

- .14 Copper Surfaces Scheduled for a Natural Oxidized Finish: Remove contamination by applying oxidizing solution of copper acetate and ammonium chloride in acetic acid. Rub on repeatedly for required effect. Once attained, rinse surfaces with clear water and allow to dry.
- .15 Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
- .16 Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- .17 Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- .18 Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- .19 Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by power tool hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- .20 Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.
- .21 Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
- .22 Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.
- .23 Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied.
- .24 Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior caulking compound after sealer has been applied.
- .25 Glue-Laminated Beams: Prior to finishing, wash surfaces with solvent, remove grease and dirt.
- .26 Wood and Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.

### **3.3**

#### **APPLICATION**

- .1 Apply paint or stain in accordance with OPCA Painting Manual Custom and Premium Grade finish requirements.
- .2 Apply products to adequately prepared surfaces, within moisture limits and acceptable environmental conditions.
- .3 Apply paint finish in areas where dust is no longer being generated or when wind or ventilation conditions will not affect quality of finished surface.
- .4 Apply each coat to uniform finish.

- .5 Tint each coat of paint progressively lighter to enable confirmation of number of coats.
- .6 Unless otherwise approved, apply a minimum of four (4) coats of paint where deep or bright colours are used to achieve satisfactory results.
- .7 Sand and dust between each coat to provide an anchor for next coat and to remove defects visible from a distance up to 1000 mm (39 inch).
- .8 Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.
- .9 Allow applied coat to dry before next coat is applied.
- .10 Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- .11 Continue paint finish behind wall-mounted items such as chalk and tack boards.
- .12 Prime concealed surfaces of interior exterior woodwork with primer paint.
- .13 Prime concealed surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25% with mineral spirits.

### **3.4 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT**

- .1 Refer to Mechanical Division and Electrical Division for schedule of colour coding and identification banding of equipment, duct work, piping, and conduit.
- .2 Unless otherwise specified, paint all unfinished conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and texture to match adjacent surfaces in the following areas:
  - .1 Exposed-to-view exterior and interior areas.
  - .2 High humidity interior areas.
  - .3 Boiler room, mechanical and electrical rooms.
- .3 In unfinished areas leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish; touch up scratches and marks.
- .4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .5 Do not paint over nameplates.
- .6 Paint inside of ductwork and convactor and baseboard heating cabinets where visible behind louvers, grilles and diffusers for a minimum of 460 mm (18 inch) or beyond sight line, whichever is greater, with primer and one (1) coat of matt black (non-reflecting) paint.
- .7 Paint the inside of light valances gloss white.
- .8 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .9 Paint red or band all fire protection piping and sprinkler lines in accordance with mechanical specification requirements. Keep sprinkler heads free of paint.
- .10 Paint yellow or band all natural gas piping in accordance with mechanical specification requirements.
- .11 Backprime and paint face and edges of plywood service panels for telephone and electrical equipment before installation gray, semi-gloss to match adjacent wall surface. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

- .12 Paint exterior steel electrical light standards. Do not paint outdoor transformers and substation equipment.
- .13 Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings that were removed prior to finishing.

**3.5 FIELD QUALITY CONTROL**

- .1 Acceptable Surfaces:
  - .1 No visible defects are evident on vertical surfaces when viewed at normal viewing angles from a distance of not less than 1000 mm (39 inch).
  - .2 No visible defects are evident on horizontal surfaces when viewed at normal viewing angles from a distance of not less than 1000 mm (39 inch).
  - .3 No visible defects are evident on ceiling, soffit and other overhead surfaces when viewed at normal viewing angles.
  - .4 Uniformity of colour, sheen, texture, and hiding across full surface area.

**3.6 CLEANING**

- .1 Section 01 70 00: Cleaning installed work.
- .2 Collect waste material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

**END OF SECTION**

**Part 1 General**

**1.1 SECTION INCLUDES**

- .1 Kitchenette Locations Requiring: Paper Towel Dispensers and Soap Dispenser.
- .2 Attachment hardware.

**1.2 RELATED SECTIONS**

- .1 Section 06 10 53 - Miscellaneous Rough Carpentry: Wood Blocking.
- .2 Section 09 21 16 - Gypsum Board Assemblies
- .3 Section 09 91 10 - Painting
- .4 Mechanical Division
- .5 Electrical Division

**1.3 REFERENCES**

- .1 ASTM A123/A123M-13 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .2 ASTM A167-99(2009) - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- .3 ASTM A269-13 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
- .4 ASTM A1008/A1008M-13 - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- .5 ASTM B456-11e1 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- .6 CSA-B651-12 - Accessible Design for the Built Environment.

**1.4 ADMINISTRATIVE REQUIREMENTS**

- .1 Section 01 30 00: Project management and coordination procedures.
- .2 Coordination:
  - .1 Coordinate with other work having a direct bearing on work of this section.
  - .2 Coordinate the work with the placement of internal wall reinforcement to receive anchor attachments.

**1.5 SUBMITTALS FOR REVIEW**

- .1 Section 01 30 00: Submission procedures.
- .2 Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.

**1.6 SUBMITTALS FOR INFORMATION**

- .1 Section 01 30 00: Submission procedures.



- .2 Installation Data: Manufacturer's special installation requirements including special procedures .

## **1.7 CLOSEOUT SUBMITTALS**

- .1 Section 01 78 39 and Section 01 92 00: Submission procedures.

## **1.8 REGULATORY REQUIREMENTS**

- .1 Conform to applicable code CSA-B651 for accessibility requirements for the handicapped.

## **Part 2 Products**

### **2.1 PRODUCTS**

- .1 Refer to Schedules in Part 3. Substitutions: In accordance to Section 01 60 00.

### **2.2 MATERIALS**

- .1 Sheet Steel: ASTM A1008/A1008M.
- .2 Stainless Steel Sheet: ASTM A167, Type 304.
- .3 Tubing: ASTM A269, stainless steel.
- .4 Adhesive: Two-component epoxy type Contact type, waterproof.
- .5 Fasteners, Screws, and Bolts: Hot dip galvanized, tamper-proof .
- .6 Expansion Shields: Fibre, lead, or rubber as recommended by accessory manufacturer for component and substrate.

### **2.3 FABRICATION**

- .1 Weld and grind joints of fabricated components, smooth.
- .2 Form exposed surfaces from single sheet of stock, free of joints. Form surfaces flat without distortion. Maintain surfaces without scratches or dents.
- .3 Fabricate grab bars of tubing, free of visible joints, return to wall with end attachment flanges. Form bar clear of wall surface. Knurl grip surfaces.
- .4 Shop assemble components and package complete with anchors and fittings.
- .5 Provide steel anchor plates, adapters, and anchor components for installation.

### **2.4 KEYING**

- .1 Supply 4 keys for each accessory to Owner.
- .2 Master key all accessories.

### **2.5 FINISHES**

- .1 Galvanizing: Hot-dip galvanized to ASTM A123/A123M, appropriate grade for type and size of steel material indicated . Galvanize ferrous metal and fastening devices.
- .2 Shop Primed Ferrous Metals: Pre-treat and clean, spray apply one coat primer and bake.
- .3 Enamel: Pre-treat to clean condition, apply one (1) coat primer and minimum two (2) coats epoxy baked enamel.

- .4 Chrome/Nickel Plating: ASTM B456, Type SC 2, satin finish.
- .5 Stainless Steel: No. 4 Satin finish.
- .6 Back paint components where contact is made with building finishes to prevent electrolysis.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that field measurements are as instructed by the manufacturer indicated on product data indicated.
- .3 Verify that site conditions are ready to receive work and dimensions are as indicated on Shop Drawings instructed by the manufacturer.
- .4 Verify exact location of accessories for installation.

**3.2 PREPARATION**

- .1 Deliver inserts and rough-in frames to site for timely installation.
- .2 Provide templates and rough-in measurements as required.

**3.3 INSTALLATION**

- .1 Install accessories to manufacturer's written instructions .
- .2 Install plumb and level, securely and rigidly anchored to substrate.

**SCHEDULE: WASHROOM WC**

- .3 Toilet Tissue Dispensers: Existing
- .4 Paper Towel Dispenser and Waste Receptacle: Existing
- .5 Soap Dispensers: Existing
- .6 Feminine Napkin Dispenser: Existing
- .7 Sanitary Napkin Disposal: Existing.
- .8 Mirrors: Existing:

**3.4 SCHEDULE: 2<sup>ND</sup> FLOOR KITCHENETTE**

- .1 One (1) Paper Towel Dispenser: Pull Down Towel Dispenser: with paper towel capacity, lockable and ADA compliant.
  - .1 Manufacturer/Model:
    - .1 Tork Elevation PeakServe® Mini Size, 552538, Continuous Hand Towel Dispenser, Black, [www.tork.ca](http://www.tork.ca)
- .2 One (1) Foam Soap Dispenser, Wall mounted: Install quantities and locations shown on the drawings and details.
  - .1 Manufacturer/Model:
    - .1 Purell ES8, black, supplied and installed by Contractor.

- .2 Material: 1-1/4" (32mm dia., 18 ga. (1.3mm) type 304 stainless steel bar uses #4 satin finish with flanges and covers, with antique white solid black core plastic laminate panel back
- .3 Anchoring: Concealed:

**END OF SECTION**